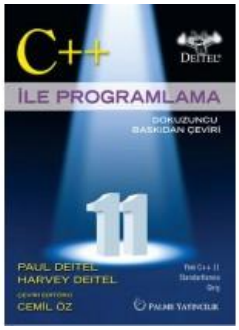
NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Computer Programming	BİM-213	2/I	2+0+2	3	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	No
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	Purpose of the computer programming course is; develop students' problem solving skills and programming abilities by teaching them C++ language which is modern, most common oop language and used in academic and business areas.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Know C++ terminology 2. Know OOP concepts 3. Develop Object Oriented programs 4. Analysis any C++ program 5. Test any C++ program
Content of the Course	:	Object oriented programming and generic programming techniques, C++ basic members,functions, pointers,class concept, data abstraction and other object oriented concepts

<table>
<tr><td>Course Book</td><td>1. C++ Programming(Paul Deitel, Harvey Deitel,Çeviri Editörü : Cemil Öz, Translate from 9. Pres PALME, 2016)
 
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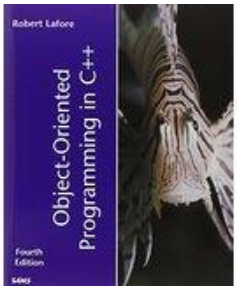
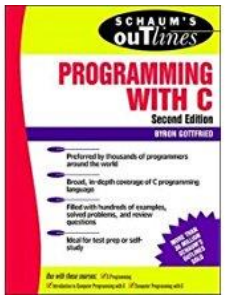
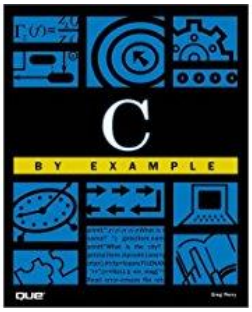
<tr><td>Other Sources</td><td>1. Object-Oriented Programming in C++ (4.Press) , Robert LAFORE
2. Programming With C, Byron S. GOTTFRIED
3. C By Example, Greg PERRY
 

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<tr><td>Achievement Evaluation System</td><td colspan="6">
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<tr><th colspan="2">Activites</th><th>Base Mark</th><th>Unit</th><th colspan="2">Contribution in Evaluation, %</th></tr>
<tr><td colspan="2">Midterm</td><td>45</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Short-Exams</td><td>45</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Term Homework/Project</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Lab. Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Other Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>45</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
</table>
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Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level			**1**				**2**			**3**		**4**		**5**		
			Very Low				Low			Medium		High		Very High		
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	3	1	1	1	5	1	3	4	3	1	1	1	2	1	2	1
DK-2	3	1	1	1	5	4	3	4	3	1	1	1	2	1	2	1
DK-3	3	5	1	1	5	5	3	5	3	1	1	1	2	1	2	1
DK-4	1	3	5	1	5	1	3	3	5	1	1	1	2	1	2	1
DK-5	1	1	5	1	5	1	3	3	5	1	1	1	5	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Computers and improvment of their usage, basic hardware and software informations, introduction to operation systems, network and computer network, internet, cable/wireless communication.	
2	Computer systems used in marine. Examples of the use of computer and computerized systems in shipping.	
3	Symbolic computation. Programming languages : a) programming languages' description and their improvement b) examples to programming languages and optional usings.	
4	Using ready programming systems : a) Examples to finished softwares, b) Using computer as word processor (Word etc.).	
5	Using ready program systems: c) Using of computational tables in computer(Lotus, Exce Quatpro etc.), scientific visualization, preparing presentation.	
6	Using ready program systems: d) data storage, e) network systems,communication with computer (Web, internet).	
7	Enter to C++ programming language, basic members of C++.	Programming.
8	Control structures	Programming.
9	Midterm	
10	Input Output process	Programming.
11	Functions	Programming.
12	Arrays	Programming.
13	Pointers ve String	Programming.
14	Class Concept and Data abstraction	Programming.
15	Operator Overloading	Programming.
16	Inheritance and Composition of Classes	Programming.

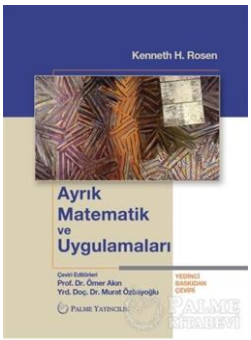
ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	2	30
Application	15	2	30
Studying Period out of Course	15	1	15
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	5	5
Final Exam	1	2	2
Individual Study for Final Exam	1	6	6
TOTAL WORKLOAD	90 Hour		
ECTS OF COURSE	Total workload / 30 = 90 / 30 = 3		3 Credit

Last update date	28.02.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Discrete Mathematic	BİM-214	2/I	3+0+0	3	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	No
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	Purpose of the course is; improve students' mathematical modelling and abstract thinking skills by teaching them fundemental mathematical structures and methods which are used in computer engineering study field.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Knows computer mathematic. 2. Knows proving methods and apply them. 3. Knows correlation and functions and apply them to problems. 4. Knows graph problems and solutions and to able to apply them to problems. 5. To able to examinate problems from a scientific perpective.
Content of the Course	:	Computer arithmetic, algorithms, logical circuit design, finite state machines from formal perpective. Proof methods between subjects, graphic theory, trees, recur, combination problems, counting methods, and finite state machines.

<table>
<tr><td>Course Book</td><td>1. Discrete Mathematic and Applications (K.H.Rosen, Translation Editors : Prof.Dr.Ömer Akın, Yrd.Doç.Dr.Murat Özbayoğlu, PALME)
 
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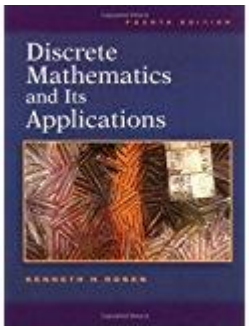
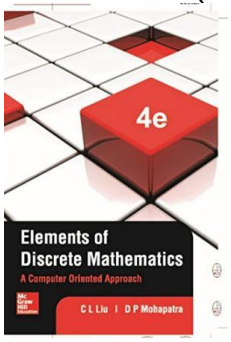
<tr><td>Other Sources</td><td>1. Discrete Mathematıcs (K.H. Rosen)
2. Elements Of Discrete Mathematıcs (C.L. Liu)
 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<tr><td>Projects</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Term Homework/Project</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Lab Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>45</td><td>1</td><td colspan="2">60%</td></tr>
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		1	2	3	4	5
1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level			**1**				**2**			**3**		**4**			**5**	
			Very Low				Low			Medium		High			Very High	
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	5	4	2	1	3	4	1	1	1	1	1	1	2	1	2	1
DK-2	5	4	2	1	3	4	1	1	1	1	1	1	2	1	2	1
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DK-4	5	4	2	1	3	4	1	1	1	1	1	1	2	1	2	1
DK-5	5	4	2	1	3	4	1	1	1	1	1	1	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Introduction to Discrete Mathematic	Problem Solving
2	Mathematical Prof Methods	Problem Solving
3	Clustering Theory and Clustering Algebra	Problem Solving
4	Correlation and Operations	Problem Solving
5	Functions	Problem Solving
6	Functions	Problem Solving
7	Cage Structures and Boolean Algebra	Problem Solving
8	Cage Structures and Boolean Algebra	Problem Solving
9	Midterm	
10	Graph Concept	Problem Solving
11	Graph Concept	Problem Solving
12	Trees	Problem Solving
13	Graph Concept and Applications	Problem Solving
14	Replication Correlations	Problem Solving
15	Replication Correlations	Problem Solving
16	Finite State Machines	Problem Solving

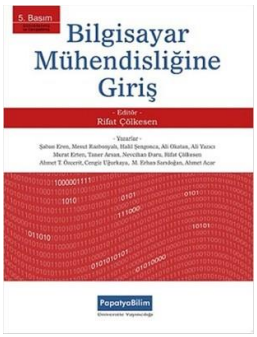
ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	3	45
Application	-	-	-
Studying Period out of Course	15	2	30
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	5	5
Final Exam	1	2	2
Individual Study for Final Exam	1	6	6
TOTAL WORKLOAD	90 Hour		
ECTS OF COURSE	Total workload / 30 = 90 / 30 = 3		3 Credit

Last update date	01.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Introduction to Computer Engineering	BİM-215	2/I	2+0+0	2	2

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	No
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	Purpose of the course is; Giving fundemental informations which belong to computer engineering subjects and earn basic informations/concepts to person about lectures which were given througout his/her education.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Learn goal of the lectures that he/she will take in his/her comp. eng. education. 2. Have common information about computer engineering.
Content of the Course	:	Basic concepts in computer engineering, boolean algebra, algorithms and flow diagram, programming languages, operation systems, computer architecture and hardware, computer network and internet, count system and code, software engineering, data structures and models, database management system and SQL, hardware engineering.

<table>
<tr><td>Course Book</td><td>1. Introduction to Computer Engineering , Rıfat Çölkesen
 
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<tr><td>Projects</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Term Homework/Project</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Lab. Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Other Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>45</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
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1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level			**1**			**2**			**3**	**4**		**5**				
			Very Low			Low			Medium	High		Very High				
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	3	1	1	1	5	1	3	4	3	1	1	1	2	1	2	1
DK-2	3	1	1	1	5	4	3	4	3	1	1	1	2	1	2	1

WEEKLY TOPICS	
Week	**TOPICS**
1	Fundemental Concepts in Computer Engineering
2	Boolean Algebra
3	Boolean Algebra
4	Algorithms and Flow Charts
5	Programming Languages
6	Operation Systems
7	Microprocessors and Assembly Programming
8	Computer Network and Internet
9	Midterm
10	Count and Code Systems
11	Software Engineering
12	Software Engineering
13	Data Structures and Models
14	Data Structures and Models
15	Database Management System and Hardware
16	Hardware Engineering

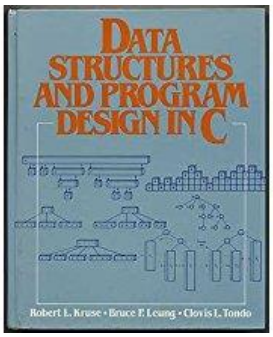
ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	2	30
Application	-	-	-
Studying Period out of Course			
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	1	1
Individual Study for Mid-Term	1	1	1
Final Exam	1	1	1
Individual Study for Final Exam	1	27	27
TOTAL WORKLOAD	60 Hour		
ECTS OF COURSE	Total workload / 30 = 60 / 30 = 2		2 Credit

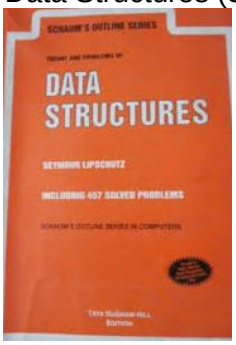
Last update date	01.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Data Structures and Algorithms	BİM-221	2/II	2+0+2	3	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Computer Programming
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	The aim of this course is to enable students to understand the methods of data presentation and storage in computer programming, sort data in a Data Group, reach the desired data most effectively, to know the basic index and graph algorithms and to realize these algorithms.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Know fundemental algortihm analysis 2. Know basic data structures in computer programming. 3. Develop program by using data structure. 4. Apply recursive approach. 5. Apply sorting and searching algorithms. 6. Apply basic graph and index algorithms.
Content of the Course	:	Basic concepts in algorithms, algorithm analysis, recursion logic, lists, queue, heap, tree data structures, search and sorting algorithms and basic index and graph algorithms are described in this course. The students will be taught the methods used in organizing, accessing and organizing data while implementing information system projects and the advantages/disadvantages of each other. In this course, it will be ensured that this information will be improved through programming projects on the applications of data structures and algorithms.

<table>
<tr><td>Course Book</td><td>1. Data Structures and Algorithms (Rıfat Çölkesen – PAPATYA 2002 ANKARA)
 
</td></tr>
<tr><td>Other Sources</td><td>1. Data Structures and Program Design in C (Robert Kruse, C.L. Tondo, Bruce Leung)
2. Theory and Problems of Data Structures (S. Lipschutz)
 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Sheet No	Program Qualifications	Course Contribution Level				
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1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level	**1**		**2**					**3**			**4**			**5**		
	Very Low		Low					Medium			High			Very High		
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	4	5	2	3	5	4	2	1	2	3	3	3	2	1	2	1
DK-2	4	5	2	3	5	4	2	1	2	3	3	3	2	1	2	1
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DK-5	4	5	2	3	5	4	2	1	2	3	3	3	2	1	2	1
DK-6	4	5	2	3	5	4	2	1	2	3	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	INTRODUCTION TO ALGORITHMS - Introduction to Algorithms - Basic Concepts	Program development
2	ALGORITHM ANALYSIS - Algorithm Analysis - RAM Model	Program development
3	QUEUE DATA STRUCTURE AND RELATED LİSTS - Related Lists - Queue Data Structure - Priority Queue - Circle Queue	Program development
4	STACK DATA STRUCTURE - Stack data structure - Related Stacks	Program development
5	RECURSION - Recursion Definition and Recursive Tracking - Recursive Algoritm Design	Program development
6	TREE DATA MODEL - Basic Concepts about Tress - Keeping Trees on RAM - Binary Trees and Accessing Nodes	Program development
7	SEARCHING ALGORITHMS - Binary Search and Binary Search Trees	Program development

	- Algorithms for Binary Search Trees - Balanced Trees and AVL Tree Structure	
8	SEARCHING ALGORITHMS - Hash Tables - Hash Functions - Open Adressing	Program development
9	MİDTERM	
10	SORTING ALGORITHMS - Basic Concepts - Insertion Sorting - Selection Sort	Program development
11	SORTING ALGORITHMS - Bubble Sort - Merge Sort - Quick Sort	Program development
12	SORTING ALGORITHMS - Heap Sort	Program development
13	SORTING ALGORITHMS - Comparing Algorithms	Program development
14	DIRECTORY PROCESSING - Simple Directory Matching Algorithm - Rabin-Karp Algorithm - Huffman Codification	Program development
15	BASIC GRAPH ALGORTIHMS - Graph Presentation - Depth-First Search - Breath-First Search	Program development
16	BASIC GRAPH ALGORTIHMS - Shortest Path Problem ve Dijkstra Algorithm - Minimum Spanning Tree Problem ve Kruskal’s Algorithm	Program development

ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	2	30
Application	15	2	30
Studying Period out of Course	15	1	15
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	5	5
Final Exam	1	2	2
Individual Study for Final Exam	1	6	6
TOTAL WORKLOAD	90 Hour		
ECTS OF COURSE	Total workload / 30 = 90 / 30 = 3		3 Credit

Last update date	04.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Object Oriented Programming	BİM-222	2/II	1+0+2	2	2

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Computer Programming
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	The aim of this course is to teach problem solving and structural programming techniques using Java, to enable students to comprehend research methods, to have positive and scientific views and ideas and to prepare the groundwork and to make them think deeply and deeply.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Develop programms by using JAVA. 2. Knows object-oriented programming conceps. 3. Develop programms by design graphical user interface 4. Knows use of multiple threads 5. Will be able to develop programs that process data in the file.
Content of the Course	:	In this course, the basics of Object Oriented Programming, basic concepts of Java and programming, class definition, applets, file operations, directories, and search/sort algorithms are processed and application is made. Topics include object oriented Programming, Java programming concept, inheritance, encapsulation and polymorphism, event mechanism, error capture, graphical user interface, multiple threads and file and directory operations.

<table>
<tr><td>Course Book</td><td>1. Java Programming Language and Software Design (Altuğ B. Altıntaş – PAPATYA 2012 Ankara)
 
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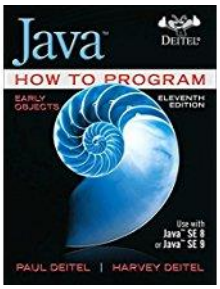
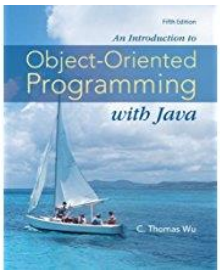
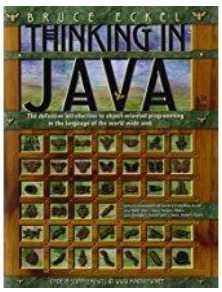
<tr><td>Other Sources</td><td>1. Java How to Program - Deitel&Deitel
2. An Introduction to OOP with JAVA - Thomas WU
3. Thinking in JAVA - Bruce ECKEL
 

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<tr><td colspan="2">Final Exam</td><td>45</td><td>1</td><td colspan="2">60%</td></tr>
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3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level			**1**					**2**				**3**	**4**		**5**	
			Very Low					Low				Medium	High		Very High	
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	3	4	1	1	5	1	1	1	1	3	3	3	2	1	2	1
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DK-5	1	1	5	1	1	1	1	4	1	3	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	INTRODUCTION TO OBJECT ORIENTED PROGRAMMING - Internet and Network Programming - Intorduction to JAVA - History of JAVA	Problem Solving
2	CONTROL STRUCTURES AND ARRAYS - Operators - Selection and Loop Structures - break and continue statement - Arrays' Definition and usage	Problem Solving
3	CONTROL STRUCTURES AND ARRAYS - Operators - Selection and Loop Structures - break and continue statement - Arrays' Definition and usage	Problem Solving
4	METHODS - Java Programming Modules - Method Definiton - Transferring parameters to Methods	Problem Solving
5	OBJECT-ORIENTED PROGRAMMING - Scope - Access Control to Class Members - Constructor and Finalizer Concepts	Problem Solving
6	STRİNG AND CHARACTERS - Fundementals of String and Characters - Using String Class and its Methods	Problem Solving

7	OBJECT-ORIENTED PROGRAMMING - Super and Subclass Concepts - Encapsulation, Information Hiding - Inheritance, Polymorphism	Problem Solving
8	OBJECT-ORIENTED PROGRAMMING - Calling Dynamic Method - Abstract Classes	Problem Solving
9	MIDTERM	
10	OBJECT-ORIENTED PROGRAMMING - Inner Classes - Event Mechanism	Problem Solving
11	EXCEPION HANDLİNG - Exception Mechanism - Try-catch Block	Problem Solving
12	GRAPHICAL USER INTERFACES - Swing packages - AWT packages - GUI basic members - Layout Managers	Problem Solving
13	GRAPHICAL USER INTERFACES - Usage of Other GUI Members	Problem Solving
14	GRAPHICAL USER İNTERFACES - Preparing programms using GUI	Problem Solving
15	MULTITHREADING - Thread Concept - Using Threads	Problem Solving
16	FILE OPERATIONS - File Operations - Using File Operations in Programms	Problem Solving

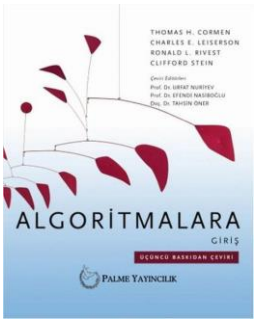
ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	1	15
Application	-	-	-
Studying Period out of Course	15	2	30
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	5	5
Final Exam	1	2	2
Individual Study for Final Exam	1	6	6
TOTAL WORKLOAD	60 Hour		
ECTS OF COURSE	Total workload / 30 = 60 / 30 = 2		2 Credit

Last update date	04.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Algorithm Analysis and Design	BİM-311	3/I	3+0+0	3	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Computer Programming, Object-Oriented Programming, Data Structures and Algorithms
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	Purpose of this course is; teaching students how to use algorithmic approach , basic algorithms, algorithm analysis and design tecniques for solution of problems
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Will be able to algorithmically approach the solution of problems. 2. Knows basic algorithms. 3. Will be able to analyze algorithms. 4. Will be able to design algorithms to solve problems 5. Know accountabilities.
Content of the Course	:	In this course, the basic concepts will be explained by introducing the algorithms and then calculating the time and complexity of the algorithms. Complex analysis of recursion and recursion algorithm analysis methods and sorting algorithms will be taught. General design techniques; divide and conquer, Dynamic Programming Greedy approach will be provided. After detailed indexing and basic graph algorithms, general information about NP Completeness theory will be given.

<table>
<tr><td>Course Book</td><td>1. Introduction to Algorithms (T. H. Cormen, C. E. Leiserson, R. L. Rivest Çeviri editörleri: Urfat Nuriyev, Efendi Nasiboğlu, Tahsin Öner, PALME, 2016)
  </td></tr>
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 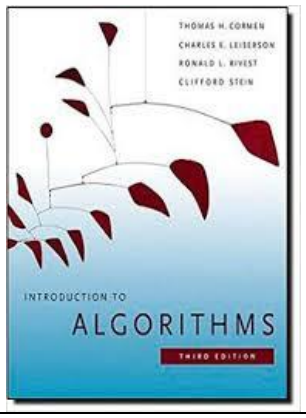 </td></tr>
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2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
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PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level	**1**		**2**					**3**		**4**		**5**				
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Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
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DK-5	4	5	3	3	5	5	2	1	3	3	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	ALGORITHMS - Introduction to Algorithms - Basic Concepts - Algorithm Analysis and Design	Problem Solving
2	ALGORITHM ANALYSIS - Running Time Function - Algorithm Classification - Asymptotic Notation	Problem Solving
3	RECURSIVE ALGORITHM ANALYSIS - Recursıve Functions and Iteration Method - Substitution Method - Master Method	Problem Solving
4	SORTING AND COMPLEXITY ANALYSIS - Heap Sort Algortihm and Analyze - Quick Sort Algortihm and Analyze - Random Quick Sort Algortihm and Analyze	Problem Solving
5	LINEAR TIME SORTING - Lower Limit In Ranking - Unparalleled Sorting Counting Sort Radix Sort and Bucket sort	Problem Solving
6	DIVIDE & CONQUER - DIVIDE & CONQUER Members - Max-Min Problems - Merge Sort	Problem Solving

7	SEQUENCE STATISTICS - Random Divide & Conquer - Expected Linear Time – Selection in Analysis - The Worst Linear Time Selection in Analysis	Problem Solving
8	GREEDY APPROACH - Greedy Approach Members - Task Scheduling Problem - Hufmann Codification	Problem Solving
9	MIDTERM	
10	DYNAMIC PROGRAMMING APPROACH - Introduction to Dynamic Programming - Dynamic Programming Members - 0/1 Knapsack Problem	Problem Solving
11	DYNAMIC PROGRAMMING - The Matrix Array Multiplication Problems - Longest Common Subsequence Problem - Dynamic Programming and Greedy Approach Comparing	Problem Solving
12	AMORTIZATION ANALYSIS - Dynamic Tables and Aggregation Method - Accounting Method - Potential Method	Problem Solving
13	BASIC GRAPH ALGORITHMS - Graph Presentation, Depth-First and Breath-First Search - Minimum Spanning Tree Problem and Kruskal Algorithm - The Shortest Path Problem and Dijkstra Algorithm - All Binary The Shortest Path Problem and Bellman-Ford Algorithm	Problem Solving
14	GRAPH ALGORITHMS - Floyd-Warshal Algorithm - Johnson Algorithm - Travel Salesman Problem ve Network Flow Problem	Problem Solving
15	DIRECTORY MAPPING - Basic Directory Mapping Algorithm - Rabin-Karp Algorithm - Knuth-Morris-Pratt Algorithm	Problem Solving
16	NP-COMPLETENESS THEORY - Polynomial Time Problems - NP Complexity Class - NP-Completeness and Reducibility	Problem Solving

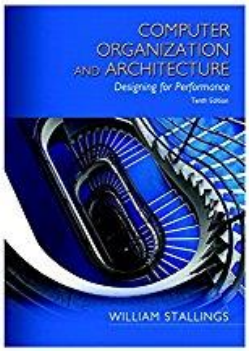
ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	3	45
Application	-	-	-
Studying Period out of Course	15	1	15
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	13	13
Final Exam	1	2	2
Individual Study for Final Exam	1	13	13
TOTAL WORKLOAD	90 Hour		
ECTS OF COURSE	Total workload / 30 = 90 / 30 = 5		3 Credit

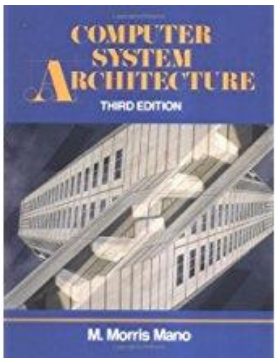
Last update date	04.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Computer Organization and Architecture	BİM-312	3/I	3+0+0	3	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	No
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	The aim of this course is to enable students to have knowledge about computer hardware, operating principles and design to establish the relationship between computer hardware and software and to be able to perform microgramming on a basic level.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Will be able to know computer arithmetic and command structure 2. Will be able to know member of computer architecture and their functions. 3. Will be able to know computer organization and its principles of operation. 4. Will be able to do microprogramming 5. Will be able to know business line structure, array processors and multiple processor architecture.
Content of the Course	:	In this course, computer arithmetic, computer organization and design, computer programming, Central Processing Unit, The Business Line operations and directory structure, memory, and input/output Organization, multiple processors topics are covered.

<table>
<tr><td>Course Book</td><td>1. Computer Organization and Architecture (William STALLINGS)
2. Computer System Architecture (M. Morris MANO)
 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<tr><td>Other Sources</td><td></td></tr>
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<tr><th colspan="2">Activites</th><th>Base Mark</th><th>Unit</th><th colspan="2">Contribution in Evaluation, %</th></tr>
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<tr><td rowspan="6">Semester Evaluation</td><td>Short-Exams</td><td>45</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Term Homework/Project</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Lab. Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Other Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>45</td><td>1</td><td colspan="2">60%</td></tr>
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<tr><td colspan="2">One Course / Add. NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
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Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level			**1**				**2**			**3**		**4**		**5**		
			Very Low				Low			Medium		High		Very High		
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	2	5	4	1	4	1	4	4	1	3	3	3	2	1	2	1
DK-2	2	5	4	1	4	1	4	4	1	3	3	3	2	1	2	1
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DK-4	5	5	4	1	4	4	4	4	4	3	3	3	2	1	2	1
DK-5	3	5	4	1	4	1	4	4	1	3	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	DATA STRUCTURES -Data Structures Display and Arithmetic Integer and ve floating-point arithmetic	Problem Solving
2	INFORMATION FLOW BETWEEN DIGITAL MODULES -Register transfer and microprocessors -Data path and Memory Transfer -Arithmetic, logic and floating operations - Arithmetic microprocessors -Logic microprocessors -Floating microprocessors	Problem Solving
3	IMPORTANCE OF COMPUTER ORGANİZATION -Basic Computer Organization Command Codes, Timing and Control	Problem Solving
4	COMPUTER ORGANİZATION AND DESIGN -Memeory referance commands and I/O -Basic Computer Design -I/O,break and Commands -Logical Control Gates -Register and memory control -Shared data Path Control	Problem Solving
5	COMPUTER PROGRAMMING -Basic Computer Programming - Machine Language and Assembly Programming Language	Program Development

6	CENTRAL OPERATION UNIT -Adressing,program control - Adressing Modes -Data Transfer, program control -RISC structure	Program Development
7	CONTROL'S ADVENTAGES AND DISADVENTAGES WITH MICROPROGRAM -Control with microprogramming -Control Memory -Adressing	Program Development
8	CENTRAL OPERATION UNIT - Central Operation Unit -Command Formats and Stack Organization -Common register organization -Stack organization -Command Codes	Program Development
9	MIDTERM	
10	PİPELİNE STRUCTURE AND ARRAY PROCESSORS -Pipeline structure and array processors -Parallel Operation -Arithmetic Command and RISC pipeline structure	Program Development
11	PİPELİNE STRUCTURE AND ARRAY PROCESSORS -Vector and array processors -Folder processors (Attached, SIMD)	Program Development
12	INPUT OUTPUT ORGANIZATION -Input/Output Organization - Input/Output interface -Asynchronous Data Transfer -Transfer Modes	Program Development
13	INPUT OUTPUT ORGANIZATION -Cutting and DMA structure	Program Development
14	MEMORY ORGANIZATION -Cache and display memory -Main Memory (RAM ROM chips) -External Associative Cache Display Memories	Program Development
15	MEMORY ORGANIZATION -Memory Management - Memory Management Hardware	Program Development
16	MULTIPROCESSORS -Parallel computer architecture -Internal Link structure and communication	Program Development

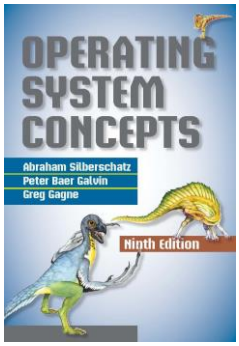
ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	3	45
Application	-	-	-
Studying Period out of Course	15	2	30
Completing Homeworks and Delivering as a report	5	3	15
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	10	10
Final Exam	1	2	2
Individual Study for Final Exam	1	16	16
TOTAL WORKLOAD	120 Hour		
ECTS OF COURSE	Total workload / 30 = 120 / 30 = 4		4 Credit

Last update date	04.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Operating Systems	BİM-313	3/I	3+0+0	3	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Computer Organization and Architecture
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	In this course, students will be informed about what the operating system is, how it is designed and developed, the common features of the operating system, the relationship between the operating system and the hardware, process management.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Will be able to know operating systems and working principles 2. Will be able to know process and process management. 3. Will be able to know memory management. 4. Will be able to know file systems.
Content of the Course	:	Introduction to computer operating systems and general structures, process concept, concurrent processes, process management and job scheduling methods and algorithms, deadlock prevention, memory management, secondary and tertiary memory, file systems, input/output operations topics are covered.

<table>
<tr><td>Course Book</td><td>1. Operating Systems and System Programming (Mutlu Avcı, Buse Melis Özyıldırım, Onur Ülgen, KARAHAN, 2000)
 
</td></tr>
<tr><td>Other Sources</td><td>1. Operating System Concepts, A. Sılberschatz-P.Galvın
 
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<tr><td>Other Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>45</td><td>1</td><td colspan="2">60%</td></tr>
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		1	2	3	4	5
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2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level			**1**			**2**			**3**		**4**		**5**			
			Very Low			Low			Medium		High		Very High			
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
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DK-3	5	4	1	4	4	3	4	3	4	3	3	3	2	1	2	1
DK-4	3	3	5	4	5	3	4	3	1	3	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	INTRODUCTION TO OPERATING SYSTEMS - Shared Time Systems - Parallel systems - Distributed Systems	Problem Solving
2	COMPUTER SYSTEM STRUCTURE - I/O structure - Memory Structure, memory hierarchy - Common system architecture	Problem Solving
3	OPERATING SYSTEM STRUCTURES - Operating system services - System programms - System design and occur	Problem Solving
4	PROCESSES - Process Time Algorithms - Process Operations - Communication between Processes	Problem Solving
5	CPU TIME ALGORITHMS - CPU timing criterias - CPU timing algorithms - Algorithm Evaluation	Problem Solving
6	PROCESSES' SYNCHRONIZATION - Semaphores - Synchronization Problems - Monitors	Problem Solving

7	DEADLOCKS - Deadlock Example - Deadlock detect - Deadlock escape	Problem Solving
8	MEMORY MANAGEMENT - Logical/Physical adres area - Paging - Segmentation	Problem Solving
9	MIDTERM	
10	VIRTUAL MEMORY MANAGEMENT - Demand paging - Page Replacement - Thrashing	Problem Solving
11	FILE SYSTEM INTERFACE - File Concept - Folder Structure - Security	Problem Solving
12	FILE SYSTEM IMPLEMENTATION - Allocated Methods - Free Space Management - Recovery and Activity	Problem Solving
13	I/O SYSTEMS - I/O Hardware - Application and I/O relation - Performance	Problem Solving
14	SECONDERY MEMORY STRUCTURE - Disc Structure - Disc Management - Disc Security	Problem Solving
15	TERTIARY MEMORY MANAGEMENT - Tertiary Memory Devices - Encountered Issues - Performance Issues	Problem Solving
16	OPERATING SYSTEMS EXAMPLES - Unix - MS Operatıng Systems	Problem Solving

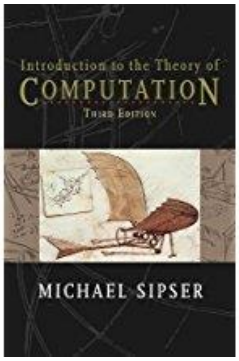
ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	3	45
Application	-	-	-
Studying Period out of Course	15	2	30
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	5	5
Final Exam	1	2	2
Individual Study for Final Exam	1	6	6
TOTAL WORKLOAD	90 Hour		
ECTS OF COURSE	Total workload / 30 = 90 / 30 = 3		3 Credit

Last update date	05.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Formal Languages and Virtual Machines	BİM-321	3/II	3+0+0	3	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	No
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	This course aims to teach formal languages and computational models, which are the basis of Computer Science in general, and to enable students to comprehend the mathematical methods of design of programming languages and the tools for the requirements of acceptance of a computer program.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Will be able to know formal languages 2. Will be able to know computational models. 3. Will be able to convert regular expressions,grammar and finite state machine to one another. 4. Will be able to convert Context-Independent Grammar and mass-built automats to one another. 5. Will be able to know Turing Machines and computability.
Content of the Course	:	Topics include formal languages, grammars, regular expressions, finite state machines, obvious and non-obvious automatons, context-independent grammars, and mass-structured automatons, Turing machine and computability.

<table>
<tr><td>Course Book</td><td>1. Introduction to The Theory of Computation Michael SIPSER
 
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 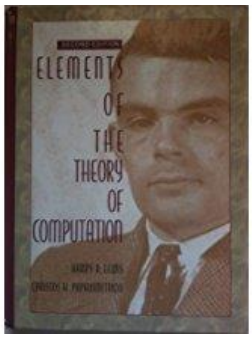
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1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
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15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level	**1**		**2**					**3**		**4**		**5**				
	Very Low		Low					Medium		High		Very High				
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
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DK-4	3	3	5	1	1	1	1	1	1	3	3	2	1	2	1	1
DK-5	1	1	5	1	1	1	1	1	1	3	3	2	1	2	1	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	INTRODUCTION TO COMPUTING THEORY - Vending Theory, - Complexity Theory, - Computability Theory	Problem Solving
2	MATHEMATICAL TERMINOLOGY AND PROOF METHODS	Problem Solving
3	REGULAR LANGUAGES - Finite State Machines - Regular Processes	Problem Solving
4	REGULAR LANGUAGES - Unstable Finite State Machines - Stable / Unstable Finite State Machines Transformation	Problem Solving
5	REGULAR LANGUAGES - Regular Expressions - Non Regular Languages	Problem Solving
6	CONTEXT INDEPENDENT LANGUAGES - Context Independent Grammars - Unknown Grammars - Normal Formats	Problem Solving
7	CONTEXT INDEPENDENT LANGUAGES - Decomposition Tree	Problem Solving
8	CONTEXT INDEPENDENT LANGUAGES - Mass-Built Vending Machines	Problem Solving
9	MIDTERM	

10	CONTEXT INDEPENDENT LANGUAGES - Context Independet Languages and Mass-Built Vending Machines Equality - Context dependent Languages	Problem Solving
11	CHURCH-TURİNG THESIS -Turing Machines - Turing Machines Computation	Problem Solving
12	TURING MACHINES TYPES - Multi Tape TMs - Unstable TMs	Problem Solving
13	TURING MACHINES - Turing Machine Instances	Problem Solving
14	DESICION ACCOUNTABILITY - Decision Accountable Languages - Halting Problem	Problem Solving
15	DESICION ACCOUNTABILITY - Unsolved Problems about Regular and Context Independent Grammars - Unsolved Problems about TM	Problem Solving
16	Computational Complexity P-Class NP-Class	Problem Solving

ECTS / WORKLOAD TABLE

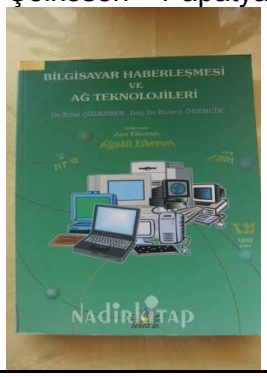
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	3	45
Application	-	-	-
Studying Period out of Course	15	2	30
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	5	5
Final Exam	1	2	2
Individual Study for Final Exam	1	6	6
TOTAL WORKLOAD	90 Hour		
ECTS OF COURSE	Total workload / 30 = 90 / 30 = 3		3 Credit

Last update date	05.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Computer Networks	BİM-322	3/II	3+0+0	3	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Operating Systems
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	The aim of this course is to teach the basic concepts and laws of computer networks, which are the basis of development in contemporary world, to bring students to the level of rapid development in this field, to enable students to comprehend the ways of research, to have positive and scientific views and ideas and to prepare the groundwork, to help them.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Will be able to know concepts of computer networks. 2. Will be able to know computer network structures and protocols. 3. Espicially, will be able to know processes of application, transportation, network and link layers. 4. Can develop basic network programs.
Content of the Course	:	After giving general information about computer networks and the internet primarily, the top-down approach, starting from the application layer, the layers and the protocols in these layers are discussed in detail. In this context, the aims and types of computer networks, LAN and WAN networks, design factors, security, productivity, cost, reliability, addressing are examined in terms of factors such as.

<table>
<tr><td>Course Book</td><td>1. Computer Communication and Network Technologies (Rıfat Çölkesen – Papatya 2013, İstanbul)
 
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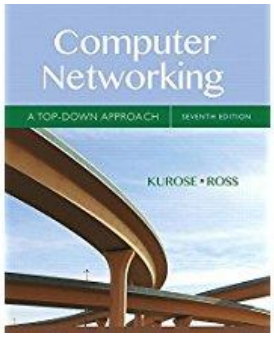
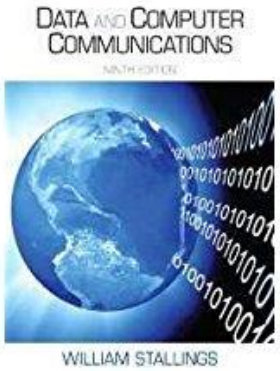
<tr><td>Other Sources</td><td>1. Computer Networking: A Top-Down Approach (James Kurose)
1. Data and Computer Communications, William Stallings
 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<tr><td>Projects</td><td>45</td><td>1</td><td>%</td></tr>
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<tr><td>Lab. Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>45</td><td>1</td><td colspan="2">60%</td></tr>
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<tr><td colspan="2">One Course / Add. NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
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Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level		**1**			**2**			**3**	**4**		**5**				
		Very Low			Low			Medium	High		Very High				
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	2	4	2	3	5	4	5	4	3	3	3	3	2	1	2	1
DK-2	2	4	2	3	5	4	5	4	3	3	3	3	2	1	2	1
DK-3	2	4	2	3	4	4	5	4	3	3	3	3	2	1	2	1
DK-4	2	3	2	3	4	4	5	4	4	3	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Computer Networks and Internet Introduction What is Internet Introduction Computer Networks Lab application (internet)	Project Development
2	Computer Networks and Internet Main Networks services Package-switch networks Protocol layer and service models Lab application (TCP/IP and UDP protocols)	Project Development
3	Application Layer Basic Principles www and http Internet applications Lab application (www and http)	Project Development
4	Application Layer e-mail SMTP MAP Lab application (e-mail)	Project Development
5	Application Layer Dns P2p applications P2p file distrubution Lab application (dns and p2p)	Project Development
6	Application Layer Tcp and socket programming Udp and socket programming Server/client programming Lab application (java and tcp/udp programming)	Project Development
7	Transportation Layer Layer Services Mux/demux Principles of safe data communication Lab application (term project)	Project Development

8	Midterm Week	
9	Transportation Layer Udp protocol Tcp protocol Lab application (term project)	Project Development
10	Transportation Layer Congestion Control Lab application (term project)	Project Development
11	Network Layer Virtual cycles and datagram Networks Routers Ip protocol Lab application (term project)	Project Development
12	Network Layer Routing Algorithms Ls and dv routing Algorithms Hierarchical routing Lab application (term project)	Project Development
13	Network Layer Routing on Internet Rip, ospf, and bgp Broadcast, multicast and unicast Lab application (term project)	Project Development
14	Link Layer and local network areas Error Detection and Correction Multiple acces protocols Link layer adressing Lab application (term project)	Project Development
15	Link Layer and local network areas Ethernet protocols Link layer services ppp Lab application (term project)	Project Development
16	Wireless and mobile networks Cdma Wireless lan Cellular internet, mobility management Lab application (term project)	Project Development

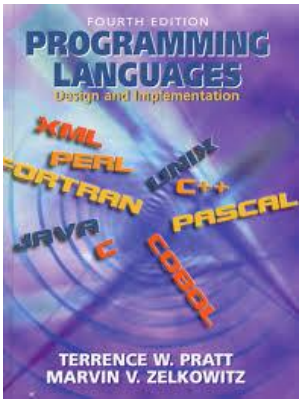
ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	3	45
Application	-	-	-
Studying Period out of Course	15	2	30
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	5	5
Final Exam	1	2	2
Individual Study for Final Exam	1	5	5
TOTAL WORKLOAD	90 Hour		
ECTS OF COURSE	Total workload / 30 = 90 / 30 = 3		3 Credit

Last update date	07.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Programming Languages' Principles	BİM-323	3/II	3+0+0	3	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Computer Programming, Object-Oriented Programming
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	The aim of this course is to provide the student with a general knowledge about programming languages in various categories and to teach the basic differences between languages and to enable the student to develop more effective programs.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Can design software programms 2. Know programms working conditions 3. Know data structures in programming languages and appy them in programms. 4. Know checking order in programming languages and transitions between functions. 5. Know structural and logical differences between programming languages.
Content of the Course	:	Basic concepts of programming languages and working principles, compiling structures and applications in programming languages, compilation models, grammar and Automata Structures, Data types, information hiding, inheritance, sequence control, sub-program control, differences between programming languages.

<table>
<tr><td>Course Book</td><td>1. Programming Languages - T. PRATT, M. ZELKOWITZ
 
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Sheet No	Program Qualifications	Course Contribution Level				
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1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level	**1**		**2**					**3**		**4**		**5**				
	Very Low		Low					Medium		High		Very High				
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
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DK-4	3	3	1	1	4	5	1	1	4	3	3	3	2	1	2	1
DK-5	3	4	1	1	4	5	1	1	4	3	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	GENERAL CONSIDERATIONS OF PROGRAMMING LANGUAGES - Why Do We Learn Programming Languages? - Characteristics of a good language - Application Areas Of Programming Languages - Impact of environment on languages	Problem Solving
2	STRUCTURE AND FUNCTIONING OF A COMPUTER - Definitions : computer, real computer, software simulation computer, compiler -Components of a computer -The structure of a computer -Von-Neuman architecture - Computer states	Problem Solving
3	VIRTUAL COMPUTER AND TIME LIMITS - Firmware computer -The compiler types -Software simulation - Syntax ,semantics -Hierarchical structure of a computer Binding, binding times -Language types	Problem Solving
4	PROGRAMMING LANGUAGE STRUCTURE, COMPILATION - Generic syntax criteria - Eliminate uncertainties - Compiling - The structure of a compiler	Problem Solving
5	COMPILATION MODELS-BNF GRAMMAR - BNF grammar notation and structure - The purpose of BNF grammar - Parse trees	Problem Solving

	-Ambiguity - Improved BNF notation	
6	COMPILATION MODELS - State machine - Specific FSA, uncertain FSA - Regular grammar Regular expressions - Pushdown Automata - Active parse algorithms - Semantic modeling	Problem Solving
7	COMPILATION MODELS - State machine - Specific FSA, uncertain FSA - Regular grammar Regular expressions - Pushdown Automata - Active parse algorithms - Semantic modeling	Problem Solving
8	DATA TYPES -Data object, data value, variable, constant, literal -The properties of a data object - Basic elements of data types -Type Control and type conversion -Side effects	Problem Solving
9	MIDTERM	
10	HIDING INFORMATION - Abstract data type -Sub-programs and information hiding -Memory management phases -Memory management methods	Problem Solving
11	INHERITANCE -Generic abstract data type -Creating new types of generic abstract data type -Inheritance , types of Inheritance -Derived classes -Polymorphism	Problem Solving
12	SEQUENCE CONTROL -Sequence control structures -Notations: Prefix, Infix, Postfix -The advantages and disadvantages of each type of notation - Order control in non-arithmetic expressions - Structural control sequence -Exceptional circumstances	Problem Solving
13	SUB-PROGRAM CONTROL - Naming data objects and sub-programs -Range of a variable, range types - Local reference, global reference - Static UI rules in block-structured languages - Parameter and parameter passing methods	Problem Solving
14	INNOVATIONS IN LANGUAGE DESIGN -Changes in sub-program design -Exceptional circumstances -Ko routines - Parallel programming	Problem Solving
15	FUNCTIONAL LANGUAGES, OBJECT-ORIENTED LANGUAGES -C -Pascal -Ada	Problem Solving

16	FUNCTIONAL LANGUAGES, OBJECT-ORIENTED LANGUAGES ,LOGICAL LANGUAGES -C++ -Java -LİSP -Prolog	Problem Solving

ECTS / WORKLOAD TABLE

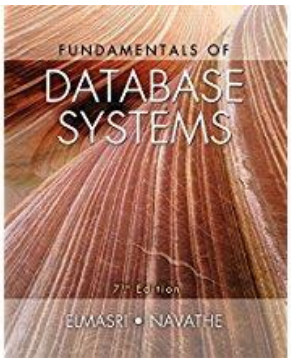
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	3	45
Application	-	-	-
Studying Period out of Course	15	2	30
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	5	5
Final Exam	1	2	2
Individual Study for Final Exam	1	6	6
TOTAL WORKLOAD	90 Hour		
ECTS OF COURSE	Total workload / 30 = 90 / 30 = 3		3 Credit

Last update date	07.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Database Management	BİM-324	3/II	3+0+0	3	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Computer Organization and Architecture
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	The aim of this course is to give the student the knowledge and experience about the concept of database, database architecture, design and application of various data models.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Knows the concepts of database. 2. Knows database architectures. 3. Design database models. 4. You can query the database 5. Analyze and normalize the database 6. Knows the techniques of recording and storing
Content of the Course	:	In this course, the concept of database, database architecture, design of various data models are explained and application is made. Topics include database and database users, database system concept and architecture, ER diagram in database model setup, Relational Database Model, relational operations, Relational Database Language, functional dependencies and normalization, object-oriented database applications are being developed in the PC lab to reinforce what is taught.

<table>
<tr><td>Course Book</td><td>1. Fundamentals of Database Systems NAVATHE
  </td></tr>
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2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
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PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level	**1**		**2**					**3**		**4**		**5**				
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Computer Engineering																
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DK-6	4	1	5	1	4	5	4	4	4	3	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	DATABASE, DATABASE USERS AND DATABASE MANAGEMENT SYSTEM - Database and database basic features, - Database users, management systems and components - Database management system advantages and disadvantages	Problem Solving
2	DATABASE CONCEPT AND ARCHITECTURE - Categories Of Data Models - Database schema - Database languages - Database interfaces	Problem Solving
3	E / R DIAGRAM IN DATABASE MODEL SETUP - Symbols used in E / R diagram	Data Model Design
4	RELATIONAL DATABASE MODEL -Relational database concepts - Constraints on the relational database model -Update processes on relationships	Data Model Design
5	RELATIONAL OPERATIONS -Types of transactions - Select, project, and set operations -Cartesian product,join, Division operations - Outer join, inner join,Natural Join operations - Examples of relational algebra	Problem Solving

6	RELATIONAL DATABASE LANGUAGE, SQL - Schema, catalog definitions - Create schema, drop schema, create table, drop table, and Alter table commands - Insert, Delete, and update commands	Program Development
7	RELATIONAL DATABASE LANGUAGE, SQL - Select commands that include join - Nested queries - IN/not in, EXISTS/not EXISTS operator - Union, intersect,MINUS operations	Program Development
8	RELATIONAL DATABASE LANGUAGE, SQL - Roles - Indexes - Embedded SQL	Program Development
9	MIDTERM	
10	FUNCTIONAL DEPENDENCIES AND NORMALIZATION IN RELATIONAL DATABASES - Informal measures and functional dependencies for relational schema design -Normal form based on primary key and Boyce-Codd normal form	Problem Solving
11	FUNCTIONAL DEPENDENCIES AND NORMALIZATION IN RELATIONAL DATABASES -Second and third normal forms - Fourth and fifth normal forms	Problem Solving
12	OBJECT - ORIENTED DATABASES - Object structure, method and inheritance - Object-oriented data model/Odmg data model - Object definition language - Object linguistic language	Problem Solving
13	RECORD STORAGE AND BASIC FILE ORGANIZATIONS - Secondary storage media - The placement of the recording files on the disk and the operations on the file - Files from unusual and sequential files - Hashing techniques	Problem Solving
14	INDEX STRUCTURE FOR FILES - Index types - Main and secondary index - Cluster index - Multilevel indexes	Problem Solving
15	QUERY PROCESSING AND TRANSACTION PROCESSING - Query cost measurement - Select operation, inquiry, join operation - Transaction concept and features - Schedule , recoverability and serializability	Problem Solving
16	RECOVERY TECHNIQUES AND DATABASE ARCHITECTURES - Rescue techniques - Emergency, backup and recovery operations - Centralized systems, client server systems - Parallel systems	Problem Solving

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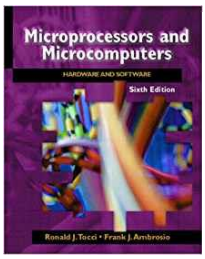
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	3	45
Application	-	-	-
Studying Period out of Course	15	1	15
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	13	13
Final Exam	1	2	2
Individual Study for Final Exam	1	13	13
TOTAL WORKLOAD	90 Hour		
ECTS OF COURSE	Total workload / 30 = 90 / 30 = 3		3 Credit

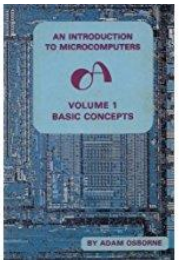
Last update date	07.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Microprocessors and Assembly Language	BİM-325	4/I	2+0+2	3	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	No
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	Teaching students general structure and working principles of microprocessors, software/hardware properties and to make them gain the ability to write programs in Assembly language.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Knows the number systems and arithmetic operations used. 2. Knows the concepts of microprocessor and microcomputers. 3. Students will be able to write program in assembly language with microprocessor instruction sets. 4. Knows the input/output techniques and the structure of the interrupt. 5. Knows the structure of DMA.
Content of the Course	:	In this course, General Computer Organization and working principles of microprocessors and command sets, program writing in Assembly language, Interrupt and DMA techniques will be taught.

<table>
<tr><td>Course Book</td><td>1. Microprocessors and Intel Computers Family and IBM PC (Haluk Gümüşkaya, ALFA 2002 ve 2007, İstanbul)
 
</td></tr>
<tr><td>Other Sources</td><td>1. Microprocessors & Microcomputers (R.J.Tocci – F.J.Ambrosio)
1. Mikrobilgisayar Ders Kitabı, D.H.O Basımı
2. Digital Computer Fundemantals, Bartee
3. Mikroişlemciler ve Mikrobilgisayarlar, Adalı
4. An Introduction to Microcomputers, Osborne
 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<tr><td>Homeworks and Projects</td><td></td></tr>
<tr><td>Computer Usage</td><td></td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Achievement Evaluation System</td><td>
<table>
<tr><th colspan="2">Activites</th><th>Base Mark</th><th>Unit</th><th colspan="2">Contribution in Evaluation, %</th></tr>
<tr><td colspan="2">Midterm</td><td>45</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Short-Exams</td><td>45</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Term Homework/Project</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Lab Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>45</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level	**1**		**2**					**3**		**4**		**5**				
	Very Low		Low					Medium		High		Very High				
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	2	3	3	5	3	1	1	4	1	3	3	3	2	1	2	1
DK-2	2	3	3	5	3	1	1	4	1	3	3	3	2	1	2	1
DK-3	2	3	3	5	3	1	1	4	1	3	3	3	2	1	2	1
DK-4	2	3	3	5	3	1	1	4	1	3	3	3	2	1	2	1
DK-5	2	3	3	5	3	1	1	4	1	3	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	MICROPROCESSOR/MICROCOMPUTER DEFINITIONS -Microprocessor,microcomputer definitions -Historical Development Of Computer -Computer Electronic Technology parallelism -Classification microcomputer	Project Development
2	NUMBER SYSTEMS AND ARITHMETIC OPERATIONS -Binary Number System -Octet Number System -Hexadecimal Number System -Data Definitions -Character Codes -Microprocessor General Structure -Command and machine count	Project Development
3	MICROPROCESSOR GENERAL STRUCTURE -Microprocessor internal architecture -8085 processor internal structure -Interrupt system -Flagler -Control signals	Project Development
4	MICROPROCESSOR INSTRUCTION SETS - Data transfer commands - Arithmetic operations commands - Logic commands - Program control group commands - I/O and stack commands	Project Development
5	PROGRAMMING IN ASSEMBLY LANGUAGE -Basic transfer programs -Basic arithmetic operations program -Basic algorithms	Project Development

6	PROGRAMMING IN ASSEMBLY LANGUAGE -Basic transfer programs -Basic arithmetic operations program -Basic algorithms -Floating-point display	Project Development
7	ALGORITHM IMPROVEMENTS -Stack definition and stack operations -Stack control commands -Subprograms	Project Development
8	MEMORY -Memory types -Memory resolution -Main and auxiliary concepts concepts	Project Development
9	MIDTERM	
10	INPUT / OUTPUT TECHNIQUES -Hardware-controlled input/output -I / O With Interrupt control -Program controlled I/O	Project Development
11	INTERRUPT SYSTEM - The interrupt classification - Memory systems - service program writing	Project Development
12	INTERRUPT SYSTEM - The interrupt classification - Memory systems - service program writing	Project Development
13	DMA TECHNIQUE -DMA as I/O With Interrupt control -Example I/O design	Project Development
14	DMA -DMA structure	Project Development
15	DMA -DMA structure	Project Development
16	GENERAL REVIEW	Project Development

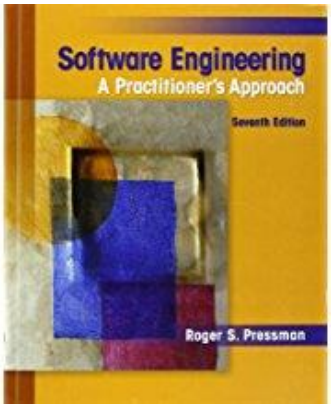
ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	2	30
Application	15	2	30
Studying Period out of Course	15	1	15
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	5	5
Final Exam	1	2	2
Individual Study for Final Exam	1	6	6
TOTAL WORKLOAD	90 Hour		
ECTS OF COURSE	Total workload / 30 = 90 / 30 = 3		3 Credit

Last update date	07.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Software Engineering	BİM-411	4/I	4+0+0	4	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Computer Programming, Object-Oriented Programming
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	In this course, we aim that students have knowladge about software development process, system / requirement analysis, design, testing, maintenance-attitude stages on the sample projects, software standards and project management.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. To know software development processes. 2. To know the techniques used in software development processes. 3. To be able to apply software development processes on sample projects. 4. Know software standards. 5. To know the principles of Project Management
Content of the Course	:	In this course, System Analysis, need analysis, initial design, final design, program production, test, usage and maintenance attitude operations are described in stages. The prototypes and spiral software development techniques are explained. Procedures, principles and documentation that will be applied at each stage are examined in detail. The topics discussed are given examples of the techniques available. All subjects are converted into practice on a project. In addition, modern computer aided design tools in software engineering are studied.

<table>
<tr><td>Course Book</td><td>1. Software Engineering (Roger S. Pressman)
 
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<tr><td>Other Sources</td><td>Yoktur</td></tr>
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<tr><td colspan="2">Midterm</td><td>45</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Short-Exams</td><td>45</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Term Homework/Project</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Lab Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>45</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level	**1**		**2**					**3**		**4**		**5**				
	Very Low		Low					Medium		High		Very High				
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	2	3	2	4	5	4	3	5	5	5	3	3	2	1	2	1
DK-2	2	3	2	4	5	4	3	5	5	5	3	3	2	1	2	1
DK-3	2	3	2	4	5	4	3	5	5	5	3	3	2	1	2	1
DK-4	2	3	2	4	5	4	3	5	5	5	3	3	2	1	2	1
DK-5	2	3	2	4	5	4	3	5	5	5	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	INTRODUCTION TO SOFTWARE ENGINEERING -The importance of software -Features of the software -Definition of software engineering	Project Development
2	PROJECT PLANNING, METRICS -Measurement of software -Dimensioning methods -Planning	Project Development
3	REQUIREMENT ANALYSIS -System and computer engineering -Requirement analysis and principles -Software prototype	Project Development
4	STRUCTURAL ANALYSIS AND PROGRAMMING -History of structural analysis -Analytical approaches to structural analysis -Structural analysis modeling and techniques	Project Development
5	OBJECT ORIENTED ANALYSIS AND MODULAR DESIGN -Object-oriented analysis modeling -Data modeling -Modular design	Project Development
6	SOFTWARE DESIGN PRINCIPLES - Efficient modular design - Functional design - Design documentation	Project Development
7	DATA-ORIENTED DESIGN -Design, and data structure -Jackson system design -Data-based system design	Project Development

8	DATA FLOW DESIGN -Design and data flow -Design criteria -Transfrom / transaction analysis, optimization	Project Development
9	MIDTERM	
10	OBJECT-ORIENTED DESIGN -Object-oriented design methods -Class and object definition -Object Oriented Programming	Project Development
11	PROGRAMMING LANGUAGES AND CODING - Properties of programming languages, fundamentals, classes - Codification - Event	Project Development
12	SOFTWARE TESTING AND QUALITY CONTROL -Software quality and definition -Software metrics, formal approaches -Software security	Project Development
13	SOFTWARE TESTING AND QUALITY CONTROL -Software testing techniques -Strategic approach -Testing types	Project Development
14	SOFTWARE MAINTENANCE AND OPERATION -Features of maintenance -Side effects of maintenance -Re-engineering	Project Development
15	CONFIGURATION MANAGEMENT AND AUTOMATION -Software configuration objects -Version control	Project Development
16	CONFIGURATION MANAGEMENT AND AUTOMATION -Status reports, standards	Project Development

ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	4	60
Application	-	-	-
Studying Period out of Course	15	1	15
Completing Homeworks and Delivering as a report	-	-	-
Term Project	1	30	30
Project Presentation	1	1	1
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	5	5
Final Exam	1	2	2
Individual Study for Final Exam	1	5	5
TOTAL WORKLOAD	120 Hour		
ECTS OF COURSE	Total workload / 30 = 120 / 30 = 4		4 Credit

Last update date	07.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Graduation Project-I	BİM-414	4/I	0+2+0	1	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	No
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	To provide students with an opportunity to have experience at all levels of design within the framework of an engineering problem, to develop innovative ideas of the students and to encourage team awareness, to contribute to their professional and ethical development, to give students an oral and written presentation experience.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Students will be able to follow the literature in the field of engineering and computer engineering and conduct research. 2. Presents the work and effort in the format of the thesis booklet. 3. Develop software, methods and / or architecture. 4. Students will be able to integrate computer engineering concepts within and with other fields.
Content of the Course	:	This course includes an application of all phases from selection of a suitable project to completion in order to gain a comprehensive design experience by using the knowledge gained in undergraduate learning. In this course, the design of a system or a process is open-ended, are discussed in the context of projects. The problem in the project is solved with the help of teams of students.

Course Book	Scientific literature, Ph. D., master's and Bachelor's thesis, books and software in selected or designated fields related to the thesis topic.
Other Sources	-
Homeworks and Projects	-

Computer Usage	-					
Other Applications	-					
Achievement Evaluation System	**Activites**		**Base Mark**	**Unit**	**Contribution in Evaluation, %**	
	Midterm		50	-	-	
	Semester Evaluation	Short-Exams	50	-	%	100
		Homeworks	50	-	%	
		Projects	50	1	%	
		Term Homework/Project	50	-	%	
		Lab Application	50	-	%	
		Other Applications	50	-	%	
	Final Exam		50	-	-	
	Integration / NYS		50	-	-	
	One Course / Add. NYS		50	-	-	

Sheet No	**Program Qualifications**	**Course Contribution Level**				
		1	**2**	**3**	**4**	**5**
1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,				x	
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,					x
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x

8	To able to develop software and setting special computer background for solutions,					x
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.			x		
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,					x
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					x
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,				x	
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION

Contribution Level	**1**	**2**	**3**	**4**	**5**
	Very Low	Low	Medium	High	Very High

Computer Engineering

	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	1	1	1	1	1	1	1	1	4	1	1	5	2	1	2	1
DK-2	1	1	1	1	1	1	1	1	1	1	1	1	5	1	5	1
DK-3	3	3	3	3	3	3	5	5	4	1	1	3	2	1	2	1
DK-4	3	3	3	3	3	3	5	5	5	1	1	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Discuss issues with consultants	--
2	Discuss issues with consultants	--
3	Finalizing the thesis topic	--
4	Literature review	--
5	Literature review	--
6	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
7	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
8	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
9	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
10	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
11	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
12	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
13	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
14	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
15	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
16	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--

ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	-	-	-
Application	14	2	28
Studying Period out of Course	15	4	60
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	1	2	2
Quiz	-	-	-
Midterm	-	-	-
Individual Study for Mid-Term	-	-	-
Final Exam	-	-	-
Individual Study for Final Exam	-	-	-
TOTAL WORKLOAD	90 Hour		
ECTS OF COURSE	Total workload / 30 = 90 / 30 = 3		3 Credit

Last update date	08.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Graduation Project-II	BİM-424	4/I	0+2+0	1	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	No
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	To provide students with an opportunity to have experience at all levels of design within the framework of an engineering problem, to develop innovative ideas of the students and to encourage team awareness, to contribute to their professional and ethical development, to give students an oral and written presentation experience.
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Other Sources	-
Homeworks and Projects	-

Computer Usage	-					
Other Applications	-					
Achievement Evaluation System	**Activites**		**Base Mark**	**Unit**	**Contribution in Evaluation, %**	
	Midterm		50	-	-	
	Semester Evaluation	Short-Exams	50	-	%	100
		Homeworks	50	-	%	
		Projects	50	1	%	
		Term Homework/Project	50	-	%	
		Lab Application	50	-	%	
		Other Applications	50	-	%	
	Final Exam		50	-	-	
	Integration / NYS		50	-	-	
	One Course / Add. NYS		50	-	-	

Sheet No	**Program Qualifications**	**Course Contribution Level**				
		1	**2**	**3**	**4**	**5**
1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,				x	
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,					x
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x

8	To able to develop software and setting special computer background for solutions,					x
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.			x		
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,					x
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					x
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,				x	
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION

Contribution Level	**1**	**2**	**3**	**4**	**5**
	Very Low	Low	Medium	High	Very High

Computer Engineering

	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	1	1	1	1	1	1	1	1	4	1	1	5	2	1	2	1
DK-2	1	1	1	1	1	1	1	1	1	1	1	1	5	1	5	1
DK-3	3	3	3	3	3	3	5	5	4	1	1	3	2	1	2	1
DK-4	3	3	3	3	3	3	5	5	5	1	1	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
2	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
3	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
4	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
5	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
6	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
7	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
8	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
9	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
10	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
11	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
12	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
13	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
14	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
15	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--
16	Research/project development / experimental study / thesis writing under the supervision of advisor / instructor	--

ECTS / WORKLOAD TABLE

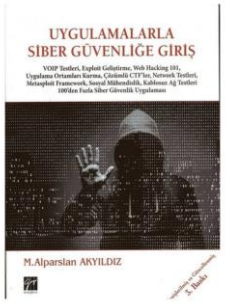
ACTIVITIES	NUMBER	TIME(HOUR)	PREDICTION of WORKLOAD
Teoric Course	-	-	-
Application	14	2	28
Studying Period out of Course	15	4	60
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	1	2	2
Quiz	-	-	-
Midterm	-	-	-
Individual Study for Mid-Term	-	-	-
Final Exam	-	-	-
Individual Study for Final Exam	-	-	-
TOTAL WORKLOAD	90 Hour		
ECTS OF COURSE	Total workload / 30 = 90 / 30 = 3		3 Credit

Last update date	08.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Cyber Security	BİM-425	4/II	2+0+0	2	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	No
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	In this course, it is aimed to teach the techniques of how to protect the information from the threats that we have today as an information age, and to enable students to understand the research methods, have positive and scientific views and thoughts and to prepare the ground for the deep and detailed thinking of the events. By making the students ready for the ongoing cyber war, it is aimed to bring the executive staff of the future to the level to follow the technological developments in this direction.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Understand the basics of computer security. 2. Knows encryption techniques and applications. 3. Know the principles of Information Security. 4. Knows the precautions against viruses and harmful software. 5. Knows the concept of firewalls
Content of the Course	:	

<table>
<tr><td>Course Book</td><td>1. Introduction to Cyber Security with Applications (M.Alparslan Yıldız, Gazi Kitabevi, 2017)
 
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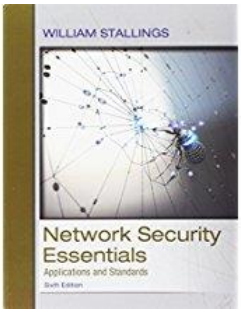
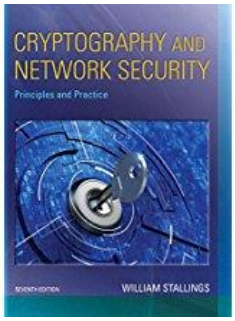
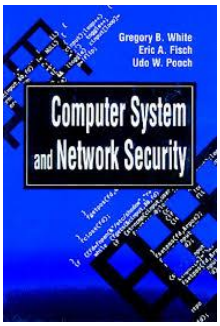
<tr><td>Other Sources</td><td>1. Network Security Essentials William Stallings
2. Cryptography and Network Security (William Stallings)
3. Computer System and Network Security (Gregory B. White, Eric A. Fish, Udo W. Pooch)
 

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<tr><td>Computer Usage</td><td></td></tr>
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<tr><td>Achievement Evaluation System</td><td>
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<tr><th colspan="2">Activites</th><th>Base Mark</th><th>Unit</th><th colspan="2">Contribution in Evaluation, %</th></tr>
<tr><td colspan="2">Midterm</td><td>45</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Short-Exams</td><td>45</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Term Homework/Project</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Lab Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>45</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
</table>
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Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level	**1**		**2**					**3**		**4**			**5**			
	Very Low		Low					Medium		High			Very High			
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	3	4	2	4	4	3	3	1	1	3	3	3	2	1	2	1
DK-2	3	4	2	4	4	3	3	1	1	3	3	3	2	1	2	1
DK-3	3	4	2	4	4	3	3	1	1	3	3	3	2	1	2	1
DK-4	3	4	2	4	4	3	3	1	1	3	3	3	2	1	2	1
DK-5	3	4	2	4	4	3	3	1	1	3	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Basics of computer security	
2	Risk Management	
3	Risk calculation and decision making process	
4	Corporate and personal measures in computer security	
5	Corporate and personal measures in computer security	
6	The process of cyber attacks (Discovery-Discovery))	
7	Process of cyber attacks (developing/implementing exploiting code))	
8	MIDTERM	
9	Web Security (proxy server, content filtering))	
10	E-Mail Security	
11	Safe Use Of Social Media Accounts	
12	Fundamentals of cryptography and application area	
13	Fundamentals of cryptography and application area	
14	Safe Use Of Smart Phones	
15	Safe Use Of Smart Phones	
16	Final Exams	

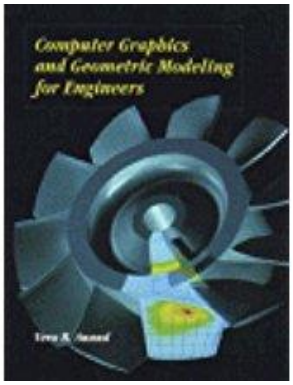
ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	2	30
Application	-	-	-
Studying Period out of Course	15	2	30
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	10	10
Final Exam	1	2	2
Individual Study for Final Exam	1	16	16
TOTAL WORKLOAD	90 Hour		
ECTS OF COURSE	Total workload / 30 = 90 / 30 = 3		3 Credit

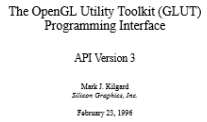
Last update date	08.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Computer Graphics	BİM-431	3/II	3+0+0	3	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Computer Programming,Object-Oriented Programming
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	Bu derste, bilgisayar tarafından görüntü üretiminde kullanılan donanım ve yazılım prensiplerinin uygulamaları ile birlikte öğretilmesi amaçlanmaktadır.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Knows the concepts of computer graphics systems and models. 2. Knows input methods and computer interaction techniques. 3. Knows imaging techniques. 4. Knows lighting and shading techniques. 5. Hierarchical and object-oriented modeling knows.
Content of the Course	:	In this course, the principles and applications of hardware and software used in image production will be taught and the project will be developed using OpenGL. In this course, a teaching technique from top to bottom will be used and theoretical topics will be explained with the application of OpenGL which is a standard graphics library.

<table>
<tr><td>Course Book</td><td>1. Interactive Computer Graphics, Edward ANGEL</td></tr>
<tr><td>Other Sources</td><td>1. Computer Graphics and Geometric Modeling for Engineers, Vera B. Anand
2. The OpenGL Utility Toolkit Programming Interface, Mark J., Kilgard
 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<tr><td>Other Applications</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>45</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
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Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level	**1**		**2**					**3**		**4**		**5**				
	Very Low		Low					Medium		High		Very High				
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	3	4	3	1	5	1	4	3	1	3	3	3	2	1	2	1
DK-2	5	4	3	4	5	1	4	3	1	3	3	3	2	1	2	1
DK-3	5	4	3	1	5	5	4	3	1	3	3	3	2	1	2	1
DK-4	3	3	3	1	5	1	4	3	5	3	3	3	2	1	2	1
DK-5	3	3	3	1	5	1	4	3	1	3	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Computer Graphic Systems and Models	Project Development
2	Basics of Graphic Programming	Project Development
3	Graphic Programming Tecniques	Project Development
4	Input methods and computer interaction techniques	Project Development
5	Input methods and computer interaction techniques	Project Development
6	Definition of geometrical objects	Project Development
7	Transformations	Project Development
8	Imaging Techniques	Project Development
9	MIDTERM	
10	Imaging Techniques	Project Development
11	Lighting and shading Techniques	Project Development
12	Lighting and shading Techniques	Project Development
13	Discrete Techniques	Project Development
14	Correction Of Overlays (ANTIALISING) and imaging issues	Project Development
15	Hierarchical and object-oriented modeling	Project Development
16	Hierarchical and object-oriented modeling	Project Development

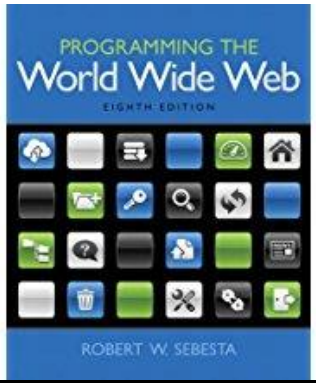
ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	3	45
Application	-	-	-
Studying Period out of Course	15	3	45
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	1	1	1
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	15	15
Final Exam	1	2	2
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	120 Hour		
ECTS OF COURSE	Total workload / 30 = 120 / 30 = 4		4 Credit

Last update date	08.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Internet Technologies	BİM-432	4/I	3+0+0	3	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Object-Oriented Programming
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	The aim of this course is to provide the students with the knowledge of design and coding of a dynamic web site with a graphical interface, as well as being aware of the technologies behind various services running on the internet and being aware of Service and application development software on the web.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Knows the concepts about internet technologies. 2. Knows the tools and methods of web site preparation. 3. Knows the languages used in Internet technologies and web programming. 4. Can design a web site. 5. A web site can develop.
Content of the Course	:	In this course, students will learn about the services that work on the web server, how to develop applications that work on the web site, and at least one of the standard or widely used web programming languages will be taught well, and other languages will be emphasized in terms of similar or different aspects of the web server, .And new concepts and Technologies which are emerged various parts of the world will be teached.

<table>
<tr><td>Course Book</td><td>1. Programming the World Wide Web, Robert W. Sebesta
 
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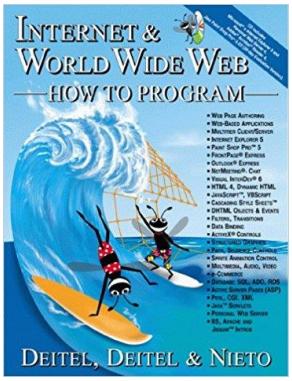
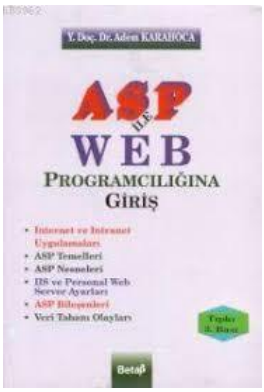
<tr><td>Other Sources</td><td>1. Internet & World Wide Web HOW TO PROGRAM, H.M.Deitel, P.J.Deitel, T.R.Nieto,
2. ASP ile WEB Programcılığına Giriş, Dr. Adem Karahoca
 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<tr><td>Projects</td><td>45</td><td>1</td><td>%</td></tr>
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<tr><td>Lab Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>45</td><td>1</td><td>%</td></tr>
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Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level	**1**		**2**					**3**		**4**		**5**				
	Very Low		Low					Medium		High		Very High				
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	2	3	2	5	5	1	5	5	5	4	3	3	2	1	2	1
DK-2	2	3	2	5	5	1	5	5	5	4	3	3	2	1	2	1
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DK-4	2	3	2	5	5	1	5	5	5	4	3	3	2	1	2	1
DK-5	2	3	2	5	5	1	5	5	5	4	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	INTRODUCTION TO INTERNET TECHNOLOGIES - Client and presenters - URL, mime, HTTP protocol - Tools and software for web programmers	Project development
2	Web site preparation techniques and methods - Macromedia Dreamweaver, Frontpage - Website design	Project development
3	INTRODUCTION TO INTERNET TECHNOLOGIES - Client and presenters - URL, mime, HTTP protocol - Tools and software for web programmers	Project development
4	Web site preparation techniques and methods - Macromedia Dreamweaver, Frontpage - Website design	Project development
5	INTRODUCTION TO INTERNET TECHNOLOGIES - Client and presenters - URL, mime, HTTP protocol - Tools and software for web programmers	Project development
6	Web site preparation techniques and methods - Macromedia Dreamweaver, Frontpage - Website design	Project development
7	VBScript --Class and objects (class&object)) - Control structures - Use in ASP	Project development
8	CSS - CSS levels - define style for font, list, font, image - and tags	Project development
9	MIDTERM	

10	JAVASCRIPT - Primitives, operators and expressions - Show results to the screen using dialogs - Control scripts	Project development
11	JAVASCRIPT - Object creation - Array and functions - Pattern matching	Project development
12	XML - DOM (Document Object Model) The purpose of use and Writing - XML development tools	Project development
13	PHP, Apache, MySQL - Tools setup - Prepatring website with PHP - Accessing MySQL database	Project development
14	WAP, WML - The purpose of use and working environments - syntax - Application examples	Project development
15	Advanced Internet Technologies - Wireless Internet and M-Business - VRML (Virtual Reality Modelling Language)	Project development
16	Advanced Internet Technologies -State reports, standards - SMIL (Synchronized multienvironmental integrated language)	Project development

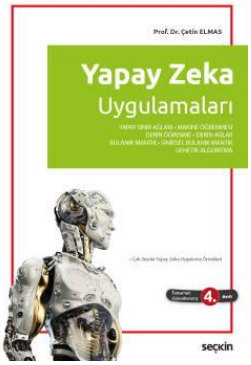
ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	3	45
Application	-	-	-
Studying Period out of Course	15	2	30
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	15	15
Final Exam	1	2	2
Individual Study for Final Exam	1	26	26
TOTAL WORKLOAD	120 Hour		
ECTS OF COURSE	Total workload / 30 = 120 / 30 = 4		4 Credit

Last update date	08.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Artificial Intelligence	BİM-433	4/II	3+0+0	3	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Algorithm Design and Analysis
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	The aim of this course is to teach the basic concepts of artificial intelligence, artificial intelligence problem types and solution methods of problems and application of these methods.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Know the concepts of artificial intelligence and to be intelligent. 2. Knows the methods of searching. 3. Knows the concept of Game playing. 4. Know the concepts of logic and reasoning. 5. Knows planning and learning algorithms.
Content of the Course	:	In this course, problem solving with search methods, game theory, first order logic, logical reasoning systems, planning, practical planning, reasoning methods and learning and features of PROLOG programming language are explained, then computer vision and robots from artificial intelligence applications are given.

<table>
<tr><td>Course Book</td><td>1. Artificial Intelligence Applications (Prof.Dr.Çetin Elmas, ŞEÇKİN, 2016)
 
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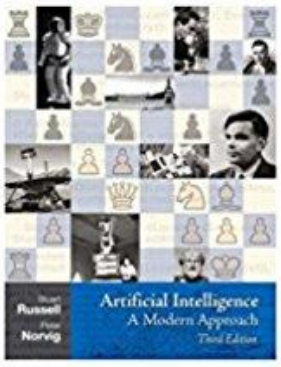
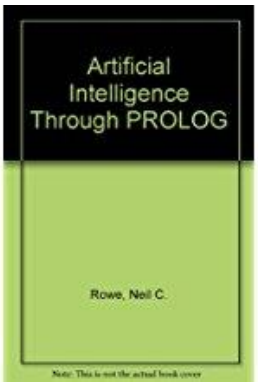
<tr><td>Other Sources</td><td>1. Artıfıcıal Intellıgence A Modern Approach (Stuart Russel, Peter Norvıg)
2. Artıfıcıal Intellıgence Through Prolog (Neıl Rowe)
 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<tr><th colspan="2">Activites</th><th>Base Mark</th><th>Unit</th><th colspan="2">Contribution in Evaluation, %</th></tr>
<tr><td colspan="2">Midterm</td><td>45</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Short-Exams</td><td>45</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Term Homework/Project</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Lab Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>45</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
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</td></tr>
</table>

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level	**1**		**2**					**3**			**4**			**5**		
	Very Low		Low					Medium			High			Very High		
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	4	5	3	2	5	5	1	1	3	3	3	3	2	1	2	1
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DK-4	4	5	3	2	5	5	1	1	3	3	3	3	2	1	2	1
DK-5	4	5	3	2	5	5	1	1	3	3	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	INTRODUCTION TO ARTIFICIAL INTELLIGENCE -Definition Of Artificial Intelligence -History Of Artificial Intelligence - Smart things	Project Development
2	PROBLEM SOLVING WITH SEARCH METHOD - Ways to solve the problem - Types of problems - The parts of a problem - Sample problems	Project Development
3	SEARCH METHODS (BLIND CALL) -Breadth-First Search -Uniform-Cost Search - Depth-First Search Depth - Limited Search - Iterative Deepening Search - Bidirectional Call	Project Development
4	SEARCH METHODS (DATE SEARCH) Best-first search - Heuristic functions - Iterative deepening a* Search (Ida)*) - SMA* search - Hill climbing calling	Project Development

5	GAME PLAYING - Search problem and games - Perfect decisions in binary games - Evaluation functions - Cutting search - Alpha-Beta Pruning - Game Programs	Project Development
6	FIRST ORDER LOGIC - Syntax and semantics - Use of First - Order logic	Project Development
7	INFERENCE İN FİRST ORDER LOGİC - Unification - Forward ve Backward Chaining - Completeness - Resolution	Project Development
8	LOGICAL REASONING SYSTEMS - Indexing, retrieval and unification - Logic programming systems - Theorem proofs - Roofing systems and semantics networks	Project Development
9	MIDTERM	
10	PLANNING - Basic presentations for planning - Statement of status and targets - Expression of movements - State space and plan space. - Statements of plans - Solution	Project Development
11	PLANNING - Partial Sequence Planning Example - Partial Sequence Scheduling Algorithm - Knowledge Engineering For Planning	Project Development
12	PRACTICAL PLANNING -Split into hierarchical parts -Analysis of hierarchical parts -Resource constraints	Project Development
13	VAGUE INFORMATION (KNOWLEDGE) AND REASONING (REASONING)) -Uncertainty (Uncertainty) -Basic Probability Notation -Bayes rule and usage -Probabilistic Reasoning (Probabilistic Reasoning) -Trust (Blief) Networks	Project Development
14	LEARNING - Learning from observation - Learning With Artificial Neural Networks - Learning With Confidence (Belief) Networks - Reinforcement Learning	Project Development
15	COMPUTER VISION AND ROBOTS - Image Processing - Object presentation - Object recognition	Project Development

16	COMPUTER VISION AND ROBOTS -Robots -Robot architecture -Navigation and navigation planning	Project Development

ECTS / WORKLOAD TABLE

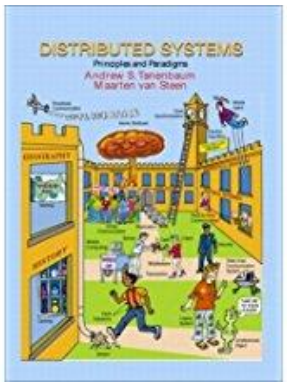
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	3	45
Application	-	-	-
Studying Period out of Course	15	3	45
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	10	10
Final Exam	1	2	2
Individual Study for Final Exam	1	16	16
TOTAL WORKLOAD	120 Hour		
ECTS OF COURSE	Total workload / 30 = 120 / 30 = 4		4 Credit

Last update date	11.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Distributed Systems	BİM-434	4/II	3+0+0	3	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Computer Networks
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	In this course, the reasons and consequences of the emergence of distributed systems will be explained and the solutions and techniques that are brought to the problems will be explained.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Knows the principles of distributed system (DS). 2. Knows the concept of communication and the methods used. 3. Know processes and their use. 4. Knows examples of distributed systems. 5. Knows the security methods used in distributed systems.
Content of the Course	:	In this course, communication, process, naming, synchronization, consistency and replication, fault tolerance and security issues that arise as common issues of distributed systems will be discussed in detail. Distributed object-oriented systems, distributed file systems, distributed document-based systems, such as some examples from existing applications will provide a better understanding of the concept of distributed distem.

<table>
<tr><td>Course Book</td><td>1. Dıstrıbuted Systems-Prıncıples And Paradıgms,Andrew Tanenbaum,Maarten Van Steen, Prentıce Hall, 2002
  </td></tr>
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<tr><td colspan="2">Midterm</td><td>45</td><td>1</td><td colspan="2">24%</td></tr>
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<tr><td>Lab Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>45</td><td>1</td><td colspan="2">60%</td></tr>
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Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level	**1**		**2**					**3**	**4**				**5**			
	Very Low		Low					Medium	High				Very High			
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
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DK-2	2	3	3	3	4	3	5	3	1	3	3	3	2	1	2	1
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DK-5	2	3	3	3	4	3	5	3	1	3	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	DISTRIBUTED SYSTEMS (DS) PRINCIPLES AND EXAMPLES - Definition of DS - DS objectives - Multi-processors, homogeneous/heterogeneous, multi-computer systems	Project Development
2	DISTRIBUTED SYSTEMS (DS) PRINCIPLES AND EXAMPLES - Distributed and network operating systems (dos , nos)) - Middleware - Client-server model	Project Development
3	COMMUNICATION - Lower, transport and top-level protocols - RMI (remote method execution) - RPC (remote procedure call)	Project Development
4	COMMUNICATION - A message-based communication - Stream-based communication	Project Development
5	PROCESSES - Threads - Use of thread in distributed systems - Multi-thread client-presenters	Project Development
6	PROCESSES - X-windows - Kod taşıma - Yazılım ajanları	Project Development
7	NAMING - Names, identifiers, addresses - Name resolution - The realization of the name space	Project Development

8	NAMING - Determining the location of moving assets - Simple solutions, home-based and hierarchical solutions - Cleaning of non-reference materials	Project Development
9	MIDTERM	
10	SYNCHRONIZATION - Clock synchronization and logical hours - Elimination methods - Distributed transaction processing	Project Development
11	CONSISTENCY AND REPLICATION - The necessity of replication - Data-centric consistency models - Client- centric consistency models	Project Development
12	CONSISTENCY AND REPLICATION - Distribution protocols - Consistency protocols	Project Development
13	FAULT TOLERANCE - Secure client-presenter communication - Secure group communication - Distributed commit and rescue	Project Development
14	SECURITY - Secure channels and access control - Security management - Sample applications : Sesame, Kerberos, electronic payment systems	Project Development
15	DS SAMPLE APPLICATIONS - Distributed object based systems - Distributed File Systems	Project Development
16	DS SAMPLE APPLICATIONS - Distributed document-based systems - Distributed coordination systems	Project Development

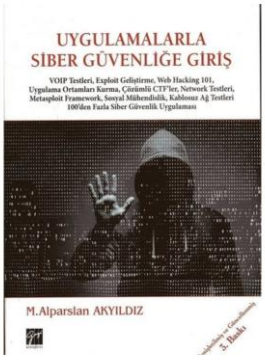
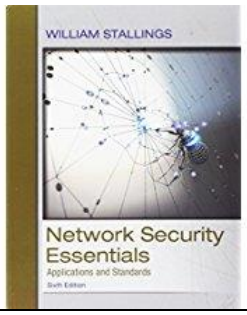
ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	3	45
Application	-	-	-
Studying Period out of Course	15	2	30
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	5	5
Final Exam	1	2	2
Individual Study for Final Exam	1	6	6
TOTAL WORKLOAD	90 Hour		
ECTS OF COURSE	Total workload / 30 = 90 / 30 = 3		3 Credit

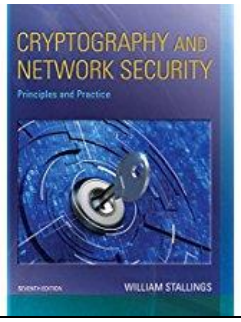
Last update date	11.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

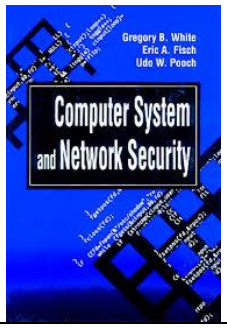
NAVAL ACADEMY
COMPUTER ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Information Systems Security	BİM-435	4/II	4+0+0	3	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	No
Course Instructor	:	Computer Eng. Instructor
Purpose of the Course	:	In this course, it is aimed to teach how to protect information systems from threats and these threats. It will be ensured that the students will be aware of information warfare and reach the level that will follow the technological developments in the future.
Course's Learning Outcomes	:	Students who have successfully completed this course; 1. Understand the basics of computer security. 2. Knows encryption techniques and applications 3. Know the principles of Information Security. 4. Knows the precautions against viruses and harmful software. 5. Knows the concept of firewalls
Content of the Course	:	In this course, students will be able to prepare themselves for the information war that is going on today and reach the level to follow the technological developments in this direction.

<table>
<tr><td>Course Book</td><td>1. Introduction to Cyber Security with Applications (M.Alparslan Yıldız, Gazi Kitabevi, 2017)
 
</td></tr>
<tr><td>Other Sources</td><td>1. Network Security Essentials William Stallings
2. Cryptography and Network Security (William Stallings)
3. Computer System and Network Security (Gregory B. White, Eric A. Fish, Udo W. Pooch)
 

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<tr><td colspan="2">Midterm</td><td>45</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Short Exams</td><td>45</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Term Homework/Project</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Lab Application</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>45</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>45</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>45</td><td>-</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To able to apply mathematic,science and engineering knowladge,					x
2	To able to use basic computer engineering concepts, algorithms, applications and solutions during encountered problems' identification, solution and analysis,					x
3	Experiment design, data analysis and interpretation skill,					x
4	Setting, configuring, managing and operating a system or its part which is based on computer background to provide desired needs under economical, environmental, social, political, etical, healthy, trusty, productive restrictions,			x		
5	To able to formulate, find solutions and identificate problems about information and softwares systems according to their needs,				x	
6	To able to finding appropriate method and apply to solve problem,					x
7	To able to use IT technologies effeciently,					x
8	To able to develop software and setting special computer background for solutions,				x	
9	Being aware of neccessary methods and software packages for computer engineering,				x	
10	Verbal or written, communicating with customers and team members in work ethic.		x			
11	Having professional and ethic responsibility conciousness,			x		
12	Self-development by understand importance of lifetime learning and following innovations in science and technology area,				x	
13	Setting Communication and expressing ideas in verbal or written way clearly by having individual study and making decition independently,					
14	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,	x				
15	To be able to use Turkish in oral and written environments,	x				
16	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level,		x			

PROGRAM QUALIFICATIONS AND COURSE'S LEARNING OUTCOMES RELATION																
Contribution Level			**1**				**2**			**3**		**4**		**5**		
			Very Low				Low			Medium		High		Very High		
Computer Engineering																
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**	**PY- 12**	**PY- 13**	**PY- 14**	**PY- 15**	**PY- 16**
DK-1	3	4	2	4	4	3	3	1	1	3	3	3	2	1	2	1
DK-2	3	4	2	4	4	3	3	1	1	3	3	3	2	1	2	1
DK-3	3	4	2	4	4	3	3	1	1	3	3	3	2	1	2	1
DK-4	3	4	2	4	4	3	3	1	1	3	3	3	2	1	2	1
DK-5	3	4	2	4	4	3	3	1	1	3	3	3	2	1	2	1

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Basics of Computer Security	Project Development
2	Encryption Techniques	Project Development
3	Message Vaccination	Project Development
4	Digital Sign	Project Development
5	Vaccination Applications	Project Development
6	E-mail Security	Project Development
7	E-mail Security	Project Development
8	IP Security	Project Development
9	MIDTERM	
10	WEB Security	Project Development
11	Network Management Security	Project Development
12	Security Attacks	Project Development
13	Viruses and Malicious Softwares	Project Development
14	Viruses and Malicious Softwares	Project Development
15	Firewalls	Project Development
16	Trusted Systems	Project Development

ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME(HOUR)**	**PREDICTION of WORKLOAD**
Teoric Course	15	4	60
Application	-	-	-
Studying Period out of Course	15	2	30
Completing Homeworks and Delivering as a report	-	-	-
Term Project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm	1	2	2
Individual Study for Mid-Term	1	10	10
Final Exam	1	2	2
Individual Study for Final Exam	1	16	16
TOTAL WORKLOAD	120 Hour		
ECTS OF COURSE	Total workload / 30 = 120 / 30 = 4		4 Credit

Last update date	11.03.2019
Updated Person	Dr.Öğ.Üyesi Müh.Kd.Alb.Tolga ÖNEL

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Introduction to Electronic Engineering	ELM-211	2/III	2+0+0	2	2

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Physics and Mathematics
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	To teach the basic properties of direct current circuits related to Electrical-Electronics Engineering, to transfer the necessary mathematical relations, theorems and methods for the analysis of these circuits for engineering and to teach the information and methods related to the calculation of electrical values such as current, voltage and power.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1.Define circuit variables, voltage, current, power and energy. 2.Define dependent and independent sources and will be able to show their transformations through circuit models. 3.Solve the resistance circuits of series and parallel and will be able to define Kirchhoff's current and voltage laws. 4.Analyze superposition theorems on circuit models by using the loop currents and node voltages. 5.Analyze Thevenin, Norton and maximum power theorems on circuit models. 6.Find the desired current or voltage value in a circuit model by using more than one method and technique. 7.Define the capacity, inductor and make solutions on the circuit.
Content of the Course	:	Basic Characteristics of Direct Current (DC) Circuits, Mathematical Relations, Theorems and Methods for Analyzing DA Circuits, Laws and Methods for Calculation of Electrical Values such as Current, Voltage, Power in Circuit.

<table>
<tr><td>Course Book</td><td>1.J. W. Nilsson, S. A. Riedel, “Electric Circuits”, 6/E, Prentice Hall, 2001.
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 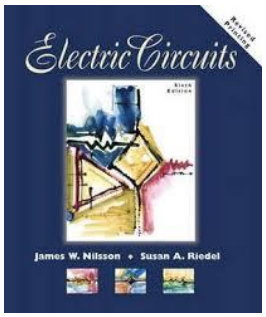

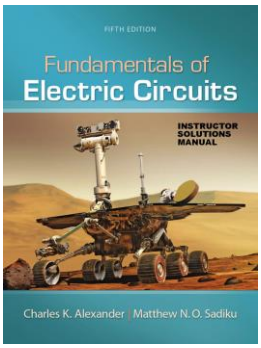
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<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td rowspan="6">16 %</td></tr>
<tr><td>Homeworks</td><td>50</td><td>5</td></tr>
<tr><td>Projects</td><td>50</td><td>0</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>0</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>0</td></tr>
<tr><td>Other Application</td><td>50</td><td>0</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
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Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
PY-1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
PY-2	To be able to use Turkish in oral and written environments.					
PY-3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
PY-4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					**X**
PY-5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					**X**
PY-6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				**X**	
PY-7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				**X**	
PY-8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
PY-9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.	**X**				
PY-10	Gains the ability of effective oral and written communication.	**X**				
PY-11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
PY-12	Having professional and ethic responsibility conciousness.			**X**		
PY-13	To be able to earn aweraness for business life applications.			**X**		
PY-14	Understands the legal, social and environmental effects of engineering applications at national and universal level.			**X**		

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION														
Contribution Level	**1**		**2**		**3**		**4**		**5**					
	Very Low		Low		Medium		High		Very High					
ELECTRICAL AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				5				4	5	3				3
DK-2							4		5					3
DK-3				5	5		5	5			4	3	3	
DK-4				5		5	5		1	1	3	3	3	
DK-5					4	4	5				3			
DK-6					4					3				3
DK-7				5				4	5	3				3

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Knowlegde, Science and Engineering, History Of Electronic	
2	Electrical Concepst	
3	Measuring Technique	
4	Circuit Components	
5	Electric Circuit	
6	Alternative Current	
7	Protection Measures Against Electric Shock	
8	Number Systems and Logic	
9	Signals	
10	Mid - Term	
11	Elegtromagnetism	
12	Sensors and Converters	
13	Electronic Circuit Design	

14	Engineering Ethic	
15	Quality Concept	

ECTS / WORKLOAD TABLE

ACTIVITIES	**NUMBER**	**TIME**	**PREDICTION of WORKLOAD**
Teoric Course	14	2	28
Application	14	-	-
Studying out of course	14	1	14
Completing Homeworks and Delivering as a report	--	--	--
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	63		
ECTS OF COURSE	Total workload / 30 = 63/30 = 2.1		2

Last Update Date	01 March 2019
Updated Person	Dr.Müh.Kd.Yzb.M.Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Circuit Theory 1	ELM-212	2/III	3+0+2	4	5

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Physics and Mathematics
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	To teach the basic properties of direct current circuits related to Electrical-Electronics Engineering, to transfer the necessary mathematical relations, theorems and methods for the analysis of these circuits for engineering and to teach the information and methods related to the calculation of electrical values such as current, voltage and power.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1.Define circuit variables, voltage, current, power and energy. 2.Define dependent and independent sources and will be able to show their transformations through circuit models. 3.Solve the resistance circuits of series and parallel and will be able to define Kirchhoff's current and voltage laws. 4.Analyze superposition theorems on circuit models by using the loop currents and node voltages. 5.Analyze Thevenin, Norton and maximum power theorems on circuit models. 6.Find the desired current or voltage value in a circuit model by using more than one method and technique. 7.Define the capacity, inductor and make solutions on the circuit
Content of the Course	:	Basic Characteristics of Direct Current (DC) Circuits, Mathematical Relations, Theorems and Methods for Analyzing DA Circuits, Laws and Methods for Calculation of Electrical Values such as Current, Voltage, Power in Circuit.

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 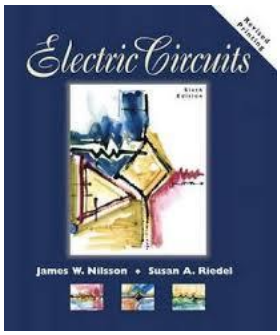

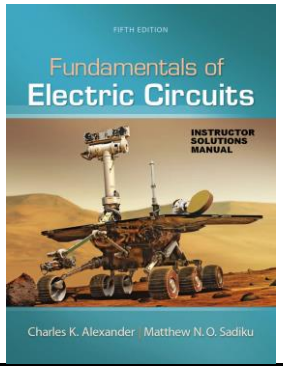
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<tr><td>Term Homework/ Project</td><td>50</td><td>0</td></tr>
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Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
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PY-2	To be able to use Turkish in oral and written environments.					
PY-3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
PY-4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					**X**
PY-5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					**X**
PY-6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				**X**	
PY-7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				**X**	
PY-8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
PY-9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.	**X**				
PY-10	Gains the ability of effective oral and written communication.	**X**				
PY-11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
PY-12	Having professional and ethic responsibility conciousness.			**X**		
PY-13	To be able to earn aweraness for business life applications.			**X**		
PY-14	Understands the legal, social and environmental effects of engineering applications at national and universal level.			**X**		

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION														
Contribution Level	**1**		**2**		**3**		**4**		**5**					
	Very Low		Low		Medium		High		Very High					
ELECTRICAL AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY-14**
DK-1				5				4	5	3				3
DK-2							4		5					3
DK-3				5	5		5	5			4	3	3	
DK-4				5		5	5		1	1	3	3	3	
DK-5					4	4	5				3			
DK-6					4					3				3
DK-7				5				4	5	3				3

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Voltage,Current , Ohm's law.	Problem Solving
2	Dependent and Independent Sources.	Problem Solving
3	Serial Parallel Resistor Circuits	Problem Solving and Laboratory Practice
4	Loop Current Method	Problem Solving and Laboratory Practice
5	Loop Current Method	Problem Solving and Laboratory Practice
6	Node Voltage Method	Problem Solving and Laboratory Practice
7	Node Voltage Method	Problem Solving
8	Node Voltage Method	Problem Solving and Laboratory Practice
9	Superposition Method	Problem Solving and Laboratory Practice

10	Mid-Term	
11	Thevenin/Norton Theorems.	Problem Solving and Laboratory Practice
12	Maximum Power Theorem	Problem Solving
13	Inductor/Capacitor.	Problem Solving and Laboratory Practice
14	RC and RL Circuits.	Problem Solving
15	RLC Circuits.	Problem Solving

ECTS / WORKLOAD TABLE

ACTIVITIES	**NUMBER**	**TIME**	**PREDICTION of WORKLOAD**
Teoric Course	14	3	42
Application	14	2	28
Studying out of course	14	5	70
Completing Homeworks and Delivering as a report	--	--	--
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	161		
ECTS OF COURSE	Total workload / 30 = 161/30 = 5.36		5

Last Update Date	01 March 2019
Updated Person	Dr.Müh.Kd.Yzb.M.Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Electronic 1	ELM-221	2 / IV	3+0+0	3	5

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Physics and Mathematics
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The aim of this course is to introduce the working principles of basic electronic circuits and to teach the important electronic circuits that can be encountered in every system.The aim of the course is to gain the basic electronic knowledge required for other essential electronic engineering courses.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Have knowledge about semiconductors which are the basis of electronic circuits. 2. Learn the working principles and application areas of diode elements. 3. Understand the principle of low signal operation. 4 Learn the working principles and applications of MOSFET and BJT transistors. 5 Learn the design and working principles of transistor amplifier circuits.
Content of the Course	:	Basic electronic circuit elements, structure and working principles, basic concepts related to electronic circuits, theorems and laws, analysis methods of electronic circuits and amplifiers, working principles. Diode applications, BJT and JFET & MOSFET analyzes.

<table>
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 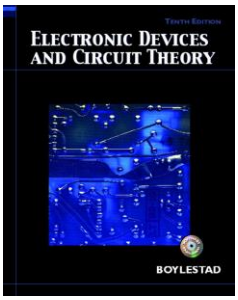 </td></tr>
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 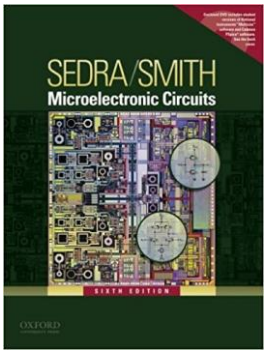 </td></tr>
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<tr><td>Term Homework/ Project</td><td>50</td><td>-</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>-</td></tr>
<tr><td>Other Application</td><td>50</td><td>-</td></tr>
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Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
2	To be able to use Turkish in oral and written environments.					
3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					X
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					X
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				X	
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				X	
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					X
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				X	
10	Gains the ability of effective oral and written communication.			X		
11	Ability to follow technological innovations and gain awareness of lifetime learning.				X	
12	Having professional and ethic responsibility conciousness.			X		
13	To be able to earn aweraness for business life applications.			X		
14	Understands the legal, social and environmental effects of engineering applications at national and universal level.					X

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION													
Contribution Level	**1**		**2**		**3**		**4**		**5**				
	Very Low		Low		Medium		High		Very High				
ELECTRICAL AND ELECTRONIC ENGINEERING													
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				3	4		3						3	
DK-2					4	4	4		3					5
DK-3				5	5			5	4	3		3	3	4
DK-4					4	4	4				4		2	
DK-5					5		3							3

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Semiconductor Physics	
2	Basic Working Principle Of Diode Elements	
3	Clipping and Rectifer Circuits	
4	Small Signal Application Principle, Non-linear Transfer Functions	
5	Basic Diode Applications	
6	Basic Principles and Applications of MOSFET	
7	Common Drain MOSFET Amplifier	
8	Common Base ve Common Source MOSFET Amplifier	
9	Mid-Term	
10	DC Analysis	
11	AC Analysis	
12	MOSFET Used Amplifier Circuits	
13	Basic Principles of BJT	
13	Similarities and Differences of MOSFET and BJT Transistors	
14	Multilayer Amplifier Circuits and Design	
15	Multilayer Amplifier Circuits and Design	

ECTS / WORKLOAD TABLE

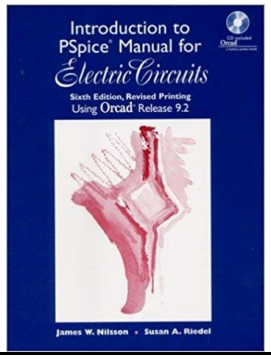
ACTIVITIES	NUMBER	TIME	PREDICTION of WORKLOAD
Teoric Course	14	3	42
Application	--	--	--
Studying out of course	14	5	70
Completing Homeworks and Delivering as a report	10	1	10
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	143		
ECTS OF COURSE	Total workload / 30 = 143/30 = 4.76		5

Last Update Date	01 March 2019
Updated Person	Dr.Müh.Kd.Yzb.M.Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Circuit Theory-2	ELM-222	2/IV	3+0+0	3	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Circuit Theory 1.
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The aim of this course is to introduce the basic concepts of alternating current circuits within the scope of Electrical-Electronics Engineering and to give the principles of circuit analysis.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Learn the properties of alternating current signals. 2. Will be able to analyze electrical circuits which contain passive circuit elements as phasors. 3. Examine the passive filter circuits and learn their basics. 4. will be able to perform analysis of electrical circuits with complex numbers. 5. Will be able to analyze alternative current circuits by using different methods. 6. Understand the basic properties of three-phase systems and understand their analysis techniques.
Content of the Course	:	Characteristics of Alternating Current Signals, Basic Electrical Circuits Performed by Passive Circuit Components, Analysis Techniques of Alternating Current Circuits, Three Phase Systems

<table>
<tr><td>Course Book</td><td>1. J. W. Nilsson, S. A. Riedel, “Electric Circuits”, 6/E, Prentice Hall, 2001.
2. Circuit Analysis 1-2 Course Book, DHO, 2006.
 


</td></tr>
<tr><td>Other Sources</td><td>1. Electrical Circuit Analysis 2, Ş.Özbey, 2012.
2. Alternative Current (AC) Circuit Analysis, H.S.Selek, 2008
 
</td></tr>
<tr><td>Homeworks and Projects</td><td>Homeworks are given to students weekly.</td></tr>
<tr><td>Computer Usage</td><td>Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td>Other Applications</td><td>--</td></tr>
<tr><td>Achievement Evaluation System</td><td>
<table>
<tr><th colspan="2">Activites</th><th>Base Mark</th><th>Unit</th><th>Contribution in Evaluation, %</th></tr>
<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td>24%</td></tr>
<tr><td rowspan="6">Yarıyıl Değerlendirme</td><td>Short-Exams</td><td>50</td><td>4</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>50</td><td>4</td></tr>
<tr><td>Projects</td><td>50</td><td>0</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>0</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>0</td></tr>
<tr><td>Other Application</td><td>50</td><td>0</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
</table>
</td></tr>
</table>

	Integration / NYS	50	1 (NOTE1)	100%
	One Course / Add. NYS	50	1 (NOTE2)	100%

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.
NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sayfa No.	Program Yeterlilikleri	Dersin Katkı Düzeyi				
		1	2	3	4	5
1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
2	To be able to use Turkish in oral and written environments.					
3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					**X**
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					**X**
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				**X**	
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				**X**	
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				**X**	
10	Gains the ability of effective oral and written communication.			**X**		
11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
12	Having professional and ethic responsibility conciousness.			**X**		
13	To be able to earn aweraness for business life applications.			**X**		

14	Understands the legal, social and environmental effects of engineering applications at national and universal level.					**X**

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION														
Contribution Level	**1**		**2**		**3**		**4**		**5**					
	Very Low		Low		Medium		High		Very High					
ELECTRICAL AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				3	4		3						3	
DK-2					4	4	4		3					5
DK-3				5	5			5	4	3		3	3	4
DK-4					4	4	4				4		2	
DK-5					5		3							3
DK-6				4		3	2		4				3	4

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Alternating Current Symbols and Basic Properties	Measuring Instruments And Introduction of Sources
2	Wave Equations of Alternative Signals	Interpretation of AC Signals with Oscilloscope
3	Phasor Expression of Alternative Signs	Problem Solving
4	Alternating Current Circuits with Passive Circuit Components	Problem Solving
5	Power in Alternating Current Circuits	Problem Solving
6	Circuits with Serial and Parallel Passive Circuit Elements	Experimental examination of Serial and Parallel RL and RC Circuits
7	Correction of Power Factor in Alternating Current Circuits	Problem Solving
8	Resonance Circuits and Frequency Selective Circuits Analysis	Experimental Measurements for series and parallel RLC circuits
9	Resonance Circuits and Frequency Selective Circuits Analysis	Problem Solving
10	Mid-Term	
11	Circuit Analysis with Complex Numbers	Problem Solving
12	Analysis of Alternating Current Circuits by Node and Loop Analysis	Problem Solving

13	Analysis with Superposition Methods	Experimental Proofs of Different Theorems
14	Analysis by Thevenin and Norton Theorem Methods	Problem Solving
15	Maximum Power Transfer in Alternating Current Circuits and Analysis Methods of Three Phase Systems	Problem Solving

ECTS / WORKLOAD TABLE

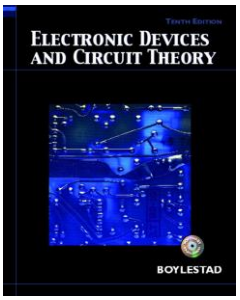
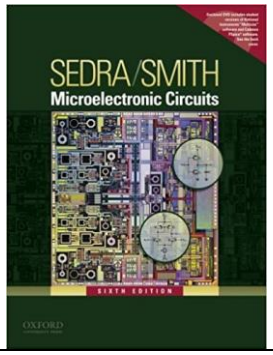
ACTIVITIES	**NUMBER**	**TIME**	**PREDICTION of WORKLOAD**
Teoric Course	14	3	42
Application	--	--	--
Studying out of course	15	3	45
Completing Homeworks and Delivering as a report	4	2	8
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	4	1	4
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	2	2
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	119		
ECTS OF COURSE	Total workload / 30 = 119/30 = 3.96		4

Last Update Date	01 March 2019
Updated Person	Dr.Müh.Kd.Yzb.M.Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Electronic Laboratory	ELM-223	2 / IV	0+0+2	1	2

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Physics and Mathematics
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	To provide the theoretical knowledge taught in electronics-I course through experimental and signal imaging activities performed in the laboratory.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. They will have applications with semiconductors which are the foundations of electronic circuits. 2. Design diode elements with trimmer and rectifier circuits and observe signal changes in the experimental setup. 3. Observe the effects of transistors with non-linear transfer function on high and low level input signals. 4 Design the amplifier circuit with MOSFET and BJT transistors. 5 Will be able to measure voltage current and resistance in the layers and various ports of transistor amplifier circuits.
Content of the Course	:	Basic electronic circuit elements, structure and operation principles, basic concepts, theorems and laws related to electronic circuits, analysis methods of electronic circuits and amplifiers, working principles. Diode applications, BJT and JFET & MOSFET analyzes.

<table>
<tr><td>Course Book</td><td>Electronic Devıces And Cırcuıt Theory, R. Boylestad, L.Nashelsky, 2009
  </td></tr>
<tr><td>Other Sources</td><td>Microelectronic Circuits, Sedra & Smith
Experiments
  </td></tr>
<tr><td>Homeworks and Projects</td><td>--</td></tr>
<tr><td>Computer Usage</td><td>Designs will be made by using SIMULINK, PROTEUS and MULTIMIC programs.</td></tr>
<tr><td>Other Applications</td><td>--</td></tr>
<tr><td>Achievement Evaluation System</td><td colspan="4"><table>
<tr><th colspan="2">Activites</th><th>Base Mark</th><th>Unit</th><th>Contribution in Evaluation, %</th></tr>
<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td>24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>50</td><td>10</td></tr>
<tr><td>Projects</td><td>50</td><td>-</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>-</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>-</td></tr>
<tr><td>Other Application</td><td>50</td><td>-</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>50</td><td>1 (NOTE 1)</td><td>100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>50</td><td>1 (NOTE 2)</td><td>100%</td></tr>
</table></td></tr>
</table>

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.

NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	Program Qualifications	Course Contribution Level				
		1	**2**	**3**	**4**	**5**
1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
2	To be able to use Turkish in oral and written environments.					
3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					**X**
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					**X**
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				**X**	
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				**X**	
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				**X**	
10	Gains the ability of effective oral and written communication.			**X**		
11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
12	Having professional and ethic responsibility conciousness.			**X**		
13	To be able to earn aweraness for business life applications.			**X**		

14	Understands the legal, social and environmental effects of engineering applications at national and universal level.					**X**

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION													
Contribution Level	**1**		**2**		**3**		**4**		**5**				
	Very Low		Low		Medium		High		Very High				
ELECTRICAL AND ELECTRONIC ENGINEERING													
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				3	4		3						3	
DK-2					4	4	4		3					5
DK-3				5	5			5	4	3		3	3	4
DK-4					4	4	4				4		2	
DK-5					5		3							3

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1		Diode Characteristic and Brazing Tests.
2		Diode Characteristic and Brazing Tests.
3		Design Of The Clipping Circuit
4		Design Of The Rectifier Circuit
5		Test Of The Voltage Regulator
6		Test Of The Voltage Regulator
7		Test Of The Mosfet Characteristic For DC Analysis
8		Test Of The Mosfet Characteristic For DC Analysis
9		Mid-Term
10		Transistor Time, Heat and Light Switch Test
11		Transistor Time, Heat and Light Switch Test
12		Transistor Time, Heat and Light Switch Test
13		Transistor Amplifier Circuit Design
13		Transistor Amplifier Circuit Design
14		Transistor Amplifier Circuit Design
15		Test Report Results

ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME**	**PREDICTION of WORKLOAD**
Teoric Course	--	-	--
Application	14	2	28
Studying out of course	--	--	--
Completing Homeworks and Delivering as a report	7	3	21
Term Project	--	--	--
Project Presentation		--	--
Quiz	--	--	--
Mid-Term	1	2	2
Individual Study for Mid-Term	--	--	--
Final Exam	1	2	2
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	53		
ECTS OF COURSE	Total workload / 30 = 52/30 = 1.76		2

Last Update Date	01 March 2019
Updated Person	Dr.Müh.Kd.Yzb.M.Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/Semester	Course Time (H+T+L)	Credit	ECTS
Electrotechnics	ELM-224	2/ IV	2+0+0	2	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Physics and Mathematics
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The aim of this course is to give the basic principles of electrical circuit and measurement in order to understand the structure and duties of electrical circuits and machines in our ships and coastal facilities, to introduce the working principles of electric machines and to teach the important electrical circuits that can be encountered in every system.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Have knowledge about basic concepts of electrical circuits. 2. Understand the principles of measurement techniques and devices used in electrical circuits. 3. Learn the properties of alternating current circuits. 4. have knowledge about different methods used in the analysis of alternating current circuits. 5. Have knowledge about transformers and their application areas. 6. They will have knowledge about basic working principles of electrical machines.
Content of the Course	:	Basic Concepts, Theorems and Laws of Electrical Circuits, Electrical Circuit Elements, Analysis Methods of Electrical Circuits, Basic Operation Principles of Electrical Machines.

<table>
<tr><td>Course Book</td><td colspan="4">1. Ship Electricity and Electrotechnics, İ. Abbasoğlu 2010
 
</td></tr>
<tr><td>Other Sources</td><td colspan="4"></td></tr>
<tr><td>Homeworks and Projects</td><td colspan="4"></td></tr>
<tr><td>Computer Usage</td><td colspan="4">Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td>Other Applications</td><td colspan="4"></td></tr>
<tr><td rowspan="11">Achievement Evaluation System</td><td colspan="2">Activites</td><td>Base Mark</td><td>Unit</td><td>Contribution in Evaluation, %</td></tr>
<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td>24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>3</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>50</td><td>2</td></tr>
<tr><td>Projects</td><td>50</td><td>-</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>-</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>-</td></tr>
<tr><td>Other Application</td><td>50</td><td>-</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>50</td><td>1 (NOTE 1)</td><td>100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>50</td><td>1 (NOTE 2)</td><td>100%</td></tr>
</table>

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.

NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
2	To be able to use Turkish in oral and written environments.					
3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.				**X**	
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.				**X**	
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.			**X**		
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.			**X**		
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				**X**	
10	Gains the ability of effective oral and written communication.			**X**		
11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
12	Having professional and ethic responsibility conciousness.			**X**		
13	To be able to earn aweraness for business life applications.			**X**		
14	Understands the legal, social and environmental effects of engineering applications at national and universal level.		**X**			

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION														
Contribution Level	**1**		**2**		**3**		**4**		**5**					
	Very Low		Low		Medium		High		Very High					
ELECTRICAL AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				3			2			3			3	2
DK-2					4		2		3	3	4			2
DK-3				4	4			5	4	3		3	2	
DK-4						3	3				4	3	2	
DK-5				4	3	3	3	5	4			3		
DK-6				4		3								2

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Electric Power Production and Basic Concepts	
2	Basic Safety in Electricity	
3	Electrostatic Force and Electrical Potential	
4	Electricity Power and Measuring Instruments	
5	Electrical Cables and Measuring Instruments	
6	Accumulator	
7	DC Circuits	
8	Electromagnetism and Capacitor	
9	Mid-Term	
10	İnduction and Electromagnetic Force	
11	Alternating Current and Transformer	
12	Generators and Electric Motors	

13	Electric Transmission System in Ships	
14	DC Generators and DC Motors	
15	AC Generators and AC Motors	

ECTS / WORKLOAD TABLE

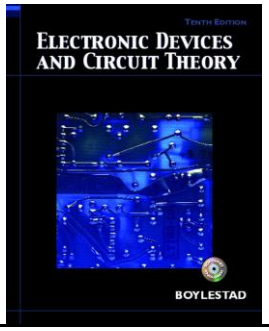
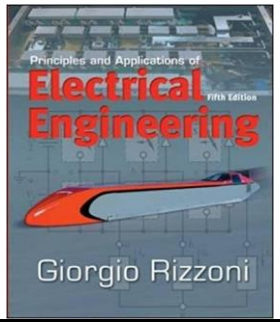
ACTIVITIES	NUMBER	TIME	PREDICTION of WORKLOAD
Teoric Course	14	2	28
Application	--	--	--
Studying out of course	14	3	42
Completing Homeworks and Delivering as a report	2	1	2
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	3	1	3
Mid-Term	2	1	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	96		
ECTS OF COURSE	Total workload / 30 = 96/30= 3.20		3

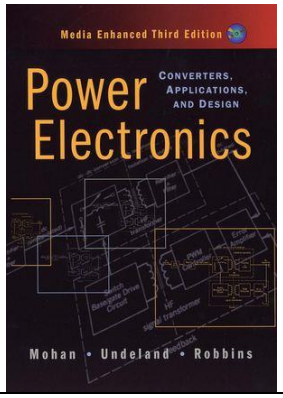
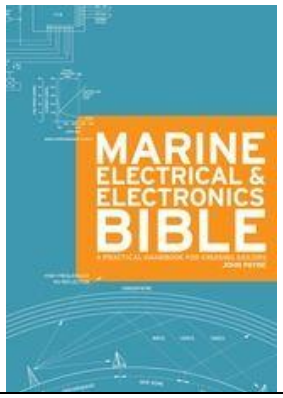
Last Update Date	01 March 2019
Updated Person	Dr.Müh.Kd.Yzb.M.Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Fundamentals of Electronics	ELM-311	3 / V	3+0+0	3	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Electrotechnics
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The aim of this course is to give basic electronic concepts in order to understand the working methods, structure and tasks of communications and all types of electronic devices, radar and sonars in our ships and coastal facilities.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. understand the basic electronic circuit elements. 2. have knowledge about basic electronic circuits. 3. Learn the methods of analysis of basic electronic circuits. 4. read electronic circuit diagrams on ships. 5. Understands and solves the problems that may occur in electronic systems in ship machinery.
Content of the Course	:	Fundamentals of electronics and power electronics. Test of power electronic circuit elements. Fault diagnosis. Unit systems and measurement methods. Measuring devices. Testing of electronic circuits and receivers. Numerical techniques; codes, doors, function blocks, memory, input-output systems, programmable systems and components. Electronic applications in ship machinery and systems.

<table>
<tr><td>Course Book</td><td>1. Electronic Devıces And Cırcuıt Theory, R. Boylestad, L.Nashelsky, 2009
2. Principles And Applications of Electrical Engineering; M.G.Hill, G. Rizzoni
 
  </td></tr>
<tr><td>Other Sources</td><td>1. Ned Mohen, Power Electronics: Converters, Applications and Design, Third Edition, University of Minnesota, Willey, 2003

2. John C. Payne, The Marine Electrical and Electronics Bible, Second Edition, Adlard Coles Nautical, London 2000.
 
  </td></tr>
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<tr><td>Achievement Evaluation System</td><td>
<table>
<tr><th colspan="2">Activites</th><th>Base Mark</th><th>Unit</th><th>Contribution in Evaluation, %</th></tr>
<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td>24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>50</td><td>2</td></tr>
<tr><td>Projects</td><td>50</td><td>0</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>0</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>0</td></tr>
<tr><td>Other Application</td><td>50</td><td>0</td></tr>
<tr><td colspan="2">Final Exam</td><td></td><td>1</td><td>60%</td></tr>
</table>
</td></tr>
</table>

	Integration / NYS	50	1 (NOTE 1)	100%
	One Course / Add. NYS	50	1 (NOTE 2)	100%

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.

NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
2	To be able to use Turkish in oral and written environments.					
3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.				**X**	
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.				**X**	
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.			**X**		
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.			**X**		
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				**X**	
10	Gains the ability of effective oral and written communication.			**X**		
11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
12	Having professional and ethic responsibility conciousness.			**X**		

13	To be able to earn aweraness for business life applications.			**X**		
14	Understands the legal, social and environmental effects of engineering applications at national and universal level.		**X**			

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION														
Contribution Level	**1**		**2**		**3**		**4**		**5**					
	Very Low		Low		Medium		High		Very High					
ELECTRICAL AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				3	4		2						3	
DK-2					4	3			3					2
DK-3				4		3		5	4	3		3	3	
DK-4				4			3				4		2	2
DK-5					3		2		4		4		3	

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Introduction The Electronics	
2	Diodes and Diode Circuits	
3	Power Amplifier	
4	Signal Amplifier	
5	Weak Signal Amplifier	
6	Weak Signal Amplifier	
7	High Signal Amplifier	
8	High Signal Amplifier	
9	Mid-Term	
10	Op-amp	
11	Op-amp	
12	Osilators	
13	Battle Systems	

14	Digital Circuits	
15	Electronic applications in ship machine systems	

ECTS / WORKLOAD TABLE

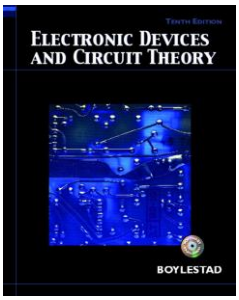
ACTIVITIES	**NUMBER**	**TIME**	**PREDICTION of WORKLOAD**
Teoric Course	14	3	42
Application	--	--	--
Studying out of course	10	3	30
Completing Homeworks and Delivering as a report	2	1	2
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	97 Saat		
ECTS OF COURSE	Total workload / 30 = 97 / 30 = 3.23		3

Last Update Date	01 March 2019
Updated Person	Dr.Müh.Kd.Yzb.M.Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Electronic-II	ELM-312	3/V	3+0+0	3	5

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Electronic-I
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The basic amplifier circuits, which are a step in the completion of basic electronic information, are used to analyze the gain-frequency curve by performing low and high frequency analysis, feedback types, operational amplifiers and their applications, positive feedback circuits, oscillators, linear power supplies and power amplifier circuits. to give the basic structure of the circuit analysis.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. perform DC and AC analysis of single storey transistor circuits. 2. perform AC analysis of multi-storey systems. 3. make AF and YF responses of single-storey amplifiers. 4. define the difference amplifiers. 5. do operational amplifier circuits and applications. 6. understand the working principles of power amplifier circuits. 7. practice the principles and applications of oscillators. 8. implement IC voltage regulator circuits.
Content of the Course	:	MOSFET amplifier circuits, multistage amplifier circuits, frequency response of BJT and MOSFET amplifier circuits, operational amplifiers and applications, A class power amplifiers, oscillators and regulated power supplies.

<table>
<tr><td>Course Book</td><td>Electronic Devices and Circuit Theory, 10/e, Robert L. Boylestad, Louis Nashalsky, Pearson&Prentice Hall, 2009.
 
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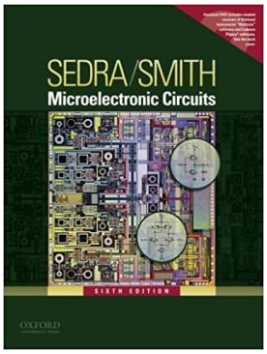
<tr><td>Other Sources</td><td>Microelectronic Circuits, Sedra & Smith
 
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<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td>24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>50</td><td>5</td></tr>
<tr><td>Projects</td><td>50</td><td>-</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>-</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>-</td></tr>
<tr><td>Other Application</td><td>50</td><td>-</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>50</td><td>1 (NOTE 1)</td><td>100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>50</td><td>1 (NOTE 2)</td><td>100%</td></tr>
</table>
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NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
2	To be able to use Turkish in oral and written environments.					
3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					**X**
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					**X**
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				**X**	
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				**X**	
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				**X**	
10	Gains the ability of effective oral and written communication.			**X**		
11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
12	Having professional and ethic responsibility conciousness.			**X**		
13	To be able to earn aweraness for business life applications.				**X**	

14	Understands the legal, social and environmental effects of engineering applications at national and universal level.					**X**

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION														
Contribution Level	Very Low		Low		Medium		High		Very High					
	1		**2**		**3**		**4**		**5**					
ELECTRICAL AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				5										
DK-2					4	3	4	5	4	4	4			4
DK-3				5	5	3	4	5	4	4	4	3	3	
DK-4					4			4	4					
DK-5				4	5	4		5	4	4	3		4	5
DK-6					3	4	4	4				3	4	
DK-7					4	4	4	5	4	3	4		4	3
DK-8				3		4		4			4			3

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	MOSFET Amplifier Circuits	
2	BJT Amplifier Circuits	
3	Multilayer Amplifiers	
4	BJT and MOSFET Frequency Response	
5	BJT and MOSFET Frequency Response	
6	Operational Amplifiers	
7	Operational Amplifiers	
8	Operational Amplifiers	
9	Mid-Term	
10	Operational Amplifiers	
11-12	Operational Amplifiers	
13	Power Amplifiers	
14	Oscillators	
15	Oscillators	

16	IC Voltage Regulators	

ECTS / WORKLOAD TABLE

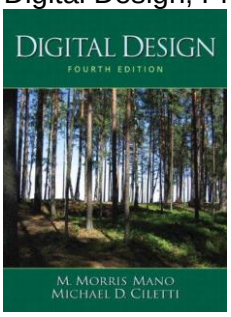
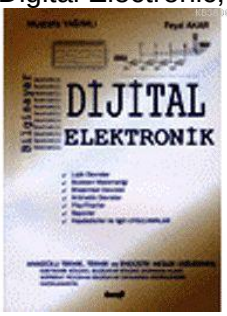
ACTIVITIES	NUMBER	TIME	PREDICTION of WORKLOAD
Teoric Course	14	3	42
Application	--	--	--
Studying out of course	14	5	70
Completing Homeworks and Delivering as a report	5	1.5	7.5
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	2	1	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	142.5		
ECTS OF COURSE	Total workload / 30 = 142.5= 4.75		5

Last Update Date	01 March 2019
Updated Person	Dr.Müh.Kd.Yzb.M.Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Digital Circuits	ELM-313	3 /V	2+2+0	3	5

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	-
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The aim of this course is to give information about analysis of digital systems and basic circuits and design of numerical components that form the basis of digital computers.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. They will have knowledge about number systems which are the basis of digital circuits. 2. Learn how to make Boolean algebra and related function definitions used in the design of digital systems. 3. They will have information about combinational logic circuits and systems using these circuits. 4. They will have information about combinational logic circuits and systems using these circuits. Decoder, Encoder, MUX, DEMUX Encoder, decoder, information selectors and distributors will have information about. 5. Have knowledge about sequential logic circuits and systems using these circuits. 6. Have knowledge about integrated circuit logic designs. Students will have knowledge about numerical elements and their designs.
Content of the Course	:	Number and code systems, basic digital electronic circuits, logic gates, Boolean algebra and Karnaugh map, counter designs, decoder, encoder, MUX, DEMUX encoder, decoder, information selectors and distributors, integrated circuit logic designs.

<table>
<tr><td>Course Book</td><td>Digital Design; Prentice Hall, Morris MANO.
  </td></tr>
<tr><td>Other Sources</td><td>Digital Electronic; F.Akar, M.Yağımlı
  </td></tr>
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<tr><td>Homeworks</td><td>50</td><td>5</td></tr>
<tr><td>Projects</td><td>50</td><td>0</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>0</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>0</td></tr>
<tr><td>Other Application</td><td>50</td><td>0</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
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Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
2	To be able to use Turkish in oral and written environments.					
3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					**X**
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					**X**
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				**X**	
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				**X**	
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				**X**	
10	Gains the ability of effective oral and written communication.			**X**		
11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
12	Having professional and ethic responsibility conciousness.			**X**		
13	To be able to earn aweraness for business life applications.			**X**		

14	Understands the legal, social and environmental effects of engineering applications at national and universal level.					**X**

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION													
Contribution Level	**1**		**2**		**3**		**4**		**5**				
	Very Low		Low		Medium		High		Very High				
ELECTRIC AND ELECTRONIC ENGINEERING													
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				3	4		3						3	
DK-2					4	4	4		3					5
DK-3					5			5		3		3	3	4
DK-4						4	4				4		2	
DK-5					5		3							3
DK-6				5	4				4		3			2

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Number Systems	Problem Solving
2	Boolean Algebra	Problem Solving
3	Simplification of Boolean Functions	Problem Solving
4	Combination Circuits	Problem Solving
5	Logic Elements Used in Digital Circuits	Problem Solving
6	Applications of Combinational Circuits	Problem Solving
7	Sequential Circuits	Problem Solving
8	Analysis and Design Principles of Sequential Circuits	Problem Solving
9	Mid Term	
10	Counters and Dividers	Problem Solving

11	Comparator Circuit Designs	Problem Solving
12	Integrated Circuit Counters	Problem Solving
13	Integrated Circuit Counters	Problem Solving
14	Memory Types and Organization	Problem Solving
15	Digital Computer Organization	Problem Solving

ECTS / WORKLOAD TABLE

ACTIVITIES	**NUMBER**	**TIME**	**PREDICTION of WORKLOAD**
Teoric Course	14	2	28
Application	14	2	28
Studying out of course	14	5	70
Completing Homeworks and Delivering as a report	5	1	5
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	154		
ECTS OF COURSE	Total workload / 30 = 154 / 30 = 5.13		5

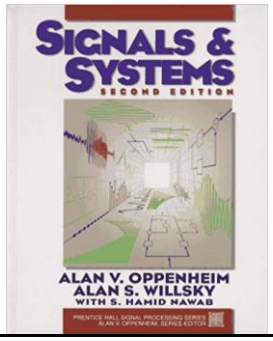
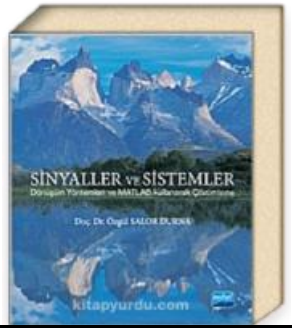
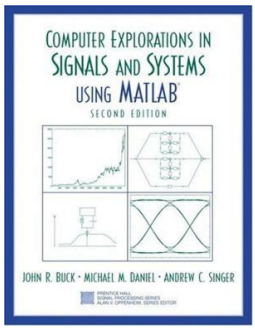
Last Update Date	01 March 2019
Updated Person	Dr.Müh.Kd.Yzb.M.Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Signals and Systems	ELM-314	3/ V	2+2+0	4	5

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	-
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The aim of this course is; To teach the basic concepts and analysis techniques of signals and systems within the scope of Electrical and Electronics Engineering.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1.define the concepts of signal and system and explain their relations as continuous or discrete time, periodic or aperistic, energy or power in order to classify signals. 2. Useful signal models: unit step, unit impulse, sinusoidal and exponential function. 3. classify systems as continuous or discrete-time, linear or non-linear, time-varying or unchanging, causal or non-causal, inverse or non-inverse, stable or unstable. 4. define the concept of impulse response of a system and calculate the response of an LTI system to any input using its impulse response and convolution. 5. express a periodic signal with a Fourier series. 6. tell how Fourier series representation of a periodic signal transforms into an Fourier transform of an aperiodic signal. 7. calculate the Fourier transform of an aperiodic signal and analyze and draw its amplitude and phase. 8. relate the definitions of signals and systems in the frequency domain to their characteristics in the time domain. 9. use frequency domain techniques to solve input / output problems of LTI systems. 10.explain the sampling theorem, including the original continuous-time signal, including those required to fully recover from its equally spaced samples.

Content of the Course	:	Signals and systems, linear time invariant systems, Laplace transform, Z transform, Fourier series and Fourier transform, sampling theorem.

Course Book	1. Signals and Systems, Alan Oppenheim and Alan S. Willsky with S. Hamid Nawab, Prentice Hall, 1997. 2. Sinyaller ve Sistemler, O.Gazi, 2014 3. Sinyaller ve Sistemler Dönüşüm Yöntemleri ve Matlab Kullanarak Çözümleme, M.J.Roberts, 2012   
Other Sources	1. Computer Explorations in Signals and Systems Using Matlab, 2/e, John R. Buck, Michael M. Daniel and Andrew C. Singer, Prentice Hall, 2001 2. İşletim Sistemleri ve Sistem Programlama, M.Avcı, B.M.Özyıldırım, O.Ülgen, 2016  
Homeworks and Projects	
Computer Usage	Students can do their homework by using computer (not obligatory).
Other Applications	

Achievement Evaluation System		**Activites**	**Base Mark**	**Unit**	**Contribution in Evaluation, %**	
		Mid-Term	50	1	24%	
	Term Evaluation	Short-Exams	50	4	%	16%
		Homeworks	50	6	%	
		Projects	50	0	%	
		Term Homework/Project	50	0	%	
		Lab. Application	50	0	%	

		Other Application	50	0	%	
	Final Exam		50	1	60%	
	Integration / NYS		50		100%	
	One Course / Add. NYS		50		100%	

Sayfa No.	Program Yeterlilikleri	Dersin Katkı Düzeyi				
		1	2	3	4	5
1	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					x
2	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					x
3	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.					x
4	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				x	
5	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.			x		
6	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.			x		
7	Gains the ability of effective oral and written communication.				x	
8	Ability to follow technological innovations and gain awareness of lifetime learning.				x	
9	Having professional and ethic responsibility conciousness.					x
10	To be able to earn aweraness for business life applications.					x
11	Understands the legal, social and environmental effects of engineering applications at national and universal level.			x		

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION											
Contribution Level	**1**		**2**			**3**	**4**			**5**	
	Very Low		Low			Medium	High			Very High	
ELECTRIC AND ELECTRONIC ENGINEERING											
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**
DK-1	5	5	5	4	3	3	4	4	5	5	3
DK-2	5	5	5	4	3	3	4	4	5	5	3
DK-3	5	5	5	4	3	3	4	4	5	5	3
DK-4	5	5	5	4	3	3	4	4	5	5	3
DK-5	5	5	5	4	3	3	4	4	5	5	3
DK-6	5	5	5	4	3	3	4	4	5	5	3
DK-7	5	5	5	4	3	3	4	4	5	5	3
DK-8	5	5	5	4	3	3	4	4	5	5	3
DK-9	5	5	5	4	3	3	4	4	5	5	3
DK-10	5	5	5	4	3	3	4	4	5	5	3

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Signals and Systems	Problem Solving
2	Signals and Systems	Problem Solving
3	Linear Time Steady Systems	Problem Solving
4	Linear Time Steady Systems	Problem Solving
5	Linear Time Steady Systems	Problem Solving
6	Fourier Series	Problem Solving
7	Fourier Series	Problem Solving
8	Continuous Time Fourier Transformation	Problem Solving
9	Mid Term	
10	Continuous Time Fourier Transformation	Problem Solving
11	Discrete Time Fourier Transformation	Problem Solving
12	Discrete Time Fourier Transformation	Problem Solving
13	Sampling	Problem Solving
14	Sampling	Problem Solving
15	Laplace Transformation	Problem Solving

ECTS / WORKLOAD TABLE

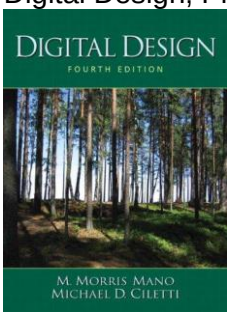
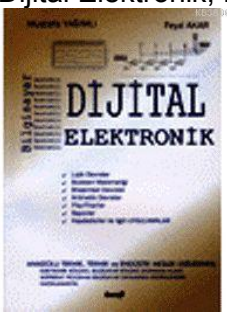
ACTIVITIES	NUMBER	TIME	PREDICTION of WORKLOAD
Teoric Course	14	2	28
Application	14	2	28
Studying out of course	14	4	56
Completing Homeworks and Delivering as a report	6	1	6
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	4	1	4
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	2	2
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	142		
ECTS OF COURSE	Total workload / 30 = 150/30 = 4.73		5

Last Update Date	01 March 2019
Updated Person	Dr.Müh.Kd.Yzb.M.Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Digital Systems	ELM-315	2/III	2+2+0	3	5

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	-
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The aim of this course is to give information about analysis of digital systems and basic circuits and design of numerical components that form the basis of digital computers.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. have knowledge about number systems which are the basis of digital circuits. 2. Learn how to make Boolean algebra and related function definitions used in the design of digital systems. 3. have information about combinational logic circuits and systems using these circuits. 4. have information about combinational logic circuits and systems using these circuits. Decoder, Encoder, MUX, DEMUX Encoder, decoder, information selectors and distributors will have information about. 5. Have knowledge about sequential logic circuits and systems using these circuits. 6. Have knowledge about integrated circuit logic designs. Students will have knowledge about numerical elements and their designs.
Content of the Course	:	Number and code systems, basic digital electronic circuits, logic gates, Boolean algebra and Karnaugh map, counter designs, decoder, encoder, MUX, DEMUX encoder, decoder, information selectors and distributors, integrated circuit logic designs.

<table>
<tr><td>Course Book</td><td>Digital Design; Prentice Hall, Morris MANO.
  </td></tr>
<tr><td>Other Sources</td><td>Dijital Elektronik; F.Akar, M.Yağımlı
  </td></tr>
<tr><td>Homeworks and Projects</td><td>Homeworks are given to students weekly.</td></tr>
<tr><td>Computer Usage</td><td>Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Achievement Evaluation System</td><td colspan="4"><table>
<tr><th colspan="2">Activites</th><th>Base Mark</th><th>Unit</th><th>Contribution in Evaluation, %</th></tr>
<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td>24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>50</td><td>5</td></tr>
<tr><td>Projects</td><td>50</td><td>0</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>0</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>0</td></tr>
<tr><td>Other Application</td><td>50</td><td>0</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>50</td><td>1 (NOTE 1)</td><td>100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>50</td><td>1 (NOTE 2)</td><td>100%</td></tr>
</table></td></tr>
</table>

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.

NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
2	To be able to use Turkish in oral and written environments.					
3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					**X**
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					**X**
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				**X**	
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				**X**	
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				**X**	
10	Gains the ability of effective oral and written communication.			**X**		
11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
12	Having professional and ethic responsibility conciousness.			**X**		
13	To be able to earn aweraness for business life applications.			**X**		

14	Understands the legal, social and environmental effects of engineering applications at national and universal level.					**X**

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION														
Contribution Level	**1**		**2**			**3**		**4**		**5**				
	Very Low		Low			Medium		High		Very High				
ELECTRIC AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				3	4		3						3	
DK-2					4	4	4		3					5
DK-3					5			5		3		3	3	4
DK-4						4	4				4		2	
DK-5					5		3							3
DK-6				5	4				4		3			2

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Number Systems	Problem Solving
2	Boolean Algebra	Problem Solving
3	Simplification of Boolean Functions	Problem Solving
4	Combination Circuits	Problem Solving
5	Logic Elements Used in Digital Circuits	Problem Solving
6	Applications of Combinational Circuits	Problem Solving
7	Sequential Circuits	Problem Solving
8	Analysis and Design Principles of Sequential Circuits	Problem Solving
9	Mid Term	
10	Counters and Dividers	Problem Solving
11	Comparator Circuit Designs	Problem Solving
12	Integrated Circuit Counters	Problem Solving
13	Integrated Circuit Counters	Problem Solving
14	Memory Types and Organization	Problem Solving
15	Digital Computer Organization	Problem Solving

ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME**	**PREDICTION of WORKLOAD**
Teoric Course	14	2	28
Application	14	2	28
Studying out of course	10	2	20
Completing Homeworks and Delivering as a report	5	1	5
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	5	1	5
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	107		
ECTS OF COURSE	Total workload / 30 = 107 / 30 = 3.56		4

Last Update Date	01 March 2019
Updated Person	Dr.Müh.Kd.Yzb.M.Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Communication Systems	ELM-321	3/ VI	3+0+0	3	5

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Circuit Analysis 1 and 2, Electronic 1 and 2.
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	To learn the basic concepts and information about communication systems and applications.
Course's Learning Outcomes	:	1. Will be able to explain the elements of electrical communication systems. 2. They will be able to do Fourier Method in waveform analysis. 3. Explain the principle of amplitude modulation and apply modulator / demodulator applications. 4. will be able to explain and apply the principle of double edge band and single edge band modulation. 5. Explain the principle of frequency / phase modulation and apply modulator / demodulator applications. 6. Explain the effects of noise. 7. Will be able to explain the principles of sampling, coding, and the basicization of signs.
Content of the Course	:	Introduction to Electrical Communication Systems, Frequency Dimension Analysis of Signals and Systems, Amplitude Modulation and Principles, G-M Signal Transmission and Reception, Edge Band Modulation, Transmission and Receipt of Frequency-Phase Modulation, Random Processes and Effects of Noise on Analog Systems,

	Information Sources and Coding.

Course Book	1. Communication Systems Engineering, 2/E, John. G. Proakis-Masoud Salehi, Prentice Hall, 2000. 2. Modern Analog and Digital Communication Systems, Lathi B.P. 4th edition 
Homeworks and Projects	Homeworks are given to students weekly.
Computer Usage	Students can do their homework by using computer (not obligatory).
Other Applications	

	Activites		**Base Mark**	**Unit**	**Contribution in Evaluation, %**	
Achievement Evaluation System	Mid-Term		50	1	24%	
	Term Evaluation	Short-Exams	50	2	%	16%
		Homeworks	50	5	%	
		Projects	50	0	%	
		Term Homework/ Project	50	0	%	
		Lab. Application	50	0	%	
		Other Application	50	0	%	
	Final Exam		50	1	60%	
	Integration / NYS		50	1 (NOTE 1)	100%	
	One Course / Add. NYS		50	1 (NOTE 2)	100%	

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.

NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					x
2	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					x
3	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.					x
4	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.					x
5	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.				x	
6	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.			x		
7	Gains the ability of effective oral and written communication.				x	
8	Ability to follow technological innovations and gain awareness of lifetime learning.				x	
9	Having professional and ethic responsibility conciousness.					x
10	To be able to earn aweraness for business life applications.					x
11	Understands the legal, social and environmental effects of engineering applications at national and universal level.				x	

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION											
Contribution Level	**1**		**2**			**3**	**4**			**5**	
	Very Low		Low			Medium	High			Very High	
ELECTRIC AND ELECTRONIC ENGINEERING											
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**
DK-1	5	5	3	5	4	1	4	4	5	5	3
DK-2	5	5	3	5	4	2	4	4	5	5	3
DK-3	5	5	5	5	4	3	4	4	5	5	3
DK-4	5	5	5	5	4	3	4	4	5	5	3
DK-5	5	5	5	5	4	3	4	4	5	5	3
DK-6	5	5	5	5	4	2	4	4	5	5	3
DK-7	5	5	5	5	4	3	4	4	5	5	3

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Electrical Communication Systems	Problem Solving
2	Signals and Systems, Frequency Size Analysis	Problem Solving
3	Amplitude Modulation	Problem Solving
4	Transmission of Amplitude Modulated Signals	Problem Solving
5	Transmission of Amplitude Modulated Signals	Problem Solving
6	Sideband Modulations	Problem Solving
7	Sideband Modulations	Problem Solving
8	Introduction To Frequency and Phase Modulation	Problem Solving
9	Mid Term	Problem Solving
10	Frequency and Phase Modulations	Problem Solving
11	Transmission of Frequency and Phase Modulated Signals	Problem Solving
12	Modulated of Frequency and Phase Modulated Sign	Problem Solving
13	Sampling	Problem Solving
14	Effect of Noise on Analog Systems	Problem Solving
15	Coding	Problem Solving

ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME**	**PREDICTION of WORKLOAD**
Teoric Course	14	3	42
Application	--	--	--
Studying out of course	14	5	70
Completing Homeworks and Delivering as a report	5	2	10
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	1	2	2
Individual Study for Mid-Term	1	8	8
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	147		
ECTS OF COURSE	Total workload / 30 = 147 / 30 = 4,9		5

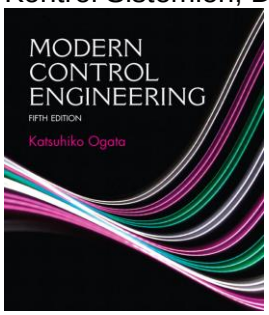
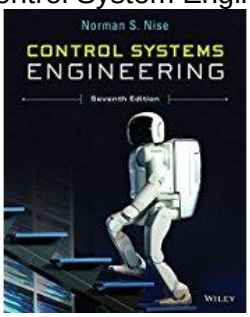
Last Update Date	01 March 2019
Updated Person	Dr.Müh.Kd.Yzb.M.Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Control Systems	ELM-322	3 / VI	2+2+0	3	5

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	--
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The aim of this course is to enable the students to gain knowledge and skills that provide the understanding of the functions and functions of control systems together with mathematical relations and to learn the necessary analysis methods for control systems.
Course's Learning Outcomes	:	1. To be able to explain the basic concepts of control systems. 2. Electrical, mechanical and electro mechanical control system to recognize the elements. 3. To be able to think control systems as blocks. 4. To be able to find the transfer functions of control systems. 5. To be able to analyze and interpret known control systems of transfer function. 6. To be able to comprehend the effects of control organs on control systems.

Content of the Course	:	Concepts of Control Systems, Laplace Transforms, Transfer Functions of Electromechanical Systems, Temporary and Continuous State Analysis, Stability in Control Systems, Root-Location Curves.

Course Book	Modern Control Engineering, K.OGATA, 2001, Otomatik Kontrol Sistemleri, B.C.KUO, 1999 Kontrol Sistemleri, DHO, 1987.  
Other Sources	Control System Engineering, N.S. NISE, 2006 
Homeworks and Projects	Homeworks are given to students weekly.
Computer Usage	Students can do their homework by using computer (not obligatory).
Other Applications	

Achievement Evaluation System

Activites		Base Mark	Unit	Contribution in Evaluation, %	
Mid-Term		50	1	24%	
Term Evaluation	Short-Exams	50	2	%	16%
	Homeworks	50	5	%	
	Projects	50	0	%	
	Term Homework/ Project	50	0	%	

		Lab. Application	50	0	%	
		Other Application	50	0	%	
	Final Exam		50	1	60%	
	Integration / NYS		50	1 (NOTE 1)	100%	
	One Course / Add. NYS		50	1 (NOTE 2)	100%	

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.

NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	**Program Qualifications**	**Course Contribution Level**				
		1	**2**	**3**	**4**	**5**
1	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					x
2	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					x
3	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.					x
4	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				x	
5	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.	x				
6	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.		x			
7	Gains the ability of effective oral and written communication.			x		
8	Ability to follow technological innovations and gain awareness of lifetime learning.				x	
9	Having professional and ethic responsibility conciousness.					x
10	To be able to earn aweraness for business life applications.					x

11	Understands the legal, social and environmental effects of engineering applications at national and universal level.			x		

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION											
Contribution Level		**1**		**2**			**3**	**4**		**5**	
		Very Low		Low			Medium	High		Very High	
ELECTRICAL AND ELECTRONIC ENGINEERING											
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**
DK-1	5	5	3			1	2	3	4	5	3
DK-2	5	5	4			2		4		5	
DK-3	5	5	5	2	1						
DK-4	5	5	5	4							
DK-5	5	5	3	4			3				
DK-6	5	5	4	3	1		2	4	5	5	

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Basic Concepts	
2	Laplace Transformations	Problem Solving
3	Mathematical Models and Transfer Functions	Problem Solving
4	Mathematical Models and Transfer Functions	Problem Solving
5	Block diagrams and signal flow diagrams	Problem Solving
6	Transfer function of electromechanical systems	Problem Solving
7	Industrial controllers	Problem Solving
8	Transient analysis of control systems	Problem Solving
9	Transient analysis of control systems	Problem Solving
10	Mid-Term	
11	Continuous state analysis of control systems	Problem Solving
12	Stability in Control Systems	Problem Solving
13	Stability in Control Systems	Problem Solving
14	Root-Location Curves	Problem Solving
15	Frequency Response Methods	Problem Solving

ECTS / WORKLOAD TABLE

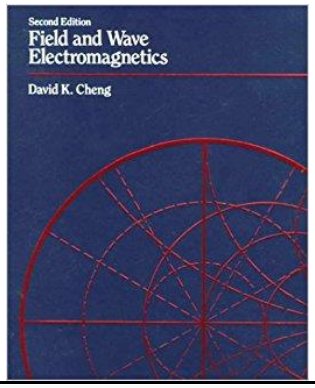
ACTIVITIES	NUMBER	TIME	PREDICTION of WORKLOAD
Teoric Course	14	2	28
Application	14	2	28
Studying out of course	14	4	56
Completing Homeworks and Delivering as a report	5	2	10
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	1	2	2
Individual Study for Mid-Term	1	4	4
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	145		
ECTS OF COURSE	Toplam İş Yükü / 30 = 145 / 30 = 4,83		5

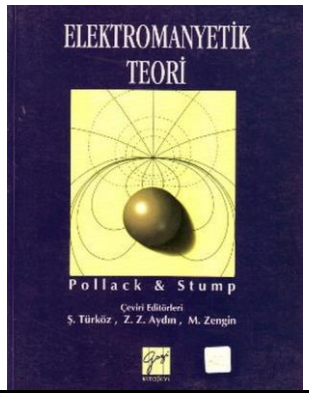
Last Update Date	01 March 2019
Updated Person	Dr.Müh.Kd.Yzb.M.Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Electromagnetic Theory	ELM-323	3 / VI	3+0+0	3	5

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Physics-II, Mathematics-2, Differential Equations
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The aim of this course is; To teach basic concepts and analysis techniques of electromagnetic theory within the scope of Electrical-Electronics Engineering.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. will be able to define electrical and magnetic field, electrical and vector potential, capacity, inductance and energy. 2. Apply electrostatic and magnetostatic theory to engineering problems. 3. Distinguish materials and environments according to their electrical and magnetic properties. 4. Will be able to define wave equation. 5. apply the properties of monochromatic waves to engineering problems. 6. Apply the properties of planar waves to engineering problems. 7. Distinguish different types of waveguides.
Content of the Course	:	Progressive waves, wave propagation, Maxwell's equations, constituent equations, poisson's equation, monochromatic waves, energy and poynting vector carried by electromagnetic waves, Maxwwell equations in terms of distribution, planar waves and diffraction, vector applications, guided waves and properties of linear antennas.

<table>
<tr><td>Course Book</td><td>1. Field and Wave Electromagnetics; D.Cheng.
2. Elektromanyetik Teori, G.L.Pollack, D.R.Stump, 2004
 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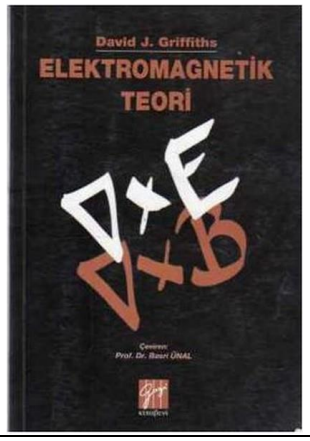
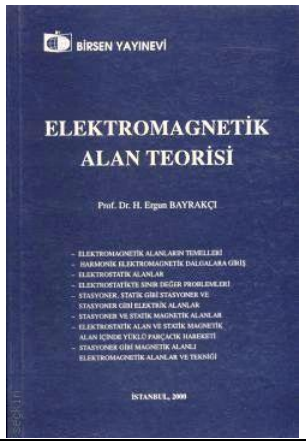
<tr><td>Other Sources</td><td>1. Elektromagnetik Teori, D.J.Griffiths.
2. Elektromagnetik Alan Teorisi, H.E.Bayrakçı, 2000
 


</td></tr>
<tr><td>Homeworks and Projects</td><td></td></tr>
<tr><td>Computer Usage</td><td>Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Achievement Evaluation System</td><td>
<table>
<tr><th colspan="2">Activites</th><th>Base Mark</th><th>Unit</th><th colspan="2">Contribution in Evaluation, %</th></tr>
<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>4</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>50</td><td>6</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td>Other Application</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
</table>
</td></tr>
</table>

	Integration / NYS	50	1 (NOTE 1)	100%
	One Course / Add. NYS	50	1 (NOTE 2)	100%

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.

NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	**Program Qualifications**	**Course Contribution Level**				
		1	**2**	**3**	**4**	**5**
1	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					x
2	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					x
3	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.					x
4	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				x	
5	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.			x		
6	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.			x		
7	Gains the ability of effective oral and written communication.					x
8	Ability to follow technological innovations and gain awareness of lifetime learning.				x	
9	Having professional and ethic responsibility conciousness.					x
10	To be able to earn aweraness for business life applications.				x	
11	Understands the legal, social and environmental effects of engineering applications at national and universal level.			x		

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION											
Contribution Level		**1**		**2**			**3**	**4**		**5**	
		Very Low		Low			Medium	High		Very High	
ELECTRICAL AND ELECTRONIC ENGINEERING											
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**
DK-1	5	5	5	4	3	3	5	4	5	4	3
DK-2	5	5	5	4	3	3	5	4	5	4	3
DK-3	5	5	5	4	3	3	5	4	5	4	3
DK-4	5	5	5	4	3	3	5	4	5	4	3
DK-5	5	5	5	4	3	3	5	4	5	4	3
DK-6	5	5	5	4	3	3	5	4	5	4	3
DK-7	5	5	5	4	3	3	5	4	5	4	3

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Vertical coordinate systems	Problem Solving
2	Vector analysis	Problem Solving
3	Load and current density	Problem Solving
4	Lossy and lossless environments	Problem Solving
5	Limiting condition	Problem Solving
6	Wave equations	Problem Solving
7	Maxwell equations	Problem Solving
8	Maxwell equations	Problem Solving
9	Planar waves	Problem Solving
10	Mid-Term	
11	Monochromatic planar waves.	Problem Solving
12	Polarization and energy of electromagnetic waves.	Problem Solving

13	Breaking and reflection of electromagnetic waves	Problem Solving
14	Breaking and reflection of electromagnetic waves	Problem Solving
15	Transmission lines / waveguides and Electromagnetic radiation and antennas	Problem Solving

ECTS / WORKLOAD TABLE

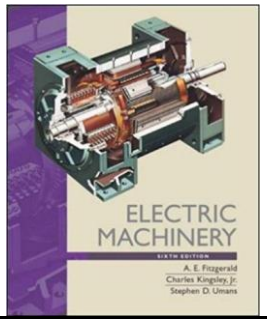
ACTIVITIES	**NUMBER**	**TIME**	**PREDICTION of WORKLOAD**
Teoric Course	14	3	42
Application			
Studying out of course	14	5	70
Completing Homeworks and Delivering as a report	6	2	12
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	4	1	4
Mid-Term	1	2	2
Individual Study for Mid-Term	1	8	8
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	151		
ECTS OF COURSE	Total Workload / 30 = 151/30 = 5,03		5

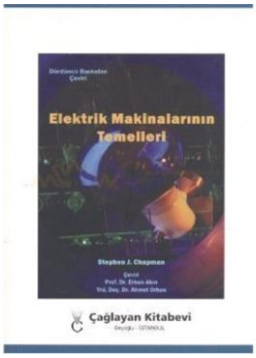
Last Update Date	01 March 2019
Updated Person	Dr.Müh.Kd.Yzb.M.Batuhan GÜNDOĞDU

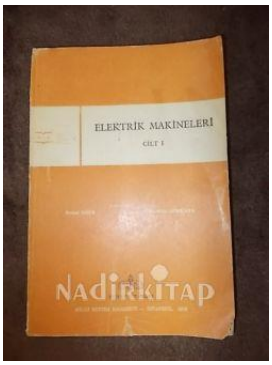
NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Electric Machines	ELM-411	3 / VI	3+0+0	3	5

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Circuit Analysis-1, Circuit Analysis-2 and Electromagnetic Theory
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	In this course about Electrical and Electronics Engineering; principles of electromechanical energy conversion, electrical machinery and the knowledge and skills to analyze the purpose of the operation is aimed.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Understand the basic principles of electromechanical energy conversion. 2. Understand the working principles of electric machines. 3. will be able to analyze circuit models of transformer and rotary electric machines. 4. Understand the working principles of rotary electric machines, generators and motors. 5. Will be able to analyze and simulate different scenarios to be formed on the model circuits of transformer and rotary electric machines. 6. They will be able to perform basic tests of electrical machines and determine the machine parameters with test results. 7. will be able to analyze the results of electrical machinery applications.
Content of the Course	:	Principles of Electromechanical Energy Conversion, Theorems and Laws on the Operation of Electrical Machines, Methods of Analysis of Electric Machines and Transformers.

<table>
<tr><td>Course Book</td><td>1. Electric Machinery, Sixth Edition, A.E. Fitzgerald – C. Kingsley – S.D. Umans, McGrawHill ,2003.
2. Elektrik Makinaları I-II, N.Güzelbeyoğlu, İTÜ Matbaası, 1992.
 


</td></tr>
<tr><td>Other Sources</td><td>1. Elektrik Makinalarının Temelleri, S.J.Chapman, 2013.
2. Elektrik Makineleri, N. Uğuz, M. Gökkaya, 1978.
 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<tr><th colspan="2">Activites</th><th>Base Mark</th><th>Unit</th><th colspan="2">Contribution in Evaluation, %</th></tr>
<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>50</td><td>5</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td>Other Application</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
</table>
</td></tr>
</table>

	Integration / NYS	50	1 (NOTE 1)	100%
	One Course / Add. NYS	50	1 (NOTE 2)	100%

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.

NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	**Program Qualifications**	**Course Contribution Level**				
		1	**2**	**3**	**4**	**5**
1	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					x
2	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					x
3	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.					x
4	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				x	
5	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.				x	
6	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				x	
7	Gains the ability of effective oral and written communication.				x	
8	Ability to follow technological innovations and gain awareness of lifetime learning.					x
9	Having professional and ethic responsibility conciousness.					x
10	To be able to earn aweraness for business life applications.					x
11	Understands the legal, social and environmental effects of engineering applications at national and universal level.			x		

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION											
Contribution Level		**1**		**2**			**3**	**4**		**5**	
		Very Low		Low			Medium	High		Very High	
ELECTRICAL AND ELECTRONIC ENGINEERING											
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**
DK-1	5	5	5	3	1	4	4	5	5	5	3
DK-2	5	5	5	3	1	3	4	5	5	5	3
DK-3	5	5	5	4	2	3	4	5		5	2
DK-4	5	5	5	4	2	4	4	5		5	2
DK-5	5	5	5	5	4	4	4	5		5	
DK-6	5	5	5	5	4	4	4	5		5	
DK-7	5	5	5	5	4	4	4	5		5	

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Magnetic Circuits	
2	Working Principle of Transformers, Ideal Transformers	
3	Non-Ideal Transformers	
4	Transformer Tests, Autotransformers, Three Phase Transformers	
5	Principles Of Electromechanical Energy Conversion	
6	Introduction to Electrical Machines	
7	Synchronous, Asynchronous and DC Machine Principles	
8	Synchronous Machines	
9	Mid-Term	
10	Equivalent Circuits of Synchronous Machines	
11	Asynchronous Machines	Electrical Machines Applications
12	Equivalent Circuits of Asynchronous Machines	
13	DC Machines	
14	Equivalent Circuits of DC Machines	
15	Operating Principles of Generator and Motor	Electrical Machines Applications

ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME**	**PREDICTION of WORKLOAD**
Teoric Course	14	3	42
Application	--	--	--
Studying out of course	14	5	70
Completing Homeworks and Delivering as a report	5	2	10
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	1	2	2
Individual Study for Mid-Term	1	8	8
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	147		
ECTS OF COURSE	Total Workload / 30 = 147/30 = 4.9		5

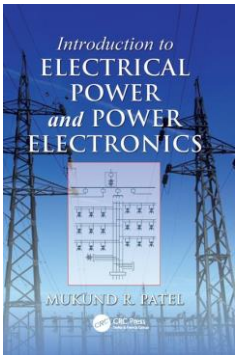
Last Update Date	01 March 2019
Update Person	Y.Müh.Yzb. M. Batuhan GÜNDOĞDU

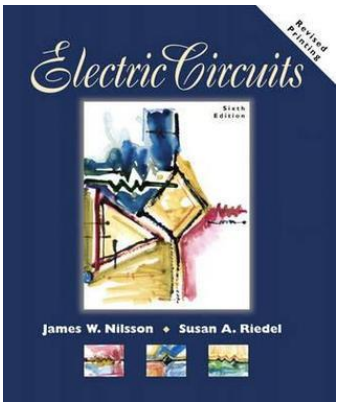
NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Power Electronics	ELM-412E	4 / VII	3+0+0	3	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Electronics 1-2, Electromagnetic Theory, Electric Machines
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	In this course about Electrical and Electronics Engineering; semiconductor switching elements, rectifier, inverter and chopper circuit applications are aimed to gain knowledge and skills.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Understand the basic principles of Power Electronics. 2. Understand the working principles of converters, inverter elements and power conversion. 3. Will be able to analyze power electronics circuit models created with thyristor, IGBT and MOSFET. 4. Will be able to make definitions about rectifier, inverter and choppers and comprehend power transformation principles. 5. Will be able to analyze different scenarios to be created on Power Electronics model circuits. Will be able to make simulations with power electronic elements. 6. Understand the working principles of power sources. 7. will be able to analyze the results of the application of Power Electronics.
Content of the Course	:	Power Electronics Basic Principles, Semiconductor Power Switching Elements, Rectifier, Inverter and Chopper Circuit Applications Analysis Methods Related to Converters.

<table>
<tr><td>Course Book</td><td colspan="5">1. J. W. Nilsson and S. A. Riedel, “Electric Circuits”, 6/E, Prentice Hall, 2001.
2. Electrical Power and Power Electronics, Mukund. R. Patel


</td></tr>
<tr><td>Other Sources</td><td colspan="5">--</td></tr>
<tr><td>Homeworks and Projects</td><td colspan="5">Homeworks are given to students weekly.</td></tr>
<tr><td>Computer Usage</td><td colspan="5">Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td rowspan="10">Achievement Evaluation System</td><td colspan="2">Activites</td><td>Base Mark</td><td>Unit</td><td>Contribution in Evaluation, %</td></tr>
<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td>24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td rowspan="6">16 %</td></tr>
<tr><td>Homeworks</td><td>50</td><td>5</td></tr>
<tr><td>Projects</td><td>50</td><td>0</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>0</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>0</td></tr>
<tr><td>Other Application</td><td>50</td><td>0</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>50</td><td>1 (NOTE 1)</td><td>100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>50</td><td>1 (NOTE 2)</td><td>100%</td></tr>
</table>

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.

NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
2	To be able to use Turkish in oral and written environments.					
3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					**X**
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					**X**
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				**X**	
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				**X**	
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				**X**	
10	Gains the ability of effective oral and written communication.			**X**		
11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
12	Having professional and ethic responsibility conciousness.			**X**		
13	To be able to earn aweraness for business life applications.			**X**		

14	Understands the legal, social and environmental effects of engineering applications at national and universal level.					**X**

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION														
Contribution Level		**1**		**2**		**3**		**4**		**5**				
		Very Low		Low		Medium		High		Very High				
ELECTRICAL AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				3	4		3			3			3	
DK-2					3	3	4		3			2		5
DK-3				5				5	4	3	3	3	3	4
DK-4					4	4	4				4			
DK-5				5	5			4					2	3
DK-6				4		3	2		4	2			3	4
DK-7					4		4				3	3		5

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Power Electronics and Application Areas	Problem Solving
2	Electrical Values in Power Electronics	Problem Solving
3	Components Used in Semiconductor Physics and Power Electronics	Problem Solving
4	Thyristor Operation Principle and Details	Problem Solving
5	Basic Rectifier Concepts	Problem Solving, LAB Application
6	Rectifiers	Problem Solving
7	Thyristor Circuits and Control	Problem Solving
8	Choppers	Problem Solving, LAB Application
9	AC-DC Choppers	Problem Solving, LAB Application
10	Mid-Term	
11	Inverters	Problem Solving, LAB Application

12	Three Phase Inverters	Problem Solving
13	Direct Converters	Problem Solving, LAB Application
14	Power Supplies	Problem Solving
15	Industrial applications of Power Electronics	Problem Solving
16	Power Electronics Special Applications	Problem Solving

ECTS / WORKLOAD TABLE

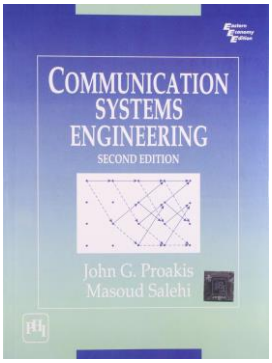
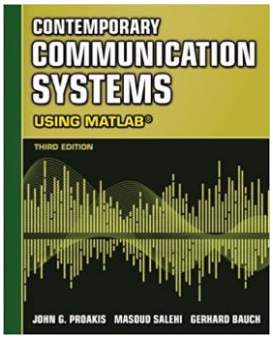
ACTIVITIES	NUMBER	TIME	PREDICTION of WORKLOAD
Teoric Course	14	3	42
Application	--	--	--
Studying out of course	14	3	42
Completing Homeworks and Delivering as a report	5	1.5	7.5
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	114.5		
ECTS OF COURSE	Total Workload / 30 = 114.5/30 = 3.81		4

Last Update Date	01 March 2019
Update Person	Y.Müh.Yzb. M. Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Digital Communication	ELM-421H	4 / VIII	3+0+0	3	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Digital Circuits, Signals and Systems, Communication Systems
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	To understand the basic features of communication and communication circuits related to electrical and electronics engineering, to give the necessary mathematical connections, transformations, theorems and methods to perform the analysis of these circuits for engineering, and to provide them with the help of these relations, source coding, digital communication, wireless communication and the necessary coding algorithm. teach methods.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Learn digital communication systems. 2. process signal to digital signals. 3. compare wave forms and types. 4. Understand digital modulation techniques. 5. compare digital modulation and transmission techniques. 6. calculate the transmission channel capacity. 7. Have basic information about wireless communication.
Content of the Course	:	Information sources and coding methods, waveforms and coding, digital transmission in noisy environment, calculation of channel capacity, introduction to wireless communication.

<table>
<tr><td>Course Book</td><td>1. Communication Systems Engineering, 2/e, John G. Proakis and Masoud Salehi, Prentice Hall, 2002.
 
</td></tr>
<tr><td>Other Sources</td><td>1. Contemporary Communication Systems Using MATLAB, John G. Proakis and Masoud Salehi, Prentice Hall, 2000.
 
</td></tr>
<tr><td>Homeworks and Projects</td><td></td></tr>
<tr><td>Computer Usage</td><td>Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Achievement Evaluation System</td><td>
<table>
<tr><th colspan="2">Activites</th><th>Base Mark</th><th>Unit</th><th>Contribution in Evaluation, %</th></tr>
<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td>24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>50</td><td>5</td></tr>
<tr><td>Projects</td><td>50</td><td>-</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>-</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>-</td></tr>
<tr><td>Other Application</td><td>50</td><td>-</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>50</td><td>1 (NOTE 1)</td><td>100%</td></tr>
</table>
</td></tr>
</table>

	One Course / Add. NYS	50	1 (NOTE 2)	100%

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.

NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
2	To be able to use Turkish in oral and written environments.					
3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					**X**
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					**X**
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.					**X**
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.					**X**
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				**X**	
10	Gains the ability of effective oral and written communication.			**X**		
11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
12	Having professional and ethic responsibility conciousness.			**X**		

13	To be able to earn aweraness for business life applications.				**X**	
14	Understands the legal, social and environmental effects of engineering applications at national and universal level.					**X**

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION														
Contribution Level	**1**		**2**		**3**		**4**		**5**					
	Very Low		Low		Medium		High		Very High					
ELECTRICAL AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				5		5	3			3	4	3	3	5
DK-2					4	3	4	5	4	4				4
DK-3				5	5	3	4	5	4	4	4	3	3	
DK-4					4		5	4	4	3	3			
DK-5				4	5	4	5	5	4	4	3		4	5
DK-6					3	4	4	4				3	4	
DK-7					4	4	4	5	4	3	4		4	3

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Information resources and coding	
2	Information resources and coding	
3	Information resources and coding	
4	Digital communication in total Gaussian noise	
5	Digital communication in total Gaussian noise	
6	Digital communication in total Gaussian noise	
7	Digital communication in total Gaussian noise	
8	Digital communication in Band-limited total white Gaussian noise	
9	Mid-Term	
10	Channel capacity and coding	
11	Channel capacity and coding	
12	Channel capacity and coding	

13	Wireless Communication	
14	Wireless Communication	
15	Wireless Communication	

ECTS / WORKLOAD TABLE

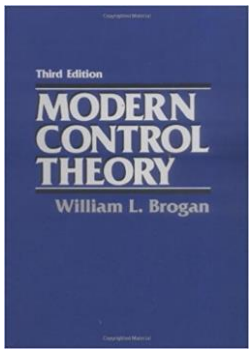
ACTIVITIES	NUMBER	TIME	PREDICTION of WORKLOAD
Teoric Course	14	3	42
Application			
Studying out of course	14	4	56
Completing Homeworks and Delivering as a report	5	1	5
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	121		
ECTS OF COURSE	Total Workload / 30 = 121/30= 4,03		4

Last Update Date	01 March 2019
Update Person	Y.Müh.Yzb. M. Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Modern Control	ELM412K	4 / VII	3+0+0	3	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Automatic Control Systems, Signals and Systems
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	Students will be able to examine the latest techniques and modern methods in the field of control, to learn about the design of advanced control mechanisms, to analyze the concepts and calculations of basic control systems within the scope of Control Systems, to be able to analyze with case variables, to recognize the concepts of controllability and observability, Lyopunov stability The aim of this course is to enable non-linear systems to compare with linear systems.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. express a system with state variables. 2. compare classical and modern control methods. 3. examine the stability of a system with state variables. 4. analyze a system with state variables. 5. Have knowledge about control of nonlinear systems. 6. compare classical and modern control methods.
Content of the Course	:	State Equations and Solution of State Equations, Feedback Control Systems, Closed Loop Control Systems, System Stability

<table>
<tr><td>Course Book</td><td colspan="5">1. Modern Control Engineering,K.OGATA,Prentice Hall,4th Edition
2. Modern Control Theory, BROGAN
   </td></tr>
<tr><td>Other Sources</td><td colspan="5">1. Otomatik Kontrol Sistemleri, B.KUO</td></tr>
<tr><td>Homeworks and Projects</td><td colspan="5">Students are given homework weekly.</td></tr>
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<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td>24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td rowspan="6">16 %</td></tr>
<tr><td>Homeworks</td><td>50</td><td>5</td></tr>
<tr><td>Projects</td><td>50</td><td>0</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>0</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>0</td></tr>
<tr><td>Other Application</td><td>50</td><td>0</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>50</td><td>1 (NOTE1)</td><td>100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>50</td><td>1 (NOTE2)</td><td>100%</td></tr>
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NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
2	To be able to use Turkish in oral and written environments.					
3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					**X**
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					**X**
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				**X**	
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				**X**	
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				**X**	
10	Gains the ability of effective oral and written communication.			**X**		
11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
12	Having professional and ethic responsibility conciousness.			**X**		
13	To be able to earn aweraness for business life applications.			**X**		
14	Understands the legal, social and environmental effects of engineering applications at national and universal level.					**X**

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION														
Contribution Level	**1**		**2**		**3**		**4**		**5**					
	Very Low		Low		Medium		High		Very High					
ELECTRICAL AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				3	4		3						3	
DK-2					4	4	4		3					5
DK-3				5	5			5	4	3		3	3	4
DK-4					4	4	4				4		2	
DK-5					5		3							3
DK-6				4		3	2		4				3	4

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Introduction of State Equations	
2	Obtaining State Equations	
3	State Equations for Linear Circuits	
4	Continuous Solution of State Equations	
5	Solution of State Equations	
6	Discrete State Equations	
7	Discrete State Equations	
8	Discrete State Equations	
9	Mid-Term	
10	Discrete State Equations	
11	Status Feedback Systems	
12	Status Feedback Systems	
13	Closed Loop observer	
14	Investigation of System Stability	
15	Investigation of System Stability	

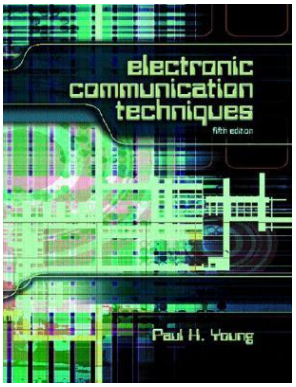
ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME**	**PREDICTION of WORKLOAD**
Teoric Course	14	3	42
Application	--	--	--
Studying out of course	14	3	42
Completing Homeworks and Delivering as a report	5	1	5
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	112		
ECTS OF COURSE	Total Workload / 30 = 112/30 = 3.73		4

Last Update Date	01 March 2019
Update Person	Y.Müh.Yzb. M. Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Communication Electronics	ELM-413E	4/VIII	3+0+0	4	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Electronic-I
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The aim of this course is to enable the students to know the basic features of communication and communication systems, the working principles of the communication systems and the mathematical relations necessary for the analysis of these systems.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. will be able to select and evaluate RF first level amplifiers. 2. Will be able to take measures to reduce the impact of noise on electronic systems. 3. will be able to analyze performance of a communication receiver and solve problems related to the receiver. 4. Will be able to perform performance analysis of a communication transmitter and solve problems related to the communication transmitter. 5. Will be able to comprehend analog communication and modulation. 6. Comprehend digital communication techniques and compare them with each other. Be able to use the basic concepts of communication antennas and adapters and produce solutions to the problem.
Content of the Course	:	Basic Concepts, Amplifiers and Oscillators, Noise and Sources, Amplitude Modulation, Fundamentals of Receiver and Transmitter Circuits, Frequency Modulation, Fundamentals of Digital Communication, Waveguide and Antennas.

<table>
<tr><td>Course Book</td><td colspan="5">1. Electronic Communication Technics, Paul H.YOUNG
  </td></tr>
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<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td>24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td rowspan="6">16%</td></tr>
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<tr><td>Projects</td><td>50</td><td>-</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>-</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>-</td></tr>
<tr><td>Other Application</td><td>50</td><td>-</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
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4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					**X**
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					**X**
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				**X**	
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				**X**	
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				**X**	
10	Gains the ability of effective oral and written communication.			**X**		
11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
12	Having professional and ethic responsibility conciousness.			**X**		
13	To be able to earn aweraness for business life applications.				**X**	
14	Understands the legal, social and environmental effects of engineering applications at national and universal level.					**X**

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION														
Contribution Level	**1**		**2**		**3**		**4**		**5**					
	Very Low		Low		Medium		High		Very High					
ELECTRICAL AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				5		3			3	3	2			5
DK-2					4	3	3	5	4	4				4
DK-3				5	5	3				4		3	3	
DK-4					4			4						
DK-5				4	5	4		5	4	4	3		4	5
DK-6					3	4	4					3	4	
DK-7					4	4	4	5	4	3	4		4	3

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Impedance and Resonance	
2	Small Signal Amplifiers	
3	Oscillators	
4	Noise and Sources	
5	Transmitting the Voice Sign and AM Receivers	
6	Modulation and AM Modules	
7	Modulation and AM Modules	
8	Mid-Term	
9	Transmitter Circuits	
10	Receiver Circuits	
11	Filter Design and IF Amplifiers	
12	Side Band Systems	
13	Frequency Modulation	
14	Fundamentals of Digital Communication	
15	Waveguides and Antennas	

ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME**	**PREDICTION of WORKLOAD**
Teoric Course	14	3	42
Application	--	--	--
Studying out of course	14	3	42
Completing Homeworks and Delivering as a report	5	1.5	7.5
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	115.5		
ECTS OF COURSE	Total Workload / 30 = 115.5/30 = 3.85		4

Last Update Date	01 March 2019
Update Person	Y.Müh.Yzb. M. Batuhan GÜNDOĞDU

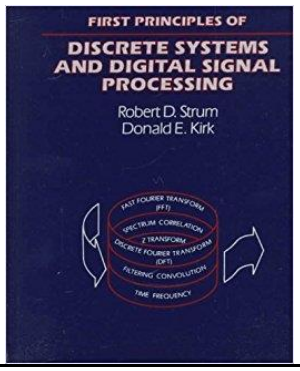
NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

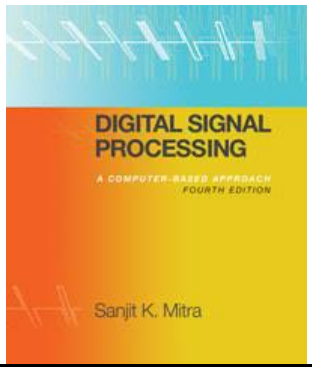
Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Digital Signal Processing	ELM-413H	4 / VII	3+0+0	3	4

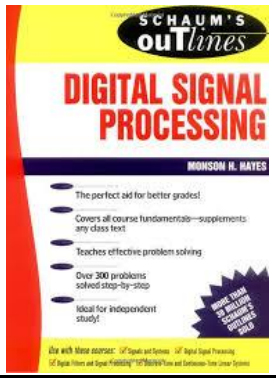
Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Signals and Systems
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The purpose of Digital Signal Processing is; The aim of this course is to teach the basic properties of discrete-time signals and systems, discrete-time Fourier transformations and properties, and simple design methods of digital and analog filters using mathematical methods.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. express the meaning and importance of digital signal processing in computer, telecommunication and electronic / electrical engineering. 2. will be able to define the basic concepts such as linearity, time independence, impulse response, convolution, frequency response, z-transformation and discrete-time Fourier transform. 3. express the basic principles of transformation between continuous signals and discrete signals. 4. apply basic design techniques of FIR and IIR numerical filters. Will be able to use the lama MATLAB, program for analyzing, designing and adapting simple digital signal processing systems.
Content of the Course	:	Linear Time Invariant Systems, Strainers and Frequency Response, Z Transform, Discrete Fourier Transformations, Strain Design.

<table>
<tr><td>Course Book</td><td>1. First Principles of Discrete Systems and Digital Signal Processing, Robert D. Strum, Donald E. Kirk, Addison-Wesley Publishing Company, 1988.

2. Digital Signal Processing, Sanjit Mitra
3. Digital Sinal Processing, Schaums Outlines




</td></tr>
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<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td>24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td rowspan="6">16 %</td></tr>
<tr><td>Homeworks</td><td>50</td><td>5</td></tr>
<tr><td>Projects</td><td>50</td><td>0</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>0</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>0</td></tr>
<tr><td>Other Application</td><td>50</td><td>0</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>50</td><td>1 (NOTE1)</td><td>100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>50</td><td>1 (NOTE2)</td><td>100%</td></tr>
</table>
</td></tr>
</table>

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.
NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
2	To be able to use Turkish in oral and written environments.					
3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					**X**
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					**X**
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				**X**	
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				**X**	
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				**X**	
10	Gains the ability of effective oral and written communication.			**X**		
11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
12	Having professional and ethic responsibility conciousness.			**X**		
13	To be able to earn aweraness for business life applications.			**X**		
14	Understands the legal, social and environmental effects of engineering applications at national and universal level.					**X**

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION					
Contribution Level	**1**	**2**	**3**	**4**	**5**
	Very Low	Low	Medium	High	Very High

ELECTRICAL AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				3	4		3						3	
DK-2					4	4	4		3					5
DK-3				5	5			5	4	3		3	3	4
DK-4					4	4	4				4		2	
DK-5					5		3							3

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Introduction to digital signal processing, digital signals	Problem Solving
2	Sampling Theory	Problem Solving
3	Linear time invariant digital systems	Problem Solving, MATLAB Application
4	Discrete Fourier transform.	Problem Solving
5	Discrete Fourier transform.	Problem Solving, MATLAB Application
6	Discrete Fourier transform properties	Problem Solving
7	Z transformations.	Problem Solving
8	Z transformations.	Problem Solving, MATLAB Application
9	Mid-Term	
10	Rapid Fourier transform.	Problem Solving
11	Rapid Fourier transform.	Problem Solving, MATLAB Application
12	Non-repeating (FIR) filters.	Problem Solving
13	Non-repeating (FIR) filters.	Problem Solving, MATLAB Application
14	Repeating (FIR) filters.	Problem Solving
15	Recurrent (IIR) filter design.	Problem Solving, MATLAB Application

ECTS / WORKLOAD TABLE

ACTIVITIES	NUMBER	TIME	PREDICTION of WORKLOAD
Teoric Course	14	3	42
Application			
Studying out of course	14	3	42
Completing Homeworks and Delivering as a report	5	1	5
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	1
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	107		
ECTS OF COURSE	Total Workload / 30 = 107/30 = 3,56		4

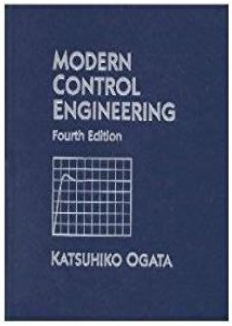
Last Update Date	01 March 2019
Update Person	Y.Müh.Yzb. M. Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Numerical Control Systems	ELM-413K	4 / VII	3+0+0	3	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Modern Control Systems, Signals and Systems
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	In order to analyze numerical control systems, it is aimed to introduce controlled continuous and discrete time systems, the elements of control systems in real time and z definition regions, the mathematical models of open loop and closed loop control systems. To explain how the operations are done without loss of information, to use differential equations used in continuous control systems and to give information about z transformation and difference equations in parallel with Laplace transformation, to explain with examples, to determine the stability of digital control systems, to examine the geometric place of the roots The aim of this course is to teach the methods of obtaining the relations.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. understand the basic concepts of numerical control systems. 2. obtain the pulse transfer functions of digital control systems. 3. analyze numerical control systems.

Content of the Course	:	Numerical Control Systems, Z Transformation, Stability in Digital Systems, Design of Digital Control Systems.

Course Book	1. Modern Control Engineering,K.OGATA,Prentice Hall,4th Edition 2. Otomatik Kontrol Sistemleri, B.KUO  			
Other Sources	1. Control System Engineering, N.S. NISE, 2006				
Homeworks and Projects	Students are given homework weekly.				
Computer Usage	Students can do their homework by using computer (not obligatory).				
Achievement Evaluation System	**Activites**		**Base Mark**	**Unit**	**Contribution in Evaluation, %**
	Mid-Term		50	1	24%
	Term Evaluation	Short-Exams	50	2	16 %
		Homeworks	50	5	
		Projects	50	0	
		Term Homework/ Project	50	0	
		Lab. Application	50	0	
		Other Application	50	0	
	Final Exam		50	1	60%
	Integration / NYS		50	1 (NOTE1)	100%
	One Course / Add. NYS		50	1 (NOTE2)	100%

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.
NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
2	To be able to use Turkish in oral and written environments.					
3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					**X**
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					**X**
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				**X**	
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				**X**	
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				**X**	
10	Gains the ability of effective oral and written communication.			**X**		
11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
12	Having professional and ethic responsibility conciousness.			**X**		

13	To be able to earn aweraness for business life applications.			**X**		
14	Understands the legal, social and environmental effects of engineering applications at national and universal level.					**X**

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION														
Contribution Level	**1**		**2**		**3**		**4**		**5**					
	Very Low		Low		Medium		High		Very High					
ELECTRICAL AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				3	4		3		3	3	4		3	5
DK-2					3	4	4				3			5
DK-3				5	5			5	4	3		3	3	4

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Basic concepts	Sample Control Systems
2	Z-Transforms	Problem Solving
3	Inverse Z-Transforms	Problem Solving
4	Sampling	Problem Solving
5	Pulse Transfer Functions of Open Loop Digital Systems	Problem Solving
6	Open Loop Digital Filter	Problem Solving
7	Time Delay Systems	Problem Solving
8	Pulse Transfer Functions of Closed Loop Systems	Problem Solving
9	Realization of Digital Controllers	Problem Solving
10	Mid-Term	
11	Stability in Digital Systems	Problem Solving
12	Temporary and Continuous Response of Digital System	Problem Solving
13	Root-Ground Stripes Based Design	Problem Solving
14	Design with Frequency Response Method	Problem Solving
15	State Variables Analysis of Digital Systems	Problem Solving

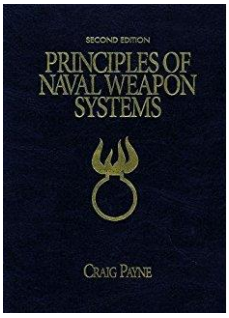
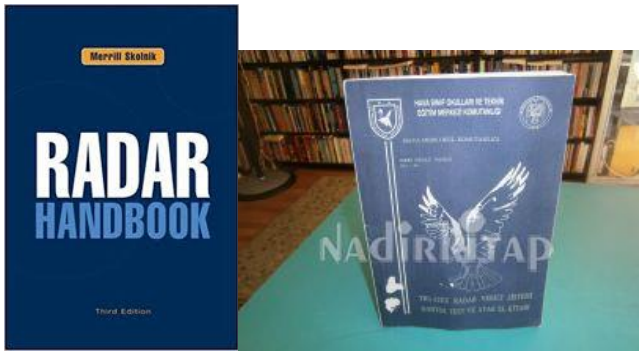
ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME**	**PREDICTION of WORKLOAD**
Teoric Course	14	3	42
Application	--	--	--
Studying out of course	14	3	42
Completing Homeworks and Delivering as a report	5	1	5
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	112		
ECTS OF COURSE	Total Workload / 30 = 112/30 = 3.73		4

Last Update Date	01 March 2019
Update Person	Y.Müh.Yzb. M. Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Radar and Sonar Systems	ELM-422	4/II	4+0+0	4	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Electromagnetic Theory, Communication Systems
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The aim of this course is to enable students to learn radar, sonar, electronic warfare, electro optic systems used in Navy platforms, to use them correctly and effectively and to perform comparative performance analysis.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. comprehend electromagnetic and antenna foundations 2. analyze radar performance 3. choose the parameters of radar 4. understand the working principles of various radars in the world 5. understand the importance of electronic warfare 6. comprehend electronic protection, electronic attack and detection of electromagnetic signals 7. comprehend electrooptic systems and optical invisibility 8. analyze sonar performance 9. choose the parameters of Sonar 10. understand the working principles of various sonars used in the world
Content of the Course	:	Detection and Engagement Series, EM and Radar Basics, Radar Systems, Monitoring Systems, Electronic Warfare, Electrooptic Systems, Underwater Acoustic Principles, Submarine Defense Warfare Systems.

<table>
<tr><td>Course Book</td><td>1. Principles Of Naval Weapon Systems-Craig Payne, Electronic Warfare In The Information Age-Curtis Schleher
 
</td></tr>
<tr><td>Other Sources</td><td>1. Radar Verici Sistemi Kontrol Test ve Ayar El Kitabı, N.Bulucu, 2000
2. Merill Skonik, Radar Handbook, 3rd Edition
 
</td></tr>
<tr><td>Homeworks and Projects</td><td></td></tr>
<tr><td>Computer Usage</td><td></td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Achievement Evaluation System</td><td>
<table>
<tr><th colspan="2">Activites</th><th>Base Mark</th><th>Unit</th><th colspan="2">Contribution in Evaluation, %</th></tr>
<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td>Other Application</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>50</td><td>1 (NOTE1)</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

	One Course / Add. NYS	50	1 (NOTE2)	100%

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NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					x
2	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					x
3	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.					x
4	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.					x
5	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.				x	
6	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.					x
7	Gains the ability of effective oral and written communication.				x	
8	Ability to follow technological innovations and gain awareness of lifetime learning.					x
9	Having professional and ethic responsibility conciousness.					x
10	To be able to earn aweraness for business life applications.				x	
11	Understands the legal, social and environmental effects of engineering applications at national and universal level.				x	

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION											
Contribution Level	**1**		**2**			**3**		**4**		**5**	
	Very Low		Low			Medium		High		Very High	
ELECTRICAL AND ELECTRONIC ENGINEERING											
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**
DK-1	5	5	4			5	4	5	5	4	3
DK-2	5	5	4	4	4	5	4	5	4	4	3
DK-3	5	5	4	5	4	5	4	4	4	4	3
DK-4	5	5	4	5	4	5	3	5	5	4	4
DK-5	5	5	4		4	5	4	5	5	4	4
DK-6	5	5	4		4	5	4	5	5	4	4
DK-7	5	5	4	3		5	3	5	5	4	4
DK-8	5	5	4	5	4	5	4	5	4	4	3
DK-9	5	5	4	4		5	4	5	4	4	3
DK-10	5	5	4			5	3	5	5	4	4

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Detection and Engagement Sequence	Problem Solving
2	EM and Radar Basics	Problem Solving
3	Radar Systems	Problem Solving
4	Radar Systems	Problem Solving
5	Phase array radars and beam guidance	Problem Solving
6	Monitoring Systems	Problem Solving
7	Electronic Warfare - 1	Problem Solving
8	Electronic Warfare - 2	Problem Solving
9	MID-TERM	
10	Electrooptic Systems	Problem Solving
11	Underwater Acoustic Principles	Problem Solving
12	Sonar Performance Criteria (FOM)	Problem Solving
13	Submarine Defense Warfare Systems - 1	Problem Solving
14	Submarine Defense Warfare Systems	Problem Solving
15	Submarine Defense Warfare Systems	Problem Solving

ECTS / WORKLOAD TABLE

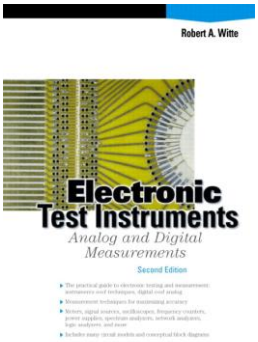
ACTIVITIES	NUMBER	TIME	PREDICTION of WORKLOAD
Teoric Course	14	4	56
Application	--	--	--
Studying out of course	14	3	42
Completing Homeworks and Delivering as a report	--	--	--
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	121		
ECTS OF COURSE	Total Workload / 30 = 121/30 = 4,03		4

Last Update Date	01 March 2019
Update Person	Y.Müh.Yzb. M. Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Electronic Measuring and Measuring Instruments	ELM-423E	4 / VIII	2+1+0	2.5	3

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Electronic and Circuit Theory Courses
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The aim of this course is to enable students to learn the basic concepts and knowledge about measurement applications in engineering.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Be able to measure and evaluate errors with basic measurement instruments. 2. Check whether the measuring instruments are suitable for calibration or not within the measurement limits. 3. will be able to choose the device of the measurement they need. 4. Will be able to make the acustif RF measurement configuration. 5. Will be able to understand transducers and transducers and choose according to their needs. 6. Will be able to recognize fiberoptic systems and perform performance analysis. 7. solve the problems of fiberoptic systems. 8. Will be able to prepare a computer-controlled complex repetitive measurement infrastructure and create a controlled environment.
Content of the Course	:	Measurement and Device Principles, Measurement Techniques in Direct Current Circuits and Use of Measuring Devices, Measurement Techniques in Alternating Current Circuits and Use of Measuring Devices, Measurement with Oscilloscopes, Signal Analyzers, Fiberoptic Measurements.

<table>
<tr><td>Course Book</td><td colspan="4">Elektrik ve Elektronik Ölçmeleri (Halit Pastacı)
R. A. Witte, “Electronic Test Measurements: Analog and Digital Measurements”, 2/E, Prentice Hall, 2002.
 
  </td></tr>
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<tr><td rowspan="10">Achievement Evaluation System</td><td colspan="2">Activites</td><td>Base Mark</td><td>Unit</td><td>Contribution in Evaluation, %</td></tr>
<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td>24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td rowspan="6">16 %</td></tr>
<tr><td>Homeworks</td><td>50</td><td>5</td></tr>
<tr><td>Projects</td><td>50</td><td>0</td></tr>
<tr><td>Term Homework/Project</td><td>50</td><td>0</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>0</td></tr>
<tr><td>Other Application</td><td>50</td><td>0</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>50</td><td>1 (NOTE1)</td><td>100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>50</td><td>1 (NOTE2)</td><td>100%</td></tr>
</table>

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NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
PY-1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
PY-2	To be able to use Turkish in oral and written environments.					
PY-3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					X
PY-4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					X
PY-5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.				X	
PY-6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				X	
PY-7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.					X
PY-8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.				X	
PY-9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.			X		
PY-10	Gains the ability of effective oral and written communication.				X	
PY-11	Ability to follow technological innovations and gain awareness of lifetime learning.			X		
PY-12	Having professional and ethic responsibility conciousness.			X		
PY-13	To be able to earn aweraness for business life applications.					X
PY-14	Understands the legal, social and environmental effects of engineering applications at national and universal level.			X		

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION														
Contribution Level	**1**		**2**		**3**		**4**		**5**					
	Low		Medium		High		Very High		Very Low					
ELECTRICAL AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				3		3	3				4		3	5
DK-2						4	4		3			3		
DK-3				5	5			5	4	3		3	3	4
DK-4					4	4			4	3	4		2	
DK-5					5		3			2				3
DK-6				4	4	3	2		4			3		4
DK-7					3		4				3		3	
DK-8				2	4	2		4		2				3

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Measurement and Device Principles	Laboratory Tests
2	Direct Current Measurements	Laboratory Tests
3	Balanced and Unbalanced Wheatstone Bridges	Laboratory Tests
4	Multimeters and Calibration	Laboratory Tests
5	DC Ammeter and Voltmeter Applications	Laboratory Tests
6	Alternating Current Measurements	Laboratory Tests
7	Power Measurements	Laboratory Tests
8	Converters	Laboratory Tests
9	MID-TERM	
10	oscilloscopes	Laboratory Tests
11	Recording Devices	Laboratory Tests
12	Digital Devices	Laboratory Tests

13	Sound Frequency Measurements	Laboratory Tests
14	Signal Analyzers	Laboratory Tests
15	Computer Controlled Measurement System	Laboratory Tests

ECTS / WORKLOAD TABLE

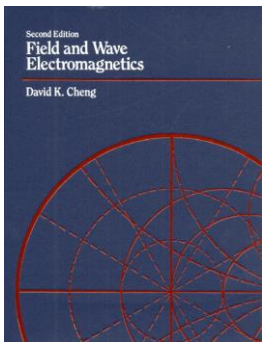
ACTIVITIES	NUMBER	TIME	PREDICTION of WORKLOAD
Teoric Course	14	2	28
Application	14	1	14
Studying out of course	14	1	14
Completing Homeworks and Delivering as a report	2	2	4
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	81		
ECTS OF COURSE	Total Workload / 30 = 81/30 = 2.7		3

Last Update Date	01 March 2019
Update Person	Y.Müh.Yzb. M. Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Electromagnetic Wave Theory	ELM-423H	4 / VIII	3+0+0	3	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Electromagnetic Theory
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The aim of electromagnetic wave theory is; advancing waves, wave propagation, Maxwell's equations, poisson's equation, monochromatic waves, energy and poynting vector of electromagnetic waves, Maxwell's equations in terms of distribution, planar waves and diffraction, vector potential applications, guided waves and properties of linear antennas.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Electric and magnetic field, electrical and vector potential, capacity,inductance,define energy concepts. 2. Distinguish different types of waveguides. 3. Recognize electromagnetic wave behavior in resonators. 4. Define wave equation. 5. The characteristics of monochromatic waves to engineering problems be able to apply. 6. The engineering problems of planar waves be able to apply. 7. Recognize the radiating areas of different types of antennas.
Content of the Course	:	Progressive waves, wave propagation, Maxwell's equations, poisson's equation, monochromatic waves, energy and poynting vector of electromagnetic waves, Maxwell's equations in terms of distribution, planar waves and diffraction, vector applications, guided waves and properties of antennas.

<table>
<tr><td>Course Book</td><td colspan="5">1. Field and Wave Electromagnetics; D.Cheng.
  </td></tr>
<tr><td>Other Sources</td><td colspan="5">--</td></tr>
<tr><td>Homeworks and Projects</td><td colspan="5">Students are given homework weekly.</td></tr>
<tr><td>Computer Usage</td><td colspan="5">Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td rowspan="10">Achievement Evaluation System</td><td colspan="2">Activites</td><td>Base Mark</td><td>Unit</td><td>Contribution in Evaluation, %</td></tr>
<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td>24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td rowspan="6">16 %</td></tr>
<tr><td>Homeworks</td><td>50</td><td>5</td></tr>
<tr><td>Projects</td><td>50</td><td>0</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>0</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>0</td></tr>
<tr><td>Other Application</td><td>50</td><td>0</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>50</td><td>1 (NOTE1)</td><td>100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>50</td><td>1 (NOTE2)</td><td>100%</td></tr>
</table>

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.
NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
2	To be able to use Turkish in oral and written environments.					
3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					**X**
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					**X**
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				**X**	
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				**X**	
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.					**X**
10	Gains the ability of effective oral and written communication.			**X**		
11	Ability to follow technological innovations and gain awareness of lifetime learning.					**X**
12	Having professional and ethic responsibility conciousness.			**X**		
13	To be able to earn aweraness for business life applications.			**X**		
14	Understands the legal, social and environmental effects of engineering applications at national and universal level.					**X**

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION														
Contribution Level	**1**		**2**		**3**		**4**		**5**					
	Low		Medium		High		Very High		Very Low					
ELECTRICAL AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				3	4		3		5	3			3	
DK-2					3	3	4		3		5	2		5
DK-3				5				5	4	3	3	3	3	4
DK-4					4	4	4				5			
DK-5				5	5			4	5				2	3
DK-6				4		3	2		4	2	5		3	4
DK-7					4		4				3	3		5

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Time-varying fields and maxwell's equations	
2	Time-varying fields and maxwell's equations	
3	Planar electromagnetic waves	
4	Planar waves in conductive media	
5	Reflection and refraction of planar waves	
6	Theory and applications of transmission lines	
7	Diagram calculations for lossy lines	
8	Transverse electromagnetic waves	
9	MID-TERM	
10	Parallel plate waveguide	
11	Dielectric waveguide	
12	Cavity resonators	
13	Electric and magnetic dipole	
14	Antenna patterns and antenna parameters	
15	Antenna arrays	

ECTS / WORKLOAD TABLE

ACTIVITIES	NUMBER	TIME	PREDICTION of WORKLOAD
Teoric Course	14	3	42
Application	-	-	-
Studying out of course	14	4	56
Completing Homeworks and Delivering as a report	5	1	5
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	126		
ECTS OF COURSE	Total Workload / 30 = 126/30 = 4.2		4

Last Update Date	01 March 2019
Update Person	Y.Müh.Yzb. M. Batuhan GÜNDOĞDU

NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Control Technologies and Design	ELM-423K	4 / VIII	3+0+0	3	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	Automatic Control Systems, Modern Control Systems
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The aim of this course is to provide the students with the knowledge of control algorithms and control system elements, measurement elements, control elements and programmable controllers.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Understand the working principles of various sensors used in control systems. 2. Use converters converting electrical energy used in control systems to mechanical energy. 3. Use microcontrollers in control systems. 4. Decide on the equipment to be used in a system to be designed.
Content of the Course	:	Elements Used in Control Systems, Operating Principles of Sensors, Servo Control Systems, Microprocessors and Control..

<table>
<tr><td>Course Book</td><td colspan="4">1. Introduction to Control System Technology, R.BATESON, Prentice Hall,2002.
  </td></tr>
<tr><td>Other Sources</td><td colspan="4">1. Lecture Notes</td></tr>
<tr><td>Homeworks and Projects</td><td colspan="4">Students are given homework weekly.</td></tr>
<tr><td>Computer Usage</td><td colspan="4">Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td rowspan="11">Achievement Evaluation System</td><td colspan="2">Activites</td><td>Base Mark</td><td>Unit</td><td>Contribution in Evaluation, %</td></tr>
<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td>24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td rowspan="6">16 %</td></tr>
<tr><td>Homeworks</td><td>50</td><td>5</td></tr>
<tr><td>Projects</td><td>50</td><td>0</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>0</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>0</td></tr>
<tr><td>Other Application</td><td>50</td><td>0</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
<tr><td colspan="2">Integration / NYS</td><td>50</td><td>1 (NOTE1)</td><td>100%</td></tr>
<tr><td colspan="2">One Course / Add. NYS</td><td>50</td><td>1 (NOTE2)</td><td>100%</td></tr>
</table>

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.
NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Having a conscious of service based on principles of democratic, secular and social law in line with Atatürk's principles and revolutions,					
2	To be able to use Turkish in oral and written environments.					
3	Having a foreign language knowladge to be able to use resources related to his / her field in an international environment and to be able to communicate with his / her colleagues and having a second foreign language knowladge in medium level.					
4	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.					**X**
5	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.					**X**
6	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.				**X**	
7	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				**X**	
8	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.					**X**
9	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.				**X**	
10	Gains the ability of effective oral and written communication.			**X**		
11	Ability to follow technological innovations and gain awareness of lifetime learning.				**X**	
12	Having professional and ethic responsibility conciousness.			**X**		
13	To be able to earn aweraness for business life applications.			**X**		
14	Understands the legal, social and environmental effects of engineering applications at national and universal level.					**X**

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION														
Contribution Level	**1**		**2**		**3**		**4**		**5**					
	Low		Medium		High		Very High		Very Low					
ELECTRICAL AND ELECTRONIC ENGINEERING														
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY-10**	**PY-11**	**PY-12**	**PY-13**	**PY- 14**
DK-1				3	4		3						3	
DK-2					4	4	4		3					5
DK-3				5	5			5	4	3		3	3	4
DK-4					4	4	4				4		2	

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Elements of Control System Components	
2	Elements of Control System Components	
3	Elements of Control System Components	
4	Transducers And Sensors	
5	Transducers And Sensors	
6	Transducers And Sensors	
7	Transducers And Sensors	
8	Transducers And Sensors	
	Actuators And Servo Control	
10	Mid-term	
11	Actuators And Servo Control	
12	Actuators And Servo Control	
14	Microprocessors	
15	Microprocessors	
16	Microprocessors	

ECTS / WORKLOAD TABLE

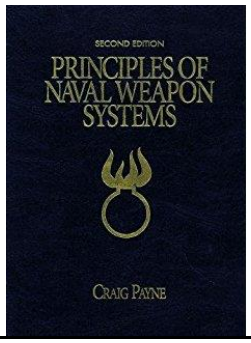
ACTIVITIES	NUMBER	TIME	PREDICTION of WORKLOAD
Teoric Course	14	3	42
Application	--	--	--
Studying out of course	14	3	42
Completing Homeworks and Delivering as a report	5	2	10
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	117		
ECTS OF COURSE	Total Workload / 30 = 117/30 = 3.9		4

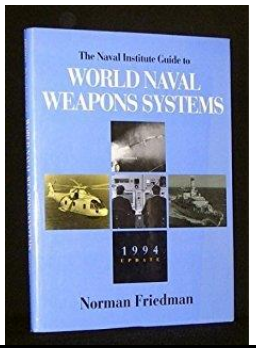
Last Update Date	01 March 2019
Update Person	Y.Müh.Yzb. M. Batuhan GÜNDOĞDU

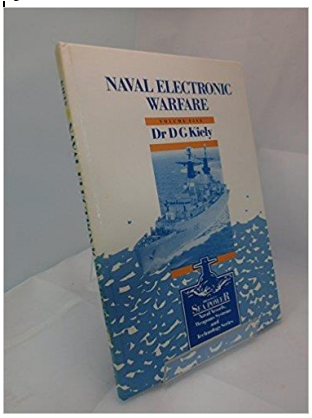
NAVAL ACADEMY
ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT
COURSE INTRODUCTION INFORMATION

Course Name	Code	Class/ Semester	Course Time (H+T+L)	Credit	ECTS
Naval Combat Systems Electronics	ELM-424	4/VII	3+0+0	3	4

Course Language	:	Turkish
Course Level	:	First Cycle (undergraduate)
Course Precondition	:	
Course Instructor	:	Electric and Electronic Engineering Instructor
Purpose of the Course	:	The aim of the course is to enable the students to understand the contents of guns such as guided bullets, cannons, torpedoes and mines, their usage issues and countermeasures.
Course's Learning Outcomes	:	Students who successfully complete this course will be able to; 1. understand the ballistic and firing control problems of ball, rocket and guided projectiles and torpidos. 2. understand the reference and coordinate systems used in ship and inter-ship reporting and to ensure that weapons and sensors are engaged in the same correct targets. 3. understand the adaptation and parallax corrections of weapons and sensors. 4. understand the basics and functions of ball and torpedo shooter systems. 5. understand the basics and functions of guided projectile shooters 6. comprehend the analytical thinking about the comparative performance analysis of guided bullets, torpedoes and mines. 7. understand basic information about guided projectiles, torpedo mixers. 8. comprehend new generation weapons systems and directed energy weapons .
Content of the Course	:	Ball, Rocket and Guided Bullet Shooting Systems Reference and Coordinate Systems, Weapon and Sensor Adaptation, New Generation Combat Systems.

<table>
<tr><td>Course Book</td><td>1. Principles Of Naval Weapon Systems-Craig Payne, Electronic Warfare In The Information Age-Curtis Schleher
2. The Naval Institute Guide to World Naval Weapon Systems, Fifth Edition, N.Friedman, 2006
 


</td></tr>
<tr><td>Other Sources</td><td>1. Modern Deniz Sistemleri Harp Gemileri, S.Atalan, 2016
2. Naval Electronic Warfare, D.G.Kiely, 1988
 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<tr><td>Other Applications</td><td></td></tr>
<tr><td>Achievement Evaluation System</td><td>
<table>
<tr><th colspan="2">Activites</th><th>Base Mark</th><th>Unit</th><th colspan="2">Contribution in Evaluation, %</th></tr>
<tr><td colspan="2">Mid-Term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Term Evaluation</td><td>Short-Exams</td><td>50</td><td>2</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homeworks</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td>Term Homework/ Project</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td>Lab. Application</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td>Other Application</td><td>50</td><td>0</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
</table>
</td></tr>
</table>

	Integration / NYS	50	1 (NOTE1)	100%
	One Course / Add. NYS	50	1 (NOTE2)	100%

NOTE1: Students who are below the base grade due to their final grade are obliged to take the NYS exam, students who are below CC grade can take the NYS exam if they are willing to.

NOTE2: Students who are below the base grade after the Graduation Grade and NYS exams can attend the Single-Course Exam.

Sheet No	**Program Qualifications**	**Course Contribution Level**				
		1	**2**	**3**	**4**	**5**
1	Gains the ability to apply knowledge of mathematics, science and engineering in solving electrical and electronic engineering problems.				x	
2	Students will be able to identify the problems that may be encountered in the production and testing of electrical and electronic circuits and systems, and gain the ability to solve them by using appropriate analysis and modeling methods.				x	
3	Gains the ability to design and develop electrical and electronic circuits and systems that can meet the requirements.			x		
4	Gains the ability to use and develop electrical and electronic engineering tools and software effectively.				x	
5	Gains the ability of designing experiments, conducting experiments, collecting data, analyzing and interpreting the results.				x	
6	Ability to work effectively in disciplinary and multidisciplinary teams; gain the ability to work individually.					x
7	Gains the ability of effective oral and written communication.				x	
8	Ability to follow technological innovations and gain awareness of lifetime learning.				x	
9	Having professional and ethic responsibility conciousness.				x	
10	To be able to earn aweraness for business life applications.					x
11	Understands the legal, social and environmental effects of engineering applications at national and universal level.				x	

PROGRAM QUALIFICATIONS AND THE COURSE LEARNING OUTCOMES RELATION											
Contribution Level	**1**		**2**				**3**	**4**		**5**	
	Low		Medium				High	Very High		Very Low	
ELECTRICAL AND ELECTRONIC ENGINEERING											
	PY-1	**PY-2**	**PY-3**	**PY-4**	**PY-5**	**PY-6**	**PY-7**	**PY-8**	**PY-9**	**PY- 10**	**PY- 11**
DK-1	4	4	3	3	4	5	4	3	3	5	
DK-2	4	4	3	4	4	5	4	4	4	5	4
DK-3	4	4	3	4	4	5	4	3	2	5	
DK-4	4	4	3	3	4	5	4	3	2	4	
DK-5	4	4	3	3	4	5	4	3	2	4	
DK-6	4	4	3	3	4	5	4	3	4	5	4
DK-7	4	4	3	3	4	5	4	4	3	5	3
DK-8	4	4	3	3	4	5	4	4	4	5	4

WEEKLY TOPICS		
Week	**TOPICS**	
	Teoric	**Application**
1	Ballistic and Fire Control	
2	Internal and External Ballistics	
3	Reference and Coordinate systems	
4	Weapon and System Harmonization	
5	Ball and Torpedo Shooters	
6	Guided Bullet Shooters	
7	Investigation of Guided Shells	
8	Torpedo and Mines	
9	Torpedo Mixers and Torpedo Mine Threat Precautions	
10	Midterm	
11	Guidance Systems	
12	plugs	
13	Chemical Explosive Types	
14	New Generation Weapons	
15	Directed energy weapons	
16	Directed energy weapons	

ECTS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME**	**PREDICTION of WORKLOAD**
Teoric Course	15	4	60
Application	--	--	--
Studying out of course	15	2	30
Completing Homeworks and Delivering as a report	--	--	--
Term Project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Mid-Term	1	2	2
Individual Study for Mid-Term	1	6	6
Final Exam	1	3	3
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	113		
ECTS OF COURSE	Total Workload / 30 = 113/30 = 3,76		4

Last Update Date	01 March 2019
Update Person	Y.Müh.Yzb. M. Batuhan GÜNDOĞDU

NAVAL ACADEMY
DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE DESCRIPTION

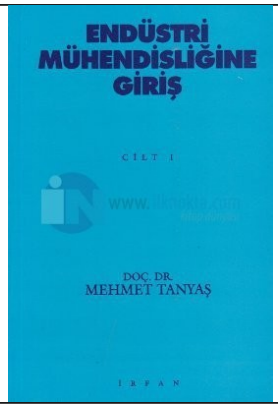
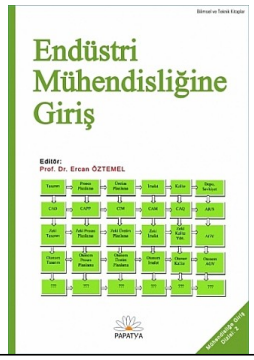
Course	Code	Class/Term	Class hour (T+P+L)	Credit	ECTS
INTRODUCTION TO INDUSTRIAL ENGINEERING	ENM-211	2/1	2+0	2	2

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	None
Instructor	:	Industrial engineering Instructor
Aims	:	The aim of the course is introducing industrial engineering to the students studying the Industrial engineering and introducing the other course they need to take
Course Acquirements	:	The students to pass the course successfully; 1. Comprehension of the meaning of the engineering and industrial engineering. 2. Comprehension of the steps of problem defining and solving in Industrial engineering. 3. Producing solution to the typical problems and constructing models regarding the implementation of Industrial engineering 4. Recognition of the techniques of the Industrial engineering 5. Ability to analyzing and interpreting the solutions at the level of a language with which decision maker can understand 6. Ability to test the susceptibility of solutions to various parameters
Course Content	:	Simulation modeling principles, types, purposes, manual simulation of a simple system, time processing , repetition of probability distributions, random numbers and values, a random value production , input analysis, distribution fitting, output analysis, validation techniques.

Evaluation :

Assessment	Number	MINIMUM SCORE	GRADE PERCENTAGE
Mid Term Exam	1	50	% 24
Final Exam	1	50	% 60
Class performance	1	50	% 16
Make-up exam	1	50	--
Single Course Exam	1	50	--

Resources	:	1.Endüstri Mühendisliğine Giriş, Mehmet Tanyaş

		
		1.Endüstri Mühendisliğine Giriş, Ercan Öztemel 

No	Program Proficiency	Course Contribution Scale				
		1	2	3	4	5
1	Ability to apply to knowledge acquired in mathematics, science and engineering,					
2	Identification of the problems encountered; ability to use the solutions, applications, algorithms, basic concepts of Industrial Engineering and Operations Research during the solution and analysis,					
3	Ability to design experiments , analyze and interpret data,					
4	Ability to set up a process, operate and manage a component of a system to meet the desired needs under realistic, economic, environmental, social , political, ethical , healthy and safe constraints to be produced and to be continued,					X
5	Ability to solve, formulate and identify the engineering problems					X
6	To identify and apply the appropriate method for problem solving,					X
7	To use the information technology applications in Industrial Engineering,				X	
8	To develop customized computer software for an algorithm in accordance with proposed solutions,	X				
9	Ability to use the simulation, optimization, and statistical software packages in order to analyze the problems of industrial engineering,					X
10	Ability to communicate effectively with customers and team members orally and in writing within business ethics,					
11	To have the professional and ethical responsibility,				X	
12	To develop themselves by following the innovations in science and technology through understanding the importance of lifelong learning,				X	
13	Ability to express ideas clearly and to communicate orally and in writing as having the faculty of independent decision-making and individual work,					X

14	Ability to have the consciousness of serving dedicated to the fundamentals of democratic, secure and social law state in accordance with Atatürk's principles and reforms					
15	Ability to have a good command of Turkish language			**X**		
16	Ability to have the knowledge of a foreign language at a level of communicating with their colleagues and using resources related to their field in international environments; and ability to use a second foreign language at an intermediate level.			**X**		

WEEKLY AGENDA	
WEEK	**SUBJECTS**
1	Definition and history of industrial engineering
2	The definition of Operations Research , history and the relationship with Industry Engineering
3	Management and decision making , quantitative approach to decision making , elements of decision problems
4	System analysis, definition of system and modeling approaches
5	Overview of operations research techniques
6	Decision analysis, analytic hierarchy process
7	Mathematical modeling
8	Inventory management and control
9	MIDTERM WEEK
10	Stochastic processes , queuing theory
11	Simulation modeling, system dynamics
12	Job design, ergonomics
13	Quality control
14	Project management
15	Modern production systems, lean manufacturing
16	Just in time production

ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**DURATION (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	15	3	45
	Laboratory Practice	--	--	--
Guided Problem Solving	Course Work	--	--	--
	Group or Self Study	--	--	--
Completion of Assignments and Submission as Reports		-	--	--
Term Project		1	--	--
Presentation		-	--	--
Other Works (Midterm)		4	--	--
Midterm Exam	Exam	1	2	2
	Self Study for exam	1	5	5
Final Exam	Exam	1	2	2
	Self Study for exam	1	6	6
TOTAL WORKLOAD (Hour)		60 Hours		
ECTS CREDITS		2 Credits		

NAVAL ACADEMY
DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE DESCRIPTION

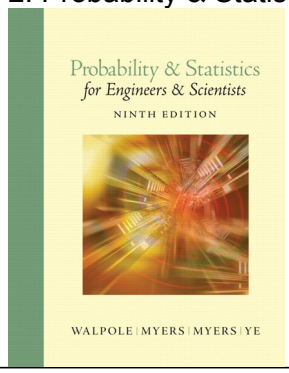
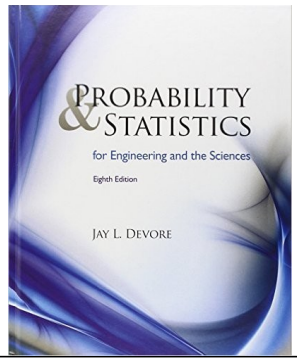
Course	Code	Class/Term	Class hour (T+P+L)	Credit	ECTS
PROBABILITY	EN-212	2/I2	3+0	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Mathematics
Instructor	:	Industrial Engineering Instructor
Aims	:	The aim of the course is to set up a substructure for probabilistic decision-making problems by providing students with the basic concepts of probability associated with the formation and distribution.
Course Acquirements	:	The students to pass the course successfully; 1. Ability to detect the probabilistic decision-making problems. 2. To determine the way to express the problems faced in random situations with which probabilistic distribution. 3. To solve the probabilistic decision-making problems. 4. To analyze the solution. 5. Interpret Solutions in a language understood by the decision makers. 6. Ability to test the sensitivity of the different parameters of the solution.
Course Content	:	

Evaluation :

Assessment	Number	MINIMUM SCORE	GRADE PERCENTAGE
Mid Term Exam	1	50	% 24
Final Exam	1	50	% 60
Class Performance	1	50	% 16
Make-up exam	1	50	--
Single Course Exam	1	50	--

Resources	:	1. Olasılık Ve İstatistik, Semra Oral Erbaş

		
		1. Probability & Statistics, Walpole, Myers, Myers 2. Probability & Statistics, Devore  

No	Program Proficiency	Course Contribution Scale				
		1	2	3	4	5
1	Ability to apply knowledge acquired in Mathematics , science and engineering					X
2	Identification of the problems encountered; ability to use the solutions, applications, algorithms, basic concepts of Industrial Engineering and Operations Research during the solution and analysis,				X	
3	Ability to design experiments , analyze and interpret data,					X
4	Ability to set up a process, operate and manage a component of a system to meet the desired needs under realistic, economic, environmental, social , political, ethical , healthy and safe constraints to be produced and to be continued,				X	
5	Ability to solve, formulate and identify the engineering problems					X
6	To identify and apply the appropriate method for problem solving,					X
7	To use the information technology applications in Industrial Engineering,					
8	To develop customized computer software for an algorithm in accordance with proposed solutions,					
9	Ability to use the simulation, optimization, and statistical software packages in order to analyze the problems of industrial engineering,					X
10	Ability to communicate effectively with customers and team members orally and in writing within business ethics,					
11	To have the professional and ethical responsibility,					
12	To develop themselves by following the innovations in science and technology through understanding the importance of lifelong learning,					
13	Ability to express ideas clearly and to communicate orally and in writing as having the faculty of independent decision-making and individual work,				X	
14	Ability to have the consciousness of serving dedicated to the fundamentals of democratic, secure and social law state in accordance with Atatürk's principles and reforms					
15	Ability to have a good command of Turkish language			X		
16	Ability to have the knowledge of a foreign language at a level of communicating with their colleagues and using resources related to their field in international environments; and ability to use a second foreign language at an intermediate level.			X		

WEEKLY AGENDA	
WEEK	**SUBJECTS**
1	Introduction to probability theory
2	- Counting Techniques - Probability Concept - Cluster Concept and Operations
3	- Conditional probability and Bayes' Theorem - Individual events
4	- Random Variables
5	- Expected Value - Variance and standard deviation
6	Moment - Moment generating function
7	Discrete Distributions - Bernoulli and binomial distributions - Geometric and Hipergeometrical
8	Discrete Distributions - Poisson distribution - Negative Binomial Distribution
9	Midterm Week
10	Continuous Probability Distributions - Uniform distribution - Normal distribution
11	Continuous Probability Distributions - Exponential - Hazard rate function
12	Joint Distributions - Discrete distributions compound - Expectations and variance - Marginal distributions
13	Joint Distributions - Continuous compound distributions - Expectations and variance - Marginal distributions
14	Conditional distributions
15	- Chebyshev Inequality - Markov inequality
16	- Central Limit Theorem Law of Large Numbers

ECTS CREDITS/ WORKLOAD TABLE

ACTIVITIES		NUMBER	DURATION (Hour)	TOTAL WORKLOAD (Hour)
Theoretical Course	Theoretical Instruction	15	3	45
	Laboratory Practice	--	--	--
Guided Problem Solving	Course Work	-	-	-
	Group or Self Study	15	2	30
Completion of Assignments and Submission as Reports		-	--	--
Term Project		1	--	--
Presentation		-	--	--
Other Works (Midterm)		4	--	--
Midterm Exam	Exam	1	2	2
	Self Study for exam	1	5	5
Final Exam	Exam	1	2	2
	Self Study for exam	1	6	6
TOTAL WORKLOAD (Hour)		90Hours		
ECTS CREDITS		30 Credits		

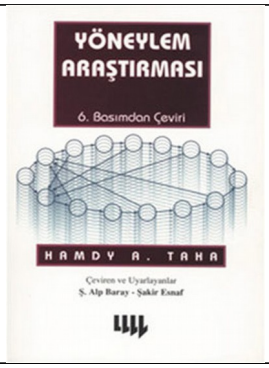
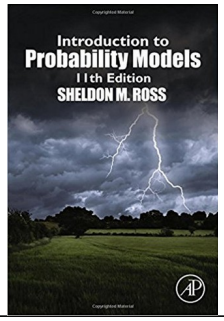
NAVAL ACADEMY
DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Class/Term	Class hour (T+P+L)	Credit	ECTS
STOCHASTIC PROCESSES	ENM-221	2/2	3+0	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Probability
Instructor	:	Industrial Engineering Instructor
Aims	:	The aim of the course is help the learners understand the basic concepts of stochastic processes in students
Course Acquirements	:	The students who successfully complete the course will be able to: 1. Determine probabilistic decision-making problems. 2. model real- life problems with the help of appropriate of stochastic processes. 3. solve problems of stochastic processes . 4. analyze the solution. 5. Interpret solutions in a language understood by the decision makers. 6. test the sensitivity of the different parameters of the solution.
Course Content	:	

Evaluation :	ASSESSMENT	NUMBER	MINIMUM SCORE	GRADE PERCENTAGE
	Mid Term Exam	1	50	% 24
	Final Exam	1	50	% 60
	Class Performance	1	50	% 16
	Make-up exam	1	50	--
	Single Course Exam	1	50	--

Resources	:	1. Yöneylem Araştırması, Hamdy A. TAHA (6.Baskı)

		
		1. Introduction to Probability Models, Sheldon M. ROSS 

No	Program Proficiency	Course Contribution Scale				
		1	2	3	4	5
1	Ability to apply knowledge acquired in Mathematics , science and engineering					X
2	Identification of the problems encountered; ability to use the solutions, applications, algorithms, basic concepts of Industrial Engineering and Operations Research during the solution and analysis,				X	
3	Ability to design experiments, analyze and interpret data,					X
4	Ability to set up a process, operate and manage a component of a system to meet the desired needs under realistic, economic, environmental, social , political, ethical , healthy and safe constraints to be produced and to be continued,				X	
5	Ability to solve, formulate and identify the engineering problems					X
6	To identify and apply the appropriate method for problem solving,					X
7	To use the information technology applications in Industrial Engineering,					
8	To develop customized computer software for an algorithm in accordance with proposed solutions,					
9	Ability to use the simulation, optimization, and statistical software packages in order to analyze the problems of industrial engineering,					X
10	Ability to communicate effectively with customers and team members orally and in writing within business ethics,					
11	To have the professional and ethical responsibility,					
12	To develop themselves by following the innovations in science and technology through understanding the importance of lifelong learning,					
13	Ability to express ideas clearly and to communicate orally and in writing as having the faculty of independent decision-making and self study,					X
14	Ability to have the consciousness of serving dedicated to the fundamentals of democratic, secure and social law state in accordance with Atatürk's principles and reforms,					
15	Ability to have a good command of Turkish language,			X		
16	Ability to have the knowledge of a foreign language at a level of communicating with their colleagues and using resources related to their field in international environments; and ability to use a second foreign language at an intermediate level.			X		

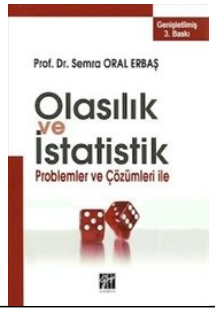
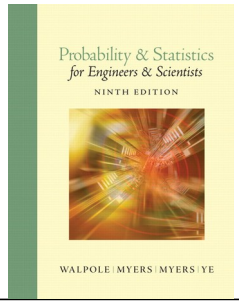
WEEKLY AGENDA	
WEEK	**SUBJECTS**
1	The probability theory again - Conditional probability and Bayes Formula - Discrete and random continuous variables
2	Conditional distributions - Continuous and discrete case - Conditional expectations - Conditional probability and expectation theme Account
3	Bernoulli Transactions - Inter-arrival distributions - Waiting time distributions
4	Poisson Processes - Inter-arrival distributions - Waiting time distributions
5	Poisson Processes - Compound Poisson processes - Inhomogeneous Poisson processes
6	Markov Chains - One-step transition probability matrix - Markov property - Status classification
7	Markov Chains - Limit possibilities - Long-term behavior of Markov chains
8	Markov Chains - Absorbing chains - Time in transient states
9	Midterm Exam Week
10	Steady State Markov Chains Transition probability
11	Steady state Markov Chains - Limit possibilities - Balance equations
12	Steady state Markov Chains - Birth and death process
13	Queuing Theory - Queue definitions - Little Law
14	Queuing Theory - M / M / 1 Queuing models
15	Queuing Theory - M / M / s Queuing models
16	Queuing Theory - M / G / 1 Queuing model - M / G / s Queuing model

ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**DURATION (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	15	3	45
	Laboratory Practice	--	--	--
Guided Problem Solving	Course Work	-	-	-
	Group or Self study	15	2	30
Completion of Assignments and Submission as Reports		-	--	--
Term Project		1	--	--
Presentation		-	--	--
Other Works (Midterm)		4	--	--
Midterm Exam	Exam	1	2	2
	Self study for exam	1	5	5
Final Exam	Exam	1	2	2
	Self study for exam	1	6	6
TOTAL WORKLOAD (Hour)		90 Hours		
ECTS CREDITS		3 Credits		

NAVAL ACADEMY
DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Class/Term	Class hour (T+P+L)	Credit	ECTS
STATISTICAL METHODS	ENM-223	2/2	4+0	4	4

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Mathematics 1 , Mathematics 2 , Probability
Instructor	:	Industrial Engineering Instructor
Aims	:	The aim of the course is to enable students to understand teach the basic concepts and laws of statistics, the research techniques; to have positive and scientific viewpoints and; to assist them to be able to consider events in depth and in detail.
Course Acquirements	:	The students who successfully complete the course will be able to: 1. Determine how to analyze the problems of decision-making with statistical methods. 2. Determine the way to express the problems faced in random situations with which probabilistic distribution. 3. Use statistical methods in decision making problems 4. Do statistical analysis for solutions 5. Interpret solutions in a language understood by the decision makers. 6. Test the sensitivity of the different parameters of the solution.
Course Content	:	Sampling theory, statistical shorthand theory, confidence intervals, decision theory, regression analysis, analysis of variance .
Evaluation	:	Assessment / Number / MINIMUM SCORE / GRADE PERCENTAGE Mid Term Exam / 1 / 50 / % 24 Final Exam / 1 / 50 / % 60 Class Performance / 1 / 50 / % 16 Make-up exam / 1 / 50 / -- Single Course Exam / 1 / 50 / --
Resources	:	

		1. Olasılık ve İstatistik (Prof.Dr.Semra Oral ERBAŞ 
		1. Matematiksel İstatistik (J.E.FEUND-I.MILLER) 2. Probability & Statistics, Walpole, Myers, Myers  

No	Program Proficiency	Course Contribution Scale				
		1	2	3	4	5
1	Ability to apply knowledge acquired in Mathematics , science and engineering					X
2	Identification of the problems encountered; ability to use the solutions, applications, algorithms, basic concepts of Industrial Engineering and Operations Research during the solution and analysis,				X	
3	Ability to design experiments , analyze and interpret data,					X
4	Ability to set up a process, operate and manage a component of a system to meet the desired needs under realistic, economic, environmental, social , political, ethical , healthy and safe constraints to be produced and to be continued,				X	
5	Ability to solve, formulate and identify the engineering problems					X
6	To identify and apply the appropriate method for problem solving,					X
7	To use the information technology applications in Industrial Engineering,					
8	To develop customized computer software for an algorithm in accordance with proposed solutions,					
9	Ability to use the simulation, optimization, and statistical software packages in order to analyze the problems of industrial engineering,					X
10	Ability to communicate effectively with customers and team members orally and in writing within business ethics,					
11	To have the professional and ethical responsibility,					
12	To develop themselves by following the innovations in science and technology through understanding the importance of lifelong learning,					
13	Ability to express ideas clearly and to communicate orally and in writing as having the faculty of independent decision-making and individual work,					X
14	Ability to have the consciousness of serving dedicated to the fundamentals of democratic, secure and social law state in accordance with Atatürk's principles and reforms,					
15	Ability to have a good command of Turkish language,			X		
16	Ability to have the knowledge of a foreign language at a level of communicating with their colleagues and using resources related to their field in international environments; and ability to use a second foreign language at an intermediate level.			X		

WEEKLY AGENDA	
WEEK	**SUBJECTS**
1	Basic concepts of Statistics
2	Summary of Data
3	Gradients
4	Sampling theory
5	Statistical estimation theory
6	Statistical estimation theory
7	Confidence interval
8	Confidence intervals, hypothesis testing
9	Midterm Week
10	Hypothesis Testing
11	Chi-square tests
12	Correlation analysis
13	Regression analysis
14	Regression analysis
15	Variance analysis
16	Chi-square tests

ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**DURATION (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	15	3	45
	Laboratory Practice	15	1	15
Guided Problem Solving	Course Work	-	-	-
	Group or Self Study	15	3	45
Completion of Assignments and Submission as Reports		-	--	--
Term Project		1	--	--
Presentation		-	--	--
Other Works (Midterm)		4	--	--
Midterm Exam	Exam	1	2	2
	Self Study for exam	1	5	5
Final Exam	Exam	1	2	2
	Self Study for exam	1	6	6
TOTAL WORKLOAD (Hour)		120 Hours		
ECTS CREDITS		4 Credits		

NAVAL ACADEMY
DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE DESCRIPTION

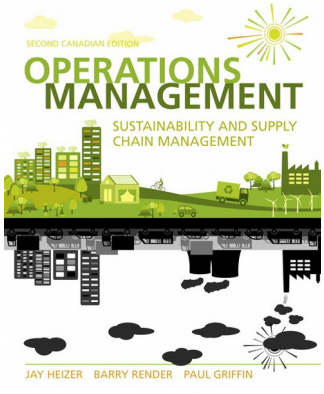
Course	Code	Class/Term	Class hour (T+P+L)	Credit	ECTS
OPERATIONS RESEARCH - 1	ENM-311	3/1	3+0	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Introduction to Industrial Engineering
Instructor	:	Industrial Engineering Instructor
Aims	:	The aim of the course is enable the learners face with the decision making problems in mathematical modeling and solve them through analytical methods, then interpret and analyze the results.
Course Acquirements	:	The students who successfully complete the course will be able to: 1. Define decision-making problems. 2. Model decision-making problems mathematically. 3. Solve decision-making problems. 4. Analyze solutions. 5. Interpret and explain a solution to decision makers. 6. Test sensitivity of different parameters in a solution.
Course Content	:	The history and background of operations analysis, modeling techniques, solving problems with graphical method, simplex and revised simplex method, duality, dual simplex method, sensitivity analysis, transportation problems.

Evaluation :

ASSESSMENT	NUMBER	MINIMUM SCORE	GRADE PERCENTAGE
Mid Term Exam	1	50	% 24
Final Exam	1	50	% 60
Class Performance	1	50	% 16
Make-up exam	1	50	%100
Single Course Exam	1	50	%100

Resources	:	1. Yöneylem Araştırması, Hamdy A. TAHA (6.Baskı)

		
		1. Operations Management, Jay Heizer 

No	Program Proficiency	Course Contribution Scale				
		1	2	3	4	5
1	Ability to apply knowledge acquired in Mathematics , science and engineering					X
2	Identification of the problems encountered; ability to use the solutions, applications, algorithms, basic concepts of Industrial Engineering and Operations Research during the solution and analysis,				X	
3	Ability to design experiments, analyze and interpret data,					X
4	Ability to set up a process, operate and manage a component of a system to meet the desired needs under realistic, economic, environmental, social , political, ethical , healthy and safe constraints to be produced and to be continued,				X	
5	Ability to solve, formulate and identify the engineering problems					X
6	To identify and apply the appropriate method for problem solving,					X
7	To use the information technology applications in Industrial Engineering,					
8	To develop customized computer software for an algorithm in accordance with proposed solutions,					
9	Ability to use the simulation, optimization, and statistical software packages in order to analyze the problems of industrial engineering,					X
10	Ability to communicate effectively with customers and team members orally and in writing within business ethics,					
11	To have the professional and ethical responsibility,					
12	To develop themselves by following the innovations in science and technology through understanding the importance of lifelong learning,					
13	Ability to express ideas clearly and to communicate orally and in writing as having the faculty of independent decision-making and self study,					X
14	Ability to have the consciousness of serving dedicated to the fundamentals of democratic, secure and social law state in accordance with Atatürk’s principles and reforms,					
15	Ability to have a good command of Turkish language,			X		
16	Ability to have the knowledge of a foreign language at a level of communicating with their colleagues and using resources related to their field in international environments; and ability to use a second foreign language at an intermediate level.			X		
17	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship, innovation and sustainable development.				X	

WEEKLY AGENDA	
WEEK	**SUBJECTS**
1	History of Operations Analysis
2	Linear Programming Techniques - Mathematical models of parts and acceptances - Modeling Examples
3	graphical Method - Alternative solutions - Unlimited solutions
4	Simplex Method - Standard and canonical forms - In the form of table solution
5	Big M and Two- Phase Method
6	Duality - The creation of binary problems - Binary variables and shadow prices
7	duality - Primal - Dual Relationships - Strong and weak dual theorems
8	Dual Simplex Method
9	**Midterm Exam Week**
10	Sensitivity Analysis - Changes in the objective function coefficients - Changes in the right-hand side vector
11	Sensitivity Analysis - Adding a new constraint / lift - Adding a new variable / lift
12	Revised Simplex Method
13	Revised Simplex Method
14	Revised Dual Simplex Method
15	Transportation Problem - Modeling - To be balanced - Creating a Startup Solution methods - Transportation Simplex Method
16	Assignment Problem -Modeling -Solution with the Hungarian method

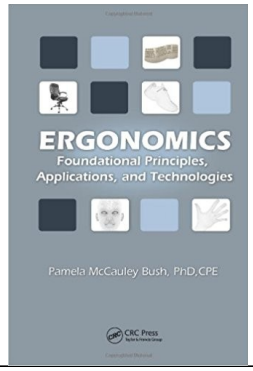
ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**DURATION (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	15	3	45
	Laboratory Practice	--	--	--
Guided Problem Solving	Course Work	--	--	--
	Group or Self study	15	2	30
Completion of Assignments and Submission as Reports		--	--	--
Term Project		--	--	--
Presentation		--	--	--
Other Works (Midterm)		--	--	--
Midterm Exam	Exam	1	2	2
	Self study for exam	1	5	5
Final Exam	Exam	1	2	2
	Self study for exam	1	6	6
TOTAL WORKLOAD (Hour)		90 Hours		
ECTS CREDITS		3 Credits		

NAVAL ACADEMY
DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Class/Term	Class hour (T+P+L)	Credit	ECTS
Ergonomics	ENM-312	3/1	3+0	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	-
Instructor	:	Industrial Engineering Instructor
Aims	:	The aim of the course is to enable learners to have the ability to design and evaluate a business system, taking into account human factors and ergonomics principles.
Course Acquirements	:	The students who successfully complete the course will be able to: 1. Understand the meaning and importance of ergonomics. 2. Recognize of the anthropometric characteristics and uses of human design 3. Have the knowledge about man's capacity and competence 4. Perform applications on design affecting productivity and leading to health problems that require ergonomic solutions 5. Gain the necessary knowledge and skills in human - machine interaction 6. Comprehend of the impact and importance of ergonomics to product design parameters
Course Content	:	Work Study & Introduction to Ergonomics Productivity Business Design Method Study Human Factor in Work Study Applications Work Measurement Learning Curves Introduction to Human Factors Engineering Anthropometry Accumulation of Injury Physical Factors Mental activities Fatigue, Break and Shift Systems The Future of Human Factors Engineering

Evaluation	:	Assessment	Number	MINIMUM SCORE	GRADE PERCENTAGE

		Mid Term Exam	1	50	% 24
		Final Exam	1	50	% 60
		Class Performance	1	50	% 16
		Make-up exam	1	50	%100
		Single Course Exam	1	50	%100
Resources	:	1. Mühendisler İçin Ergonomi, Fatih Babalık 			
		1. Ergonomics Foundational Principles, Applications and Technologies, Pamela McCauley Bush, CRC Press; 1st edition 			

No	Program Proficiency	Course Contribution Scale				
		1	2	3	4	5
1	Ability to apply knowledge acquired in Mathematics , science and engineering					X
2	Identification of the problems encountered; ability to use the solutions, applications, algorithms, basic concepts of Industrial Engineering and Operations Research during the solution and analysis,					X
3	Ability to design experiments, analyze and interpret data,					X
4	Ability to set up a process, operate and manage a component of a system to meet the desired needs under realistic, economic, environmental, social , political, ethical , healthy and safe constraints to be produced and to be continued,				X	
5	Ability to solve, formulate and identify the engineering problems				X	
6	To identify and apply the appropriate method for problem solving,				X	
7	To use the information technology applications in Industrial Engineering,					
8	To develop customized computer software for an algorithm in accordance with proposed solutions,					
9	Ability to use the simulation, optimization, and statistical software packages in order to analyze the problems of industrial engineering,					
10	Ability to communicate effectively with customers and team members orally and in writing within business ethics,			X		
11	To have the professional and ethical responsibility,			X		
12	To develop themselves by following the innovations in science and technology through understanding the importance of lifelong learning,				X	
13	Ability to express ideas clearly and to communicate orally and in writing as having the faculty of independent decision-making and self study,				X	
14	Ability to have the consciousness of serving dedicated to the fundamentals of democratic, secure and social law state in accordance with Atatürk’s principles and reforms,					
15	Ability to have a good command of Turkish language,					
16	Ability to have the knowledge of a foreign language at a level of communicating with their colleagues and using resources related to their field in international environments; and ability to use a second foreign language at an intermediate level.				X	
17	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship, innovation and sustainable development.					

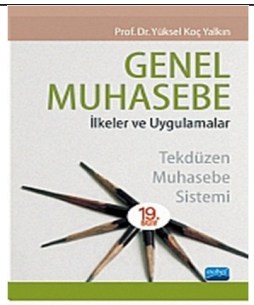
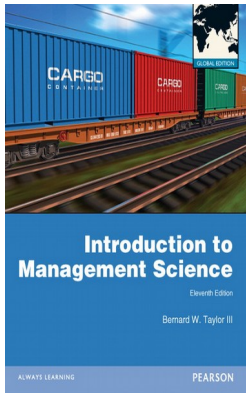
WEEKLY AGENDA	
WEEK	**SUBJECTS**
1	Introduction to Ergonomics
2	Ergonomic Systems Approach
3	Anthropometry
4	Work Physiology
5	Biomechanics
6	Working downtime
7	Manual Material Handling
8	Light , Toxic Substances
9	**Midterm Exam Week**
10	Noise, Vibration , Thermal Comfort
11	Civil and Mechanical Saver
12	Civil and Mechanical Saver
13	Risk Assessment
14	Risk Assessment
15	Man-Machine Interaction
16	Ergonomics in Product Design

ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**DURATION (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	15	3	45
	Laboratory Practice	--	--	--
Guided Problem Solving	Course Work	--	--	--
	Group or Self study	15	2	30
Completion of Assignments and Submission as Reports		--	--	--
Term Project		--	--	--
Presentation		--	--	--
Other Works (Midterm)		--	--	--
Midterm Exam	Exam	1	2	2
	Self study for exam	1	5	5
Final Exam	Exam	1	2	2
	Self study for exam	1	6	6
TOTAL WORKLOAD (Hour)		90 Hours		
ECTS CREDITS		3 Credits		

NAVAL ACADEMY
DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Class/Term	Class hour (T+P+L)	Credit	ECTS
ENGINEERING ECONOMY	ENM-321	3/2	3+0	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Introduction to Industrial Engineering
Instructor	:	Industrial Engineering Instructor
Aims	:	The aim of the course is enable students to learn the engineering economic analysis and financing techniques useful to making decision regarding engineering.
Course Acquirements	:	The students who successfully complete the course will be able to: 1. Learn the basic principles of engineering economics. 2. Learn the cost concepts. 3. Learn the time value of money and the ability to use it problem solving. 4. Learn the renewal investments and project selection by means of the cost analysis 5. Doing the risk analysis. 6. Establishing the investment model
Course Content	:	Basic principles, interest, taxes , time value of money, net present value, ROR, NPV, EUAC, EUAS, PBP, BCR, renovation investments.
Evaluation	:	Assessment / Number / MINIMUM SCORE / GRADE PERCENTAGE Mid Term Exam / 1 / 50 / % 24 Final Exam / 1 / 50 / % 60 Class Performance / 1 / 50 / % 16 Make-up exam / 1 / 50 / %100 Single Course Exam / 1 / 50 / %100
Resources	:	1. Genel Muhasebe İlkeleri ve Uygulaması, Prof.Dr. Yalçın KOÇ

		
		1. Introduction To Management Science, TAYLOR 

No	Program Proficiency	Course Contribution Scale				
		1	2	3	4	5
1	Ability to apply knowledge acquired in Mathematics , science and engineering			X		
2	Identification of the problems encountered; ability to use the solutions, applications, algorithms, basic concepts of Industrial Engineering and Operations Research during the solution and analysis,				X	
3	Ability to design experiments, analyze and interpret data,					X
4	Ability to set up a process, operate and manage a component of a system to meet the desired needs under realistic, economic, environmental, social , political, ethical , healthy and safe constraints to be produced and to be continued,					
5	Ability to solve, formulate and identify the engineering problems					X
6	To identify and apply the appropriate method for problem solving,					X
7	To use the information technology applications in Industrial Engineering,					
8	To develop customized computer software for an algorithm in accordance with proposed solutions,					
9	Ability to use the simulation, optimization, and statistical software packages in order to analyze the problems of industrial engineering,			X		
10	Ability to communicate effectively with customers and team members orally and in writing within business ethics,					
11	To have the professional and ethical responsibility,					
12	To develop themselves by following the innovations in science and technology through understanding the importance of lifelong learning,					
13	Ability to express ideas clearly and to communicate orally and in writing as having the faculty of independent decision-making and self study,					
14	Ability to have the consciousness of serving dedicated to the fundamentals of democratic, secure and social law state in accordance with Atatürk’s principles and reforms,					
15	Ability to have a good command of Turkish language,					
16	Ability to have the knowledge of a foreign language at a level of communicating with their colleagues and using resources related to their field in international environments; and ability to use a second foreign language at an intermediate level.					
17	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship, innovation and sustainable development.					X

WEEKLY AGENDA	
WEEK	**SUBJECTS**
1	Introduction to Engineering Economics and Basic Concepts
2	Cost Concept - Cost types - Cost functions - Comparative cost models
3	Money Time Relations - Cash flow - Cash flow diagrams - The time value of money
4	Money Time Relations - P/F, F/P, P/A, F/A - Uniform Series - Gradient series - Algebraic relations
5	Discrete and Periodic Accumulation and Mathematical Modeling
6	Continuous compounding Nominal and effective interest Discrete payment Continuous payment
7	Equivalence - Economic equivalence - Share and bono evaluation - MARR valuation
8	PW, FW, EUAS/EUAC
9	**Midterm Exam Week**
10	CE, NPV,
11	IROR, EROR
12	PBP, BCR
13	Selection between investment alternatives
14	Replacement investments - Renewal Decision - Economic life of the asset - Replacement investments of mathematical modeling
15	Replacement investments - Replacement investments of mathematical modeling
16	Effects of inflation and depreciation and price changes

ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**DURATION (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	15	3	45
	Laboratory Practice	--	--	--
Guided Problem Solving	Course Work	--	--	--
	Group or Self study	15	2	30
Completion of Assignments and Submission as Reports		--	--	--
Term Project		--	--	--
Presentation		--	--	--
Other Works (Midterm)		--	--	--
Midterm Exam	Exam	1	2	2
	Self study for exam	1	5	5
Final Exam	Exam	1	2	2
	Self study for exam	1	6	6
TOTAL WORKLOAD (Hour)		90 Hours		
ECTS CREDITS		3 Credits		

NAVAL ACADEMY
DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE DESCRIPTION

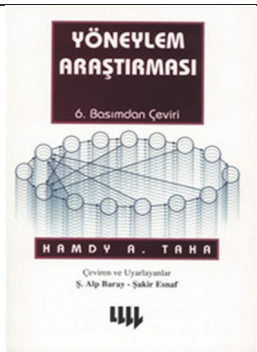
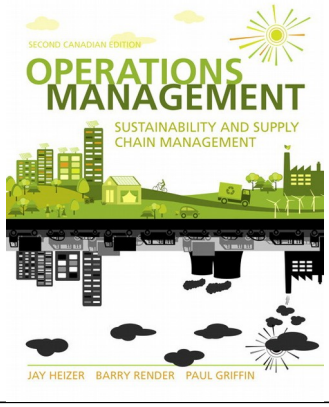
Course	Code	Class/Term	Class hour (T+P+L)	Credit	ECTS
OPERATIONS RESEARCH - 2	ENM-322	3/2	3+0	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Operations Research - 1
Instructor	:	Industrial Engineering Instructor
Aims	:	The aim of the course is to enable learners to solve decision-making problems using integer programming, goal programming and nonlinear programming techniques and to interpret and analyze the results.
Course Acquirements	:	The students who successfully complete the course will be able to: 1. Determine the decision-making problems. 2. Model the decision-making problems using integer programming, goal programming and nonlinear programming techniques. 3. Solve the goal, integer, and nonlinear programming problems 4. Analyze the solutions. 5. Interpret solutions in a language understood by the decision makers. 6. Test the sensitivity of the different parameters of the solution.
Course Content	:	Integer Programming modeling techniques. Branch and bound technique. Cutting plane algorithm. Non-linear programming modeling techniques. Quadratic and separable programming. Goal programming and solution techniques. Dynamic programming. Assembling line balancing and solutions.

Evaluation :

Assessment	Number	MINIMUM SCORE	GRADE PERCENTAGE
Mid Term Exam	1	50	% 24
Final Exam	1	50	% 60
Class Performance	1	50	% 16
Make-up exam	1	50	%100
Single Course Exam	1	50	%100

Resources	:	1. Yöneylem Araştırması, Hamdy A. TAHA (6.Baskı)

		
		1. Operations Management, Jay Heizer 

No	Program Proficiency	Course Contribution Scale				
		1	2	3	4	5
1	Ability to apply knowledge acquired in Mathematics , science and engineering					X
2	Identification of the problems encountered; ability to use the solutions, applications, algorithms, basic concepts of Industrial Engineering and Operations Research during the solution and analysis,				X	
3	Ability to design experiments, analyze and interpret data,					X
4	Ability to set up a process, operate and manage a component of a system to meet the desired needs under realistic, economic, environmental, social , political, ethical , healthy and safe constraints to be produced and to be continued,				X	
5	Ability to solve, formulate and identify the engineering problems					X
6	To identify and apply the appropriate method for problem solving,					X
7	To use the information technology applications in Industrial Engineering,					
8	To develop customized computer software for an algorithm in accordance with proposed solutions,					
9	Ability to use the simulation, optimization, and statistical software packages in order to analyze the problems of industrial engineering,					X
10	Ability to communicate effectively with customers and team members orally and in writing within business ethics,					
11	To have the professional and ethical responsibility,					
12	To develop themselves by following the innovations in science and technology through understanding the importance of lifelong learning,					
13	Ability to express ideas clearly and to communicate orally and in writing as having the faculty of independent decision-making and self study,					X
14	Ability to have the consciousness of serving dedicated to the fundamentals of democratic, secure and social law state in accordance with Atatürk’s principles and reforms,					
15	Ability to have a good command of Turkish language,			X		
16	Ability to have the knowledge of a foreign language at a level of communicating with their colleagues and using resources related to their field in international environments; and ability to use a second foreign language at an intermediate level.			X		
17	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship, innovation and sustainable development.				X	

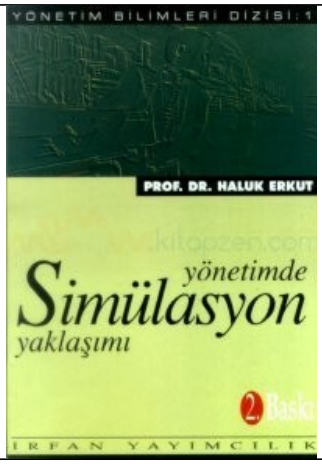
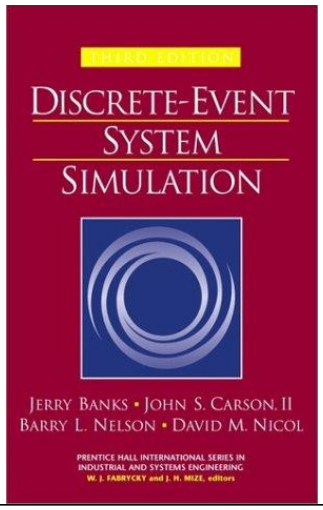
WEEKLY AGENDA	
WEEK	**SUBJECTS**
1	Integer Programming (IP) - Modeling Techniques - LP relief forms and graphics solutions
2	Integer Programming - Cutting plane algorithm - Pure IP solution with the branch and bound technique
3	Integer Programming - Mixed IP solution with branch and bound technique - Branch and bound technique to solving the Knapsack Problem
4	Integer Programming - Solving problems with the branch and bound technique TSP - Implicit Enumeration technique
5	Nonlinear Programming (NLP) - Modeling Techniques - Convex and concave functions - Univariate NLP solutions - Golden Section Search method
6	Nonlinear Programming - Multivariable unconstrained NLP solutions - Lagrange multiplier method - Kuhn Tucker conditions
7	Nonlinear Programming - Quadratic Programming - Wolfe method - Removable programming
8	Goal Programming - Weighted goal programming - Primary objective programming - Target programming Simplex method
9	**Midterm Exam Week**
10	Dynamic Programming (DP) - Dynamic programming concept - DPA solution with the shortest path problem
11	Dynamic Programming - Solving the Knapsack Problem with DP - Inventory solution with the DP models
12	Dynamic Programming - Stochastic dynamic programming - Solutions to stochastic inventory model with DP
13	Merge Line Balancing - Mathematical models - Determination of the lower and upper limits of workstation
14	Merge Line Balancing - COMSOAL intuitive method - RPW intuitive method - Solution with branch and bound technique
15	Single Machine Sequencing and Scheduling Models - Notation and definitions - Scheduling classes - Completion time models - Maximum lateness models
16	Single Machine Sequencing and Scheduling Models - Tardiness models - Earliness and Tardiness models

ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**DURATION (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	15	3	45
	Laboratory Practice	--	--	--
Guided Problem Solving	Course Work	-	-	-
	Group or Self study	15	2	30
Completion of Assignments and Submission as Reports		-	--	--
Term Project		-	--	--
Presentation		-	--	--
Other Works (Midterm)		-	--	--
Midterm Exam	Exam	1	2	2
	Self study for exam	1	5	5
Final Exam	Exam	1	2	2
	Self study for exam	1	6	6
TOTAL WORKLOAD (Hour)		90 Hours		
ECTS CREDITS		3 Credits		

NAVAL ACADEMY
DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Class/Term	Class hour (T+P+L)	Credit	ECTS
SYSTEM SIMULATION	ENM-323	3/2	3+2	4	5

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Probability, Stochastic Processes
Instructor	:	Industrial Engineering Instructor
Aims	:	The aim of the course is inform learners about simulation techniques and industrial applications after providing basic understanding of simulation and modeling. Examining the system behavior in different situations through installation of computer based models and simulation test of the real system is the issue underlined.
Course Acquirements	:	The students who successfully complete the course will be able to: 1. Comprehend the importance of simulation in terms of grip and industrial engineering applications. 2. Understand the statistical substructure of simulation applications 3. Build simulation models for typical applications in industrial engineering and manufacturing solutions to problems 4. Analyze the solution. 5. Interpret solutions to a language understood by the decision makers. 6. Test the sensitivity of the different parameters of the solution
Course Content	:	Simulation modeling principles, types, purposes, manual a simple system simulation, time processing , probability distributions again , random numbers and values, a random value production , input analysis, distribution fitting, output analysis, validation techniques.
Evaluation	:	Assessment / Number / MINIMUM SCORE / GRADE PERCENTAGE Mid Term Exam / 1 / 50 / % 24 Final Exam / 1 / 50 / % 60 Class Performance / 1 / 50 / % 16 Make-up exam / 1 / 50 / %100 Single Course Exam / 1 / 50 / %100
Resources	:	1. Yönetimde Sistem Yaklaşımı, Haluk Erkut

		
		1. Discrete Event System Simulation, Jerry Banks 

No	Program Proficiency	Course Contribution Scale				
		1	2	3	4	5
1	Ability to apply knowledge acquired in Mathematics , science and engineering					X
2	Identification of the problems encountered; ability to use the solutions, applications, algorithms, basic concepts of Industrial Engineering and Operations Research during the solution and analysis,				X	
3	Ability to design experiments, analyze and interpret data,					X
4	Ability to set up a process, operate and manage a component of a system to meet the desired needs under realistic, economic, environmental, social , political, ethical , healthy and safe constraints to be produced and to be continued,				X	
5	Ability to solve, formulate and identify the engineering problems					X
6	To identify and apply the appropriate method for problem solving,					X
7	To use the information technology applications in Industrial Engineering,					
8	To develop customized computer software for an algorithm in accordance with proposed solutions,					
9	Ability to use the simulation, optimization, and statistical software packages in order to analyze the problems of industrial engineering,					X
10	Ability to communicate effectively with customers and team members orally and in writing within business ethics,					
11	To have the professional and ethical responsibility,					
12	To develop themselves by following the innovations in science and technology through understanding the importance of lifelong learning,					
13	Ability to express ideas clearly and to communicate orally and in writing as having the faculty of independent decision-making and self study,					X
14	Ability to have the consciousness of serving dedicated to the fundamentals of democratic, secure and social law state in accordance with Atatürk’s principles and reforms,					
15	Ability to have a good command of Turkish language,			X		
16	Ability to have the knowledge of a foreign language at a level of communicating with their colleagues and using resources related to their field in international environments; and ability to use a second foreign language at an intermediate level.			X		
17	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship, innovation and sustainable development.				X	

WEEKLY AGENDA	
WEEK	**SUBJECTS**
1	Simulation introduction , objectives
2	Simulation types, deterministic and stochastic simulation
3	Conceptual model development, process simulation project
4	One tail - one presenter manual simulation
5	Discrete and continuous probability distributions
6	Input analysis
7	Random number generation
8	Detailed modeling arena
9	**MIDTERM EXAM WEEK**
10	Sampling methods, inverse transformation method
11	Acceptance-rejection method
12	Compliance test
13	Output analysis , steady state, there is the warm-up period
14	Finding the number of repetitions and length ,
15	Validation methods
16	Queuing theory and analytic queuing models

ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**DURATION (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	15	3	45
	Laboratory Practice	15	2	30
Guided Problem Solving	Course Work	-	-	-
	Group or Self study	15	4	60
Completion of Assignments and Submission as Reports		-	--	--
Term Project		-	--	--
Presentation		-	--	--
Other Works (Midterm)		-	--	--
Midterm Exam	Exam	1	2	2
	Self study for exam	1	5	5
Final Exam	Exam	1	2	2
	Self study for exam	1	6	6
TOTAL WORKLOAD (Hour)		150 Hours		
ECTS CREDITS		5 Credits		

NAVAL ACADEMY
DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE DESCRIPTION

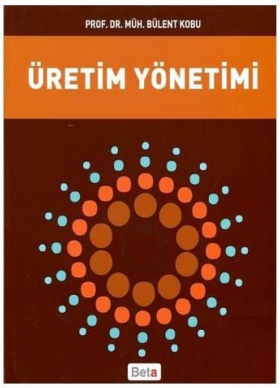
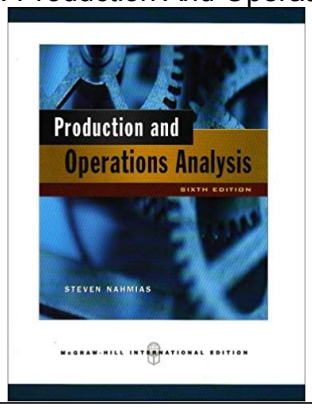
Course	Code	Class/Term	Class hour (T+P+L)	Credit	ECTS
PRODUCTION PLANING AND CONTROL	ENM-411	4/1	4+0	4	4

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Operations Research – 1, Operations Research – 2, Statistics
Instructor	:	Industrial Engineering Instructor
Aims	:	The aim of the course is to enable learners to learn production systems, production planning and MRP concepts, and analysis methodologies to solve related problems.
Course Acquirements	:	The students who successfully complete the course will be able to: 1. Determine and classify production planning problems. 2. Create forecasting models using forecasting techniques. 3. Determine Material Requirement Planning (MRP) problems and generate solutions 4. Calculate lot sizes. 5. Analyze the solution. 6. Interpret solutions in a language understood by the production planners. 7. Test the sensitivity of the different parameters of the solution.
Course Content	:	Production, production systems, forecasting, inventory, inventory management, MRP, lot size.

Evaluation :

Assessment	Number	MINIMUM SCORE	GRADE PERCENTAGE
Mid Term Exam	1	50	% 24
Final Exam	1	50	% 60
Class Performance	1	50	% 16
Make-up exam	1	50	% 100
Single Course Exam	1	50	% 100

Resources	:	1. Üretim Yönetimi, Bülent Kobu (6.Baskı)

		
		1. Production And Operations Analysis, Steven Nahmias 

No	Program Proficiency	Course Contribution Scale				
		1	2	3	4	5
1	Ability to apply knowledge acquired in Mathematics, science and engineering					X
2	Identification of the problems encountered; ability to use the solutions, applications, algorithms, basic concepts of Industrial Engineering and Operations Research during the solution and analysis,				X	
3	Ability to design experiments, analyze and interpret data,					X
4	Ability to set up a process, operate and manage a component of a system to meet the desired needs under realistic, economic, environmental, social , political, ethical , healthy and safe constraints to be produced and to be continued,				X	
5	Ability to solve, formulate and identify the complex engineering problems					X
6	To identify and apply the appropriate method for problem solving,					X
7	To use the information technology applications in Industrial Engineering,				X	
8	To develop customized computer software for an algorithm in accordance with proposed solutions,					
9	Ability to use the simulation, optimization, and statistical software packages in order to analyze the problems of industrial engineering,					X
10	Ability to communicate effectively with customers and team members orally and in writing within business ethics,	X				
11	To have the professional and ethical responsibility,		X			
12	To develop themselves by following the innovations in science and technology through understanding the importance of lifelong learning,			X		
13	Ability to express ideas clearly and to communicate orally and in writing as having the faculty of independent decision-making and self study,					X
14	Ability to have the consciousness about environmental, health and security aspects of engineering applications both socially and globally	X				
15	Ability to have a good command of Turkish language,			X		
16	Ability to have the knowledge of a foreign language at a level of communicating with their colleagues and using resources related to their field in international environments; and ability to use a second foreign language at an intermediate level.			X		
17	Ability to have the knowledge about project, risk and change management and conciousness about innovation and entrepreneurship.			X		

WEEKLY AGENDA	
WEEK	**SUBJECTS**
1	Production planing and basic concepts
2	Production systems - Elements of a production system - Classification of production systems - Continuous, discrete and project based production systems
3	Forecasting demand - Forecasting concepts and classification - Forecasting techniques
4	Forecasting demand - Methods and performance criteria
5	Forecasting demand methods - Randomness, seasonality and trend
6	Inventory management - Basic concepts
7	Deterministic inventory models
8	Stochastic inventory models
9	**Midterm Exam Week**
10	Master planning - Importance, strategies, Gantt diagramming
11	Master Plan Schedule, product tree, time based product structure
12	MPS and MRP relation
13	MRP
14	EOQ, POQ, PPB
15	Silver meal, least unit cost, dynamic models
16	Capacity planning

ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**DURATION (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	15	4	60
	Laboratory Practice	--	--	--
Guided Problem Solving	Course Work	-	-	-
	Group or Self study	15	3	45
Completion of Assignments and Submission as Reports		-	--	--
Term Project		1	--	--
Presentation		-	--	--
Other Works (Midterm)		4	--	--
Midterm Exam	Exam	1	2	2
	Self study for exam	1	5	5
Final Exam	Exam	1	2	2
	Self study for exam	1	6	6
TOTAL WORKLOAD (Hour)		120 Hours		
ECTS CREDITS		4 Credits		

NAVAL ACADEMY
DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE DESCRIPTION

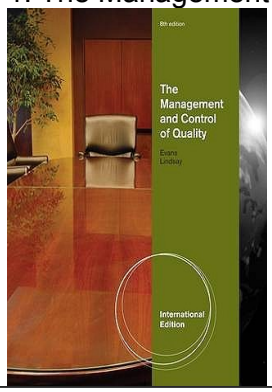
Course	Code	Class/Term	Class hour (T+P+L)	Credit	ECTS
STATISTICAL QUALITY CONTROL	ENM-412	4/1	3+0	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Introduction to Industrial Engineering, Statistics
Instructor	:	Industrial Engineering Instructor
Aims	:	It provides Industrial Engineering students insights into quality engineering, Total Quality Management (TQM) and how processes are controlled and monitored to ensure high quality products.
Course Acquirements	:	The students who successfully complete the course will be able to: 1. Understand the basic concepts of quality monitoring. 2. Understand the statistical underpinnings of quality monitoring. 3. Learn various available statistical tools of quality monitoring. 4. Learn the statistical and economical design issues associated with the monitoring tools. 5. Learn TQM philosophy. 6. Demonstrate the ability to design and implement these tools.
Course Content	:	Statistical quality control techniques, process control, frequency control, control charts, confidence intervals, hypothesis testing, TQM Systems.

Evaluation :

ASSESSMENT	NUMBER	MINIMUM SCORE	GRADE PERCENTAGE
Mid Term Exam	1	50	% 24
Final Exam	1	50	% 60
Class Performance	1	50	% 16
Make-up exam	1	50	% 100
Single Course Exam	1	50	% 100

Resources	:	1. Kalite Yönetimi Ve Planlaması, Ahmet Öztürk

		
		1. The Management and Control of Quality (Evans,Lidsay). 

No	Program Proficiency	Course Contribution Scale				
		1	2	3	4	5
1	Ability to apply knowledge acquired in Mathematics, science and engineering					X
2	Identification of the problems encountered; ability to use the solutions, applications, algorithms, basic concepts of Industrial Engineering and Operations Research during the solution and analysis,				X	
3	Ability to design experiments, analyze and interpret data,					X
4	Ability to set up a process, operate and manage a component of a system to meet the desired needs under realistic, economic, environmental, social , political, ethical , healthy and safe constraints to be produced and to be continued,				X	
5	Ability to solve, formulate and identify the complex engineering problems					X
6	To identify and apply the appropriate method for problem solving,					X
7	To use the information technology applications in Industrial Engineering,				X	
8	To develop customized computer software for an algorithm in accordance with proposed solutions,					
9	Ability to use the simulation, optimization, and statistical software packages in order to analyze the problems of industrial engineering,					X
10	Ability to communicate effectively with customers and team members orally and in writing within business ethics,	X				
11	To have the professional and ethical responsibility,		X			
12	To develop themselves by following the innovations in science and technology through understanding the importance of lifelong learning,			X		
13	Ability to express ideas clearly and to communicate orally and in writing as having the faculty of independent decision-making and self study,					X
14	Ability to have the consciousness about environmental, health and security aspects of engineering applications both socially and globally	X				
15	Ability to have a good command of Turkish language,			X		
16	Ability to have the knowledge of a foreign language at a level of communicating with their colleagues and using resources related to their field in international environments; and ability to use a second foreign language at an intermediate level.			X		
17	Ability to have the knowledge about project, risk and change management and conciousness about innovation and entrepreneurship.			X		

WEEKLY AGENDA	
WEEK	**SUBJECTS**
1	Quality definition and basics - Definitions - Quality concept - History of quality control - Quality chain, customers, process and system concepts
2	Quality costs - Loq quality cost - Failure costs - Expected cost
3	Quality development and decreasing costs - Hidden costs - Root-cause diagrams, Histograms - Pareto analysis
4	Quality development and decreasing costs - Comparison - SWOT - QFD
5	Control diagrams and process capability analysis - Main structure of control diagrams - X diagrams - R diagrams - Applications
6	Control diagrams and process capability analysis - C diagrams - U diagrams - Process capability analysis
7	Test Samples - Sampling–Methods - Sampling –Applicaitons
8	Hypothesis testing - Simple hypothesis tests - Bilinmeyen varyansla normal dağılıma sahip bir kitlenin hipotez testi - Bilinmeyen varyansla normal dağılıma sahip bir ortalaması için kitlenin hipotez testi - Güven ararlıklarının ve hipotez testinin karşılaştırılması
9	**MIDTERM EXAM WEEK**
10	Hypothesis testing - Hypothesis testing of a normally distributed sample for variance and standard deviation - Hypothesis testing of normally distributed two samples for mean - Hypothesis testing of normally distributed two samples for variance
11	F and variance analysis - Variance analysis - One sided variance analysis - Two sided variance analysis - Applications
12	F and variance analysis - Two sided variance analysis (For multiple observations) - Latin squares and Greko-Latin squares
13	TQM - TQM philosophy - TQM principles - TQM applications
14	FMEA - Failure mode analysis - FMEA applications

15	Seven new tools in quality management - Affinity, Relations ,Tree and Matrix diagrams - Matrix data analysis, Arrow and PDPC diagrams
16	Seven new tools in quality management - Affinity, Relations ,Tree and Matrix diagrams - Matrix data analysis, Arrow and PDPC diagrams

ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**DURATION (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	15	3	45
	Laboratory Practice	--	--	--
Guided Problem Solving	Course Work	-	-	-
	Group or Self study	15	2	30
Completion of Assignments and Submission as Reports		-	--	--
Term Project		-	--	--
Presentation		-	--	--
Other Works (Midterm)		-	--	--
Midterm Exam	Exam	1	2	2
	Self study for exam	1	5	5
Final Exam	Exam	1	2	2
	Self study for exam	1	6	6
TOTAL WORKLOAD (Hour)		90 Hours		
ECTS CREDITS		3 Credits		

NAVAL ACADEMY
DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE DESCRIPTION

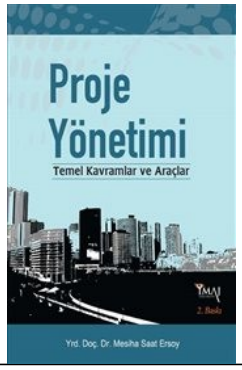
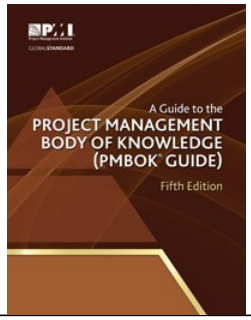
Course	Code	Class/Term	Class hour (T+P+L)	Credit	ECTS
PROJECT MANAGEMENT	ENM-421	4/2	3+0	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Operations Research – 1, Statistics
Instructor	:	Industrial Engineering Instructor
Aims	:	This course examines project management in theory and practice and the roles and responsibilities of the project manager. The course offers a practical approach to managing projects, focusing on organizing, planning, and controlling the efforts of the project.
Course Acquirements	:	The students who successfully complete the course will be able to; 1. Recognize the 9 Project Management knowledge areas with key inputs, tools and techniques and outputs. 2. Fully understand the PMI policies and procedures required to fulfill your Professional Responsibility. 3. Share "Best Practices" of the 9 Project Management knowledge areas. 4. Apply Project Management principles through class exercises in project scope management, project time management and teaming.
Course Content	:	Selection of projects with feasibility analysis, cost foırecast techniques, work structure breakdown, CPM and PERT, balancing and optimizing project resources, Quality and Risk Management.

Evaluation :

ASSESSMENT	NUMBER	MINIMUM SCORE	GRADE PERCENTAGE
Mid Term Exam	1	50	% 24
Final Exam	1	50	% 60
Class Performance	1	50	% 16
Make-up exam	1	50	% 100
Single Course Exam	1	50	% 100

Resources	:	1. Proje Yönetimi (Temel Kavramlar Ve Araçlar), Mesiha, Saat, ERSOY

		
		1. A guide to project management body of knowledge PMBOK Guide, 5th edition 

No	Program Proficiency	Course Contribution Scale				
		1	2	3	4	5
1	Ability to apply knowledge acquired in Mathematics, science and engineering					X
2	Identification of the problems encountered; ability to use the solutions, applications, algorithms, basic concepts of Industrial Engineering and Operations Research during the solution and analysis,				X	
3	Ability to design experiments, analyze and interpret data,					X
4	Ability to set up a process, operate and manage a component of a system to meet the desired needs under realistic, economic, environmental, social , political, ethical , healthy and safe constraints to be produced and to be continued,				X	
5	Ability to solve, formulate and identify the complex engineering problems					X
6	To identify and apply the appropriate method for problem solving,					X
7	To use the information technology applications in Industrial Engineering,				X	
8	To develop customized computer software for an algorithm in accordance with proposed solutions,	X				
9	Ability to use the simulation, optimization, and statistical software packages in order to analyze the problems of industrial engineering,					X
10	Ability to communicate effectively with customers and team members orally and in writing within business ethics,	X				
11	To have the professional and ethical responsibility,		X			
12	To develop themselves by following the innovations in science and technology through understanding the importance of lifelong learning,			X		
13	Ability to express ideas clearly and to communicate orally and in writing as having the faculty of independent decision-making and self study,					X
14	Ability to have the consciousness about environmental, health and security aspects of engineering applications both socially and globally	X				
15	Ability to have a good command of Turkish language,			X		
16	Ability to have the knowledge of a foreign language at a level of communicating with their colleagues and using resources related to their field in international environments; and ability to use a second foreign language at an intermediate level.			X		
17	Ability to have the knowledge about project, risk and change management and conciousness about innovation and entrepreneurship.			X		

WEEKLY AGENDA	
WEEK	**SUBJECTS**
1	Introduction to PM - Contents of PM - History - Life Cycle concept
2	Feasibility studies in PM - Project selection techniques
3	Cost and cost forecasting in PM - Cost types - Cost forecasting techniques
4	Work breakdown structure - Time planning - Gantt diagram - Network diagram
5	CPM - Earliest and latest start times - Total ptoject time - Critical activities
6	CPM - Use of Linear Programming in CPM - Use of matrices in CPM
7	CPM - Idle activities
8	PERT
9	**Ara Sınav Haftası**
10	Probability in PERT computations
11	PERT Cost analysis - Activity durations and cost relation - Parametric analysis
12	Resource balancing - Use of resources in activities - Time analysis and resource relation - Parametric analysis
13	Project control - Project control and monitor - Earned value analysis
14	Project quality management - Quality definitions - Quality costs - Quality planning
15	Project risk management - Risk - Defining and measuring of risks - Risk control
16	Successful project management examples

ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**DURATION (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	15	3	45
	Laboratory Practice	--	--	--
Guided Problem Solving	Course Work	-	-	-
	Group or Self study	15	2	30
Completion of Assignments and Submission as Reports		-	--	--
Term Project		1	--	--
Presentation		-	--	--
Other Works (Midterm)		4	--	--
Midterm Exam	Exam	1	2	2
	Self study for exam	1	5	5
Final Exam	Exam	1	2	2
	Self study for exam	1	6	6
TOTAL WORKLOAD (Hour)		90 Hours		
ECTS CREDITS		3 Credits		

NAVAL ACADEMY
DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE DESCRIPTION

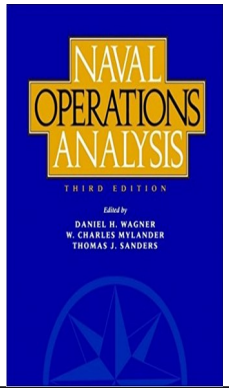
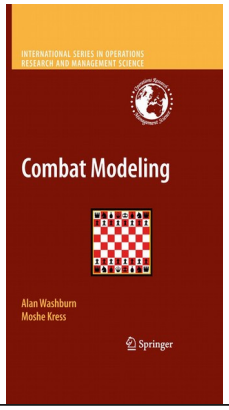
Course	Code	Class/Term	Class hour (T+P+L)	Credit	ECTS
OPERATIONS RESEARCH - 3	ENM-422	4/2	3+0	3	4

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Probability, Stochastic Models, Operations Research – 1, Operations Research - 2
Instructor	:	Industrial Engineering Instructor
Aims	:	The aim of the course is to enable learners model, solve and analysis basic military operational problems by using industrial engineering techniques
Course Acquirements	:	The students who successfully complete the course will be able to: 1. Determine military operations research problems 2. Solve and model military operations research problems by industrial engineering and probability theorems 3. Analyze solutions 4. Discuss and comment on solutions with the decision maker 5. Conduct sensitivity analysis of the solutions.
Course Content	:	Detection theory, lateral range curves, sweep width and search theory, ASW, AAW, MW, system reliability, statistical analysis of gunfires, Lanchester models, simulation and wargames.

Evaluation :

Assessment	Number	MINIMUM SCORE	GRADE PERCENTAGE
Mid Term Exam	1	50	% 24
Final Exam	1	50	% 60
Class Performance	1	50	% 16
Make-up exam	1	50	% 100
Single Course Exam	1	50	% 100

Resources	:	1. Naval Operations Analysis, WAGNER, MYLANDER,

		SANDER 
		1. Combat Modelling, WASHBURN, KRESS 

No	Program Proficiency	Course Contribution Scale				
		1	2	3	4	5
1	Ability to apply knowledge acquired in Mathematics, science and engineering					X
2	Identification of the problems encountered; ability to use the solutions, applications, algorithms, basic concepts of Industrial Engineering and Operations Research during the solution and analysis,				X	
3	Ability to design experiments, analyze and interpret data,					X
4	Ability to set up a process, operate and manage a component of a system to meet the desired needs under realistic, economic, environmental, social , political, ethical , healthy and safe constraints to be produced and to be continued,				X	
5	Ability to solve, formulate and identify the complex engineering problems					X
6	To identify and apply the appropriate method for problem solving,					X
7	To use the information technology applications in Industrial Engineering,				X	
8	To develop customized computer software for an algorithm in accordance with proposed solutions,					
9	Ability to use the simulation, optimization, and statistical software packages in order to analyze the problems of industrial engineering,					X
10	Ability to communicate effectively with customers and team members orally and in writing within business ethics,	X				
11	To have the professional and ethical responsibility,		X			
12	To develop themselves by following the innovations in science and technology through understanding the importance of lifelong learning,			X		
13	Ability to express ideas clearly and to communicate orally and in writing as having the faculty of independent decision-making and self study,					X
14	Ability to have the consciousness about environmental, health and security aspects of engineering applications both socially and globally	X				
15	Ability to have a good command of Turkish language,			X		
16	Ability to have the knowledge of a foreign language at a level of communicating with their colleagues and using resources related to their field in international environments; and ability to use a second foreign language at an intermediate level.			X		
17	Ability to have the knowledge about project, risk and change management and conciousness about innovation and entrepreneurship.			X		

WEEKLY AGENDA	
WEEK	**SUBJECTS**
1	Introduction to military OR
2	Search theory - Glimpse methods - Detection probability in terms of distance - Signal detection theory
3	Lateral range curves (LRC) - Definition of LRC - Detection functions - Sweep width
4	Search theory - Search methods - Parallel search - Expanding area search
5	Patrol - Barrier patrol - Optimization of search effort
6	ASW - Barrier patrol effectiveness - Torpedo hit probabilities
7	ASW - Screening - Convoy approach
8	AAW - AAW trials - Trial analysis
9	**MIDTERM EXAM WEEK**
10	MW - Mine types - Systematic mining - Random mining
11	System reliability - Structure functions - Minimum path
12	System reliability - Expected time between failures - Failure ratio examples
13	Lanchaster models - Target features - Failure circles
14	Lanchaster models - Linera law - Square law
15	Lanchaster models - Stochastic Lanchaster models - Heterogeneous combat models
16	Simulation and wargames - Definition of wargames - Classification of wargames - Using wargames in selection of weapon systems

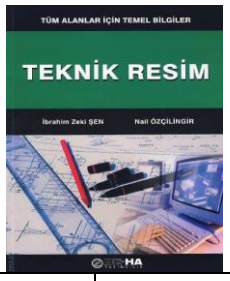
ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**DURATION (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	15	3	45
	Laboratory Practice	--	--	--
Guided Problem Solving	Course Work	-	-	-
	Group or Self study	15	4	60
Completion of Assignments and Submission as Reports		-	--	--
Term Project		1	--	--
Presentation		-	--	--
Other Works (Midterm)		4	--	--
Midterm Exam	Exam	1	2	2
	Self study for exam	1	5	5
Final Exam	Exam	1	2	2
	Self study for exam	1	6	6
TOTAL WORKLOAD (Hour)		120 Hours		
ECTS CREDITS		4 Credits		

	NAVAL ACADEMY **DEPARTMENT OF MECHANICAL ENGINEERING** **COURSE DESCRIPTION**	

Course	Code	Year / Semester	Class hour (T+P+L)	Credit	ECTS
Computer Aided Technical Drawing	MKM-121	1/II	2+0+0	2	2

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	None
Instructor	:	Mechanical Engineering Instructor
Aims	:	To gain three-dimensional thinking ability, to provide the ability of reading technical drawings, to give the ability of drawing standard machine elements and machine assembly pictures and to teach using CAD software.
Course Learning Outcomes	:	The students to pass the course successfully will be able to; 1- Perform freehand sketching, technical writing and also refers to the level to be able to write dimensioning these pictures. 2- Draw standard and cross-sectional views of machine parts. 3- Have an idea about surface treatment symbols and apply them. 4- Draw the technical drawings and assembly pictures of the machine elements. 5- Use dimensional and geometric tolerances in a dominant way. 6- The student, who has all the theoretical and freehand sketching capabilities, can apply them in a CAD program at the next stage.
Course Content	:	Types of technical drawing, line work, perspective, projection, opening, threads and fasteners, locking and holding devices, riveted type bonding, welded connections, dimensioning, limitations and transitions, geometric tolerance, cams, bearings, felts, technical drawing applications, surface roughness, sectioning, intersections, expansions and finding of actual sizes, threaded profile and construction drawings, assembly pictures, using a computer aided drawing program.

Course Book



Teknik Resim	İbrahim Zeki Şen-Nail Özçilingir	Deha Publishing	2013

Other Resources

Autocad 2014 Tutorial First Level 2D Fundamentals	Robert H.Shih	SDC Publications
Autocad 2014 Tutorial Second Level 3D Modelling	Robert H.Shih	SDC Publications

Works/Project

Each week, homework and end-of-term projects will be held.

Using Computer

Students can do their homework by using computer (not obligatory).

Other Applications

Success Assessment System

	Activities	Base Grade	Piece	Contribution to Assessment,%	
	Midterm	50	1	24%	
Semester Assessment	Quizzes	50	1	%	16%
	Homework	50	1	%	
	Project	50	1	%	
	Term Paper	50	1	%	
	Laboratory Applications	50	1	%	
	Other Applications	50	1	%	
	Final Exam	50	1	60%	
	Make-up Exam/ GUE	50	-	100%	
	Single Course Exam / GUE	50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Medium	High	Very High

MECHANICAL ENGINEERING														
	PQ-1	PQ-2	PQ-3	PQ-4	PQ-5	PQ-6	PQ-7	PQ-8	PQ-9	PQ-10	PQ-11	PQ-12	PQ-13	PQ-14	PQ-15
CA-1	3		3				4	3	3						
CA-2	3		3				4	3	3						
CA-3	2		4				4	3	3						
CA-4	3		4				4	3	3						
CA-5	4		4				4	3	3						
CA-6	3		4				4	3	3						

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.			x		
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.					
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)		x			
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)	x				
5	The student should be able to show the ability to work in independent or interdisciplinary teams.			x		
6	Students should be able to work as managers, planners or coordinators in team and project works.					
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.		x			
8	Students should be able to access, evaluate, use and produce solutions the information they need.		x			
9	Students should have the skill of lifelong learning.			x		
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.					
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.					
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.	x				
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.					
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.				x	

SYLLABUS	
Week	**Subject**
1	Description of the course, introduction, aim, processing, presentation of technical drawing tools and materials, standard writing, line types, geometric drawings, scale
2	Projection methods, center, parallel vertical projection, opening
3	Technical drawing of parts, auxiliary views, relations between appearances
4	Isometric projection methods, drawing order, dimensioning, tolerances, surface roughness, surface treatment marks
5	Section views, sectioning, Cross sectional scanning method, measurement
6	Introduction to 3D modeling, perspective drawing (isometric-cabinet)
7	Assembly drawing (perspective)
8	**MIDTERM**
9	Screw and screw elements, wedge and key connections, pins and pin connections, bolts
10	Adjusting rings, retaining rings, spindle locating plates, springs, gear wheels, bearings, welds, rivets and rivet connections
11	Introduction to CAD software, toolbox, commands, CAD drawing logic, transition from 2 to 3 dimensions
12	Visa drawings operates intensively commands
13	Solid modeling, part creation, editing and redefinition
14	Modeling Assembly modeling and assembly of parts
15	Obtaining 2D technical drawings from a 3D model

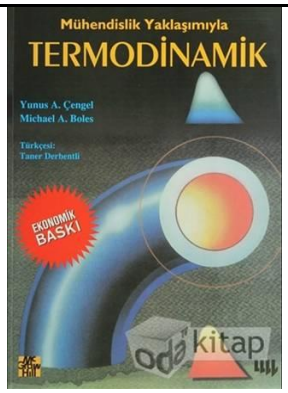
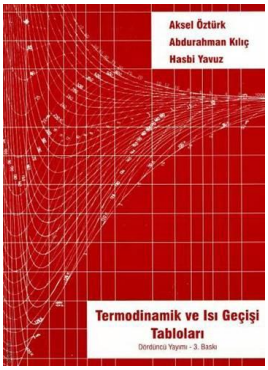
ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	14	2	28
	Laboratory Practice	--	--	--
Guided Problem Solving	Course Work	14	0.5	7
	Group or Self Study	--	--	--
Completion of Assignments and Submission as Reports		5	1	5
Term Project		-	--	--
Project Presentation		-	--	--
Other Works		-	--	--
Midterm Exam	Exam	1	2	2
	Self Study for exam	1	8	8
Final Exam	Exam	1	2	2
	Self Study for exam	1	8	8
TOTAL WORKLOAD (Hour)		**60**		
ECTS CREDITS		Total Work Load / 30 = 90 / 30		3

Last Updated Date	12.04.2019
Updater	Ens. Murat URYAN

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Thermodynamics-1	MKM-211	2/I	(3+0+0)	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Physics-I & Mathematics-II
Instructor	:	Mechanical Engineering Instructor
Aims	:	This course aims to introduce fundamentals of Thermodynamics for designing of thermal systems includes power cycles. It's expected that students gain capability to carry out and analyse of various Thermodynamic processes (water vapor, refrigerant liquids and ideal gasses) and cycles. It's aim to gain the ability of calculating the related data during the state changes. Gas turbines, nozzles, heat exchangers, compressors are examined in terms of Thermodynamics to enhance the ability of analysis, application and communication in this field.
Course Learning Outcomes	:	Students who successfully complete this course; 1. Can express the basic concepts of Thermodynamics 2. First law of Thermodynamics: can conservation of mass and energy, work, heat transfer and be able to apply energy analysis in closed systems. 3. First law of Thermodynamics: can identify and be able to apply energy analysis of open system steady-flow systems 4. Can define second law of Thermodynamics and be able to analyze related systems. 5. Can identify entropy and can apply entropy analysis to related systems.
Course Content	:	Basic concepts and principles of Thermodynamics, properties of pure substance, first law of Thermodynamics in closed systems, specific heat, first law of Thermodynamics in open systems, un-steady open systems, work and heat, second law of Thermodynamics, entropy and heat energy, entropy relations, entropy change of pure substances, adiabatic efficiency, analysis of engineering systems with second law

Textbook	 Mühendislik Yaklaşımıyla Termodinamik — Yunus A.Çengel — Literatür — 1996
Other References	 Termodinamik ve Isı Geçişi Tabloları — Aksel Öztürk — Çağlayan — 2014
Homewor & Projects	Homework is required by the instructor in the required weeks.
Use of Computer	Students can do their homework by using computer (not obligatory).
Other Applications	

Success Assessment System

Activities		**Base Grade**	**Piece**	**Contribution to Assessment,%**	
Midterm		50	1	24%	
Semester Assessment	Quizzes	50	1	%	16%
	Homework	50	1	%	
	Projects	50	1	%	
	Term Project /Project	50	1	%	
	Laboratory Application	50	1	%	
	Other Application	50	1	%	
Final Exam		50	1	60%	
Make-up Exam/ GUE		50	-	100%	
Single Course Exam / GUE		50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

MECHANICAL ENGINEERING															
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	4														
CA-2	5	3	4	4				3							4
CA-3	5	3	4	4			4	3							4
CA-4	5	3	4	4				3							4
CA-5	5	3	4	4				3							4

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					X
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.			X		
3	Students should be able to design a system, component or process to meet the desired requirements (Mechanical systems, Thermal systems).				X	
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems).					X
5	The student should be able to show the ability to work independently or in interdisciplinary teams.					
6	Students should be able to work as managers, planners or coordinators in team and project works.		X			
7	Students should be able to detect and identify problem areas and select the areas and methods for solving the subject.					X
8	Students should be able to access, evaluate, use and produce solutions the information they need.				X	
9	Students should have the skill of lifelong learning.					
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.				X	
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.				X	
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.			X		
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.					X
15	Students should be able to show the competence of understanding the universal and social effects of Mechanical Engineering solutions.				X	

SYLLABUS	
WEEK	**Subjects**
1	Definitions and main concepts of Thermodynamics, properties of pure substance
2	Characteristic tables
3	First law of Thermodynamics
4	First law of Thermodynamics: energy equations in cycles and change of state
5	Specific heat
6	First law of Thermodynamics: control volumes
7	Energy analysis of open system steady-flow systems
8	**MIDTERM**
9	Analysis of un-steady open systems
10	Conservation of energy and mass
11	Second law of Thermodynamics
12	Entropy and heat energy
13	Entropy relations, entropy change of pure substances
14	Adiabatic efficiency
15	Analysis of engineering systems with second law

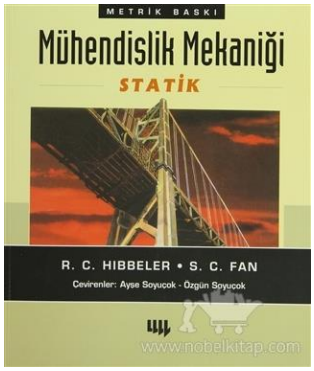
ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	14	3	42
Laboratory Practice				
Guided Problem Solving	Course Work			
Group or Self Study		7	2	14
Completion of Assignments and Submission as Reports		4	1	4
Term Project				
Project Presentation				
Other Works		2	5	10
Midterm Exam	Exam	1	2	2
	Self Study for exam	1	8	8
Final Exam	Exam	1	2	2
	Self Study for exam	1	8	8
TOTAL WORKLOAD(Hour)		**90**		
ECTS CREDITS		Total Work Load / 30 = 90 / 30		3 Credits

Last Updated Date	29.03.2019
Updater	Ens. Ayhan IŞIK

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
ENGINEERING COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Statics	MKM-212	2/I	(3+0+0)	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree, Required
Prerequisite Course	:	Physics-1
Instructor	:	
Aims	:	Examination of mechanically rigid body mechanics and statics of particles. Application of the basic principles of mechanics correctly for the analysis and solution of static problems.
Course Learning Outcomes	:	Students who successfully complete this course: 1. Will be able to define the basic principles of mechanics by using vector analysis, algebra and trigonometry tools. 2. Will be able to explain the components of two and three dimensional force systems. 3. Will be able to calculate the equilibrium problems of two and three dimensional force systems 4. Can make calculations such as resultant and equilibrium analysis in force systems by unit vector method.
Course Content	:	Statics of particles, space forces system, rigid bodies, equivalent force systems, equilibrium of rigid bodies, diffusive forces, bearing systems, friction, beams, rods, cables, load, connection between force and moment, virtual work method

Textbook	 Mühendislik Mekaniği Statik | R.C. Hibbeler | Literatür | 2010
Other Resources	
Homework and Projects	
Use of computer	Students can do their homework by using computer (not obligatory).
Other Applications	

Success Assessment System

Activities		Base Grade	Piece	Contribution to Assessment,%	
Midterm		50	1	24%	
Semester Assessment	Quizzes	50	1	%	16%
	Homework	50	1	%	
	Projects	50	1	%	
	Term Project / Project	50	1	%	
	Laboratory Application	50	1	%	
	Other Applications	50	1	%	
Final Exam		50	1	60%	
Make-up exam / GUE		50	-	100%	
Single Course Exam / GUE		50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Level of Contribution	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

	MECHANICAL ENGEENRING														
	PQ-1	PQ-2	PQ-3	PQ-4	PQ-5	PQ-6	PQ-7	PQ-8	PQ-9	PQ-10	PQ-11	PQ-12	PQ-13	PQ-14	PQ-15
CA-1	4	1	3	3			3	1		1			2		4
CA-2	4	1	4	4			3	1		2			3		5
CA-3	5	1	4	4			3	1		2			3		5
CA-4	5	2	4	4			3	1		2			3		5

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					x
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.	x				
3	Students should be able to design a system, component or process to meet the desired requirements (Mechanical systems, Thermal systems).				x	
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems).				x	
5	The student should be able to show the ability to work independently or in interdisciplinary teams.					
6	Students should be able to work as managers, planners or coordinators in team and project works.					
7	Students should be able to detect and identify problem areas and select the areas and methods for solving the subject.			x		
8	Students should be able to access, evaluate, use and produce solutions the information they need.	x				
9	Students should have the skill of lifelong learning.					
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.		x			
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.					
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.			x		
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.					
15	Students should be able to show the competence of understanding the universal and social effects of Mechanical Engineering solutions.					x

ECTS CREDITS/WORK LOAD TABLE

SYLLABUS	
WEEK	**Subjects**
1	Statics of particles
2	Space Forces System
3	Rigid Bodies: Equivalent System of Forces
4	Forces in beams and cables
5	Balance of space forces system
6	Distributed forces: centers of gravity
7	Distributed forces, moment of inertia
8	**MIDTERM**
9	Carrier Systems
10	Repeat and problem solutions
11	Friction: dry friction
12	Friction: screw, axle, discs
13	Forces in beams and cables
14	Links between load, force and moment
15	Method of Virtual Work

ACTIVITIES		NUMBER	HOUR	TOTAL WORKLOAD (Hour)
Theoretical Course		14	3	42
Application				
Guided Problem Solving	Course Work			
	Group or Self Study	7	2	14
Completion of Assignments and Submission as Reports		4	1	4
Term Project		--	--	--
Project Presentation		--	--	--
Quizzes		--	--	--
Midterm		1	2	2
Other Practices		2	5	10
Self-study for Midterm		1	8	8
Final Exam		1	2	2
Self-study for Final Exam		1	8	8
TOTAL WORKLOAD (Hour)		90		
ECTS CREDITS		Total Work Load / 30 = 90 / 30		3 Credits

Last Updated	04.04.2019
Updater	Ens. Ali GÜN

	NAVAL ACADEMY DEPARTMENT OF MECHANICAL ENGINEERING COURSE DESCRIPTION	

Course	Code	Year / Semester	Class hour (T+P+L)	Credit	ECTS
Materials Science	MKM-213	2/I	3+0+0	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Chemistry
Instructor	:	Mechanical Engineering Instructor
Aims	:	Definition of engineering materials, properties of materials, the study of production processes, making the student to be able to make selection by using material knowledge in design process
Course Learning Outcomes	:	The students who pass this course successfully; 1. Can recognize the internal structure of materials 2. Can learn basic professional terminology. 3. Can determine the place of use according to the properties of the material. 4. Can learn the strengthening mechanism, phase concepts and changing. 5. Can learn crystal defect and structures on material properties and test techniques used to determine mechanical properties. 6. Can be aware of the importance of corrosion in the material.
Course Content	:	Cast iron and steel metallurgy, properties and tests of materials, alloying elements in steels and iron, non-ferrous metals, non-metallic materials, welding, stress and strain, basic metallurgy, metals and processes, vibration, atomic structure, bond types and properties, crystal structure and properties, allotropy, crystal structure defects, metallic material deformation, solidification of metals, types of alloys, diffusion of metals, phase laws and phase diagrams, phase transformations, Fe-C system, heat treatment applied to metals, material inspections, destructive and non-destructive inspection methods, electrical, thermal, magnetic and optical properties, corrosion and protection of metals.

Course Book	 Malzeme Bilimi ve Mühendisliği | William D.Callister | Nobel Publishing | 2013
Other Resources	 Malzeme Bilimi ve Mühendisliği | William E.Smith | Literatür | 2001
Works/Project	Studies on Fe-C System, Diagram drawing and phase determination of materials at different temperatures will be done.
Using Computer	Students can do their homework by using computer (not obligatory).
Other Applications	Friction on the surface of materials by tribometer or examination of the abrasion caused by different factors and detailed examination of the materials by optical microscope.

Success Assessment System

Assessment		Minimum Score	Number	Grade Percentage%	
Mid Term Exam		50	1	24%	
Semester Assessment	Quizzes	50	1	%	16%
	Homework	50	1	%	
	Projects	50	1	%	
	Term Project /Project	50	1	%	
	Laboratory Application	50	1	%	
	Other Application	50	1	%	
Final Exam		50	1	60%	
Make-up Exam/ GUE		50	-	100%	
Single Course Exam / GUE		50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

MECHANICAL ENGINEERING															
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ -10**	**PQ -11**	**PQ -12**	**PQ -13**	**PQ -14**	**PQ-15**
CA-1	3	5	4		4		3	4	4						
CA-2	3		4		4		3	5	5				5	5	3
CA-3	3	4	4		4		4	5	4						
CA-4	3	5	4		4	3	4	4	4						
CA-5	3	5	4		4	3	4	4	4						
CA-6	3	4	4		4		4	4	4						

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.			x		
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.					x
3	Students should have the ability to design a system, component or process to meet the desired requirements (Mechanical systems, Thermal systems).					
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)		x			
5	The student should be able to show the ability to work in independent or interdisciplinary teams.					
6	Students should be able to work as managers, planners or coordinators in team and project works.					
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.				x	
8	Students should be able to access, evaluate, use and produce solutions the information they need.			x		
9	Students should have the skill of lifelong learning.				x	
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.					
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.					
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.					
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.			x		
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.					

SYLLABUS	
Week	**Subject**
1	Introduction to materials science and material properties
2	Atomic structure and inter-atomic bonds
3	Examination of crystal structures, allotropy, Miller indices
4	Crystal structure defects, causes and types of formation
5	Phase laws and diagrams, alloys
6	Mechanical properties of metals, dislocations
7	Fe-C equilibrium diagrams, iron based materials
8	**MIDTERM**
9	Heat treatment of materials, phase transformations, change in microstructure and mechanical properties
10	Water hardening, surface hardening
12	Plastic shaping process of materials
13	Corrosion
14	Non-metallic engineering materials (Ceramic, Polymer, Composite)
15	Non-destructive testing methods of materials

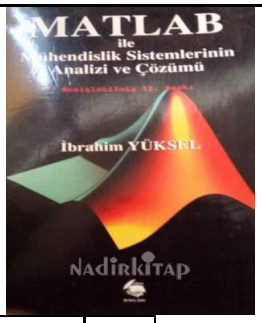
ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	14	3	42
	Laboratory Practice	--	--	--
Guided Problem Solving	Course Work	--	--	--
	Group or Self Study	7	2	14
Completion of Assignments and Submission as Reports		4	1	4
Term Project		1	--	--
Project Presentation		-	--	--
Other Works (Midterm)		2	5	10
Midterm Exam	Exam	1	2	2
	Self Study for exam	1	8	8
Final Exam	Exam	1	2	2
	Self Study for exam	1	8	8
TOTAL WORKLOAD (Hour)		90 Hours		
ECTS CREDITS		Total Work Load / 30 = 60 / 30		2

Last Updated	10.04.2019
Updater	Ens. Murat URYAN

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
ENGINEERING COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Computer Use and Programming	MKM-214	2/I	2+0+0	2	2

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree, compulsory
Prerequisite Course	:	-
Instructor	:	
Aims	:	To introduce students to the basics of computer. To teach important software applications such as spreadsheets and databases. To introduce the basic architecture and technologies of the Internet. To introduce the basic skills needed to develop algorithms and computer programming skills to gain the support of mathematical topics.
Course Learning Outcomes	:	Students who successfully complete this course: 1. Recognize the basic principles of computer programs. 2. Define computerized systems used in maritime. 3. Have knowledge about programming languages. 4. Can use an algorithm program.
Course Content	:	Computers, the use of computers in daily life, computer hardware and software, operating systems, input/output and storage, network and internet, wired and wireless communication, text editors, spreadsheets, visualization, software like databases, error calculation with computers, Introduction to scientific problem solving using algorithms. Use of computer aided algorithm program.

Textbook	 MATLAB ile Mühendislik Sistemlerinin Analizi ve Çözümü — İbrahim Yüksel — Vipaş — 2000
Other Resources	Instructor lecture notes.
Homeworks and Projects	
Use of computer	Computer use is obligatory.
Other Applications	MATLAB

Success Assessment System

Activities		Base Grade	Piece	Contribution to Assessment,%	
Midterm		50	1	24%	
Semester Assessment	Quizzes	50	1	%	16%
	Homework	50	1	%	
	Projects	50	1	%	
	Term Project / Project	50	1	%	
	Laboratory Application	50	1	%	
	Other Applications	50	1	%	
Final Exam		50	1	60%	
Make-up exam / GUE		50	-	100%	
Single Course Exam / GUE		50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very low	Low	Medium	High	Very high

	MECHANICAL ENGINEERING														
	PQ-1	PQ-2	PQ-3	PQ-4	PQ-5	PQ-6	PQ-7	PQ-8	PQ-9	PQ-10	PQ-11	PQ-12	PQ-13	PQ-14	PQ-15
CA-1	5	2	3	2			3	1		4			3		5
CA-2	5	2	3	2			3	1		4			3		5
CA-3	5	2	3	2			3	1		4			3		5
CA-4	5	2	3	2			3	1		4			3		5

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					x
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.		x			
3	Students should be able to design a system, component or process to meet the desired requirements (Mechanical systems, Thermal systems).			x		
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems).		x			
5	The student should be able to show the ability to work independently or in interdisciplinary teams.					
6	Students should be able to work as managers, planners or coordinators in team and project works.					
7	Students should be able to detect and identify problem areas and select the areas and methods for solving the subject.			x		
8	Students should be able to access, evaluate, use and produce solutions the information they need.	x				
9	Students should have the skill of lifelong learning.					
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.				x	
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.					
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.			x		
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.					
15	Students should be able to show the competence of understanding the universal and social effects of Mechanical Engineering solutions.					x

SYLLABUS	
WEEK	**Subjects**
1	Basic principles of programming: mathematical and logical basics
2	Development of computers and their usage, basic hardware and software information, introduction to operating systems, network and computer network, internet, wired/wireless communication.
3	Introduction to the algorithm program. Variables and commands
4	Matrix operations
5	Matrix operations
6	Loops (for, while)
7	Loops (for, while)
8	**MIDTERM**
9	Functions
10	Functions
11	Functions
12	Cell structures
13	Reading and writing from input and output (fread, fprint, save, load)
14	Plotting
15	Plotting

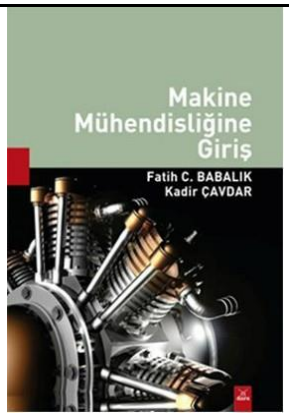
ECTS CREDITS/WORK LOAD TABLE			
ACTIVITIES	**NUMBER**	**HOUR**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	14	2	28
Application			
Study Hours Out of Class	5	1	5
Completion of Assignments and Submission as Reports	8	1	8
Term Project	--	--	--
Project Presentation	--	--	--
Quizzes	--	--	--
Midterm	1	2	2
Self-study for Midterm	1	5	5
Final Exam	1	2	2
Self-study for Final Exam	1	10	10
TOTAL WORKLOAD (Hour)	60		
ECTS CREDITS	Total Work Load / 30 = 60 / 30		2 Credits

Last Updated	04.04.2019
Updater	Ens. Ali GÜN

	**NAVAL ACADEMY** **DEPARTMENT OF MECHANICAL ENGINEERING** **COURSE DESCRIPTION**	

Course	Code	Year / Semester	Class hour (T+P+L)	Credit	ECTS
Introduction to Mechanical Engineering	MKM-215	2/I	2+0+0	2	1

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	None
Instructor	:	Mechanical Engineering Instructor
Aims	:	To give the students of Naval Academy Department of Mechanical Engineering a broad knowledge about machine science, to present new technological developments, to promote the profession and to provide engineering ethics.
Course Learning Outcomes	:	The students who pass the course successfully; 1. Will learn the purpose of the courses to be taken in engineering education. 2. Will have information about the present, future, job opportunities and the role of the profession. 3. Will gain basic skills for time management and project planning. 4. Will gain the consciousness of professional ethics and responsibility. 5. Students who successfully complete this course will be closer to the profession and motivated by listening to experiences of alumni and their colleagues. 6. Will be able to understand and apply the importance of lifelong education
Course Content	:	Naval Academy training program introduction, development of mechanical engineering over time, ethics, application areas

<table>
<tr><td>Course Book</td><td> 

<table>
<tr><td>Makine Mühendisliğine Giriş</td><td>Fatih C.Babalık</td><td>Dora</td><td>2012</td></tr>
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<tr><td>Other Resources</td><td></td></tr>
<tr><td>Works/Project</td><td></td></tr>
<tr><td>Using Computer</td><td>Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Success Assessment System</td><td>
<table>
<tr><th colspan="2">Assessment</th><th>Base Grade</th><th>Piece</th><th colspan="2">Grade Percentage, %</th></tr>
<tr><td colspan="2">Midterm</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Assessment</td><td>Quizzes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homework</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Paper</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up exam / GUE</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course Exam / GUE</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
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RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Level of Contribution	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

MECHANICAL ENGINEERING														
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	3						3	3	3						5
CA-2									5	4	4	3	5	3	5
CA-3					4	4	3		4	4	4	4			
CA-4									4				5	5	5
CA-5								3	3			4	4		5
CA-6									5						

Seq. No	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.			x		
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.	x				
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)	x				
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems).	x				
5	The student should be able to show the ability to work in independent or interdisciplinary teams.		x			
6	Students should be able to work as managers, planners or coordinators in team and project works.				x	
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.		x			
8	Students should be able to access, evaluate, use and produce solutions the information they need.					x
9	Students should have the skill of lifelong learning.					x
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.					x
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.	x				
12	Students should have the ability to communicate effectively.	x				
13	Students should have professional and ethical responsibility.	x				
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.		x			
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.		x			

SYLLABUS	
Week	**Subject**
1	Engineering concept
2	Measurement systems
3	Machinery-equipment-supplies
4	Manufacturing methods
5	Engineering design - construction
6	Thermodynamics - Fluid Mechanics
7	Heat transfer
8	**MİDTERM**
10	Strength calculations
11	Materials
12	Machine elements
13	Automation - Automatic Control
14	CNC Technique - Quality and measurement techniques
15	Explaining professional experiences - question and answer

ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	14	2	28
	Laboratory Practice	--	--	--
Guided Problem Solving	Course Work	--	--	--
	Group or Self Study	--	--	--
Completion of Assignments and Submission as Reports		-	--	--
Term Project		--	--	--
Project Presentation		-	--	--
Other Works		--	--	--
Midterm Exam	Exam	1	1	1
	Self Study for exam	1	1	1
Final Exam	Exam	1	1	1
	Self Study for exam	1	27	27
TOTAL WORKLOAD (Hour)		**60**		
ECTS CREDITS		Total Work Load / 30 = 90 / 30		3

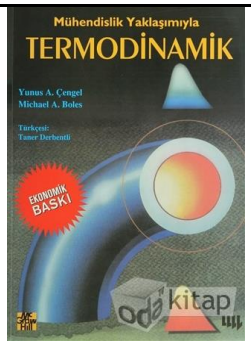
Last Updated	11.04.2019
Updater	Ens. Murat URYAN

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Thermodynamics-2	MKM-222	2/II	(3+0+0)	3	3

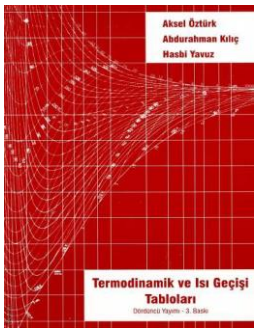
Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Thermodynamics-I
Instructor	:	Mechanical Engineering Instructor
Aims	:	This course aims to gain engineering perspective and to transfer application areas of thermodynamic cycles. To analyze steam power cycles, refrigeration cycles, gasoline, diesel and gas turbine cycles. To enhancing the ability of analysis, practice and communication in this field.
Course Learning Outcomes	:	Students who successfully complete this course; 1. Can perform thermodynamic analysis of gasoline, diesel and gas turbine cycles 2. Can perform thermodynamic analysis of basic and regenerative steam cycles. 3. Can evaluate the effects of cogeneration cycles on energy efficiency. 4. Can analyze refrigeration cycles of vapor compression and gas flow 5. Will be able to understand the thermodynamic cycles which are the basis of the systems used in ships. 6. Can identify thermodynamic properties of gas and vapor mixtures
Course Content	:	Gases and their thermodynamics properties, gas-vapor mixtures, ideal gas cycles, Otto cycle, diesel cycle, Brayton cycle, regenerative gas turbine cycle. Ideal gas turbine cycle, vapor cycles, Rankine cycles, ideal regenerative Rankine cycle, cogeneration and combined gas-vapor cycles, gas refrigeration cycles, Thermodynamics of moist air, psychometrics diagrams, air conditioning and ventilation systems, Carnot principle and cycle, heat engines and cycles, compressor cycles

Textbook



Mühendislik Yaklaşımıyla Termodinamik	Yunus A.Çengel	Literatür	1996

Other References



Termodinamik Tablolar	D.H.O	D.H.O	1996
Termodinamik ve Isı Geçişi Tabloları	Aksel Öztürk	Çağlayan	2014

Homework & Projects

Homework is required by the instructor in the required weeks.

Use of Computer

Students can do their homework by using computer (not obligatory).

Other Applications

Success Assessment System

Activities		Base Grade	Piece	Contribution to Assessment,%	
Midterm		50	1	24%	
Semester Assessment	Quizzes	50	1	%	16%
	Homework	50	1	%	
	Projects	50	1	%	
	Term Project /Project	50	1	%	
	Laboratory Application	50	1	%	
	Other Application	50	1	%	
Final Exam		50	1	60%	
Make-up Exam/ GUE		50	-	100%	
Single Course Exam / GUE		50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

MECHANICAL ENGINEERING															
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	5	4	4	4	4			4							4
CA-2	5	4	4	4	5			3	4						4
CA-3	5			3	4										3
CA-4	5	3	3	3	5			3							4
CA-5	4				4		4	4			4	4			4
CA-1	4				4										

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					X
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.			X		
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)				X	
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)					X
5	The student should be able to show the ability to work in independent or interdisciplinary teams.					
6	Students should be able to work as managers, planners or coordinators in team and project works.		X			
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.					X
8	Students should be able to access, evaluate, use and produce solutions the information they need.				X	
9	Students should have the skill of lifelong learning.					
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.				X	
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.				X	
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.			X		
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.					X
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.				X	

SYLLABUS	
WEEK	**Subjects**
1	Properties of gases, gas cycles (ideal air cycle)
2	Otto and diesel cycle
3	Brayton cycle
4	Regenerative gas turbine cycles
5	Ideal gas turbines
6	Vapor cycles, Rankine cycle
7	Ideal regenerative Rankine cycle
8	**MIDTERM**
9	Ideal regenerative Rankine cycle
10	Cogenerated and combined gas-vapor cycles
11	Refrigeration cycles
12	Gas refrigeration cycles
13	Thermodynamics of moist air, psychometrics diagrams
14	Air conditioning and ventilation systems
15	Heat engines and cycles, compressor cycles

ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical	Theoretical Instruction	14	3	42
Laboratory Practice				
Guided Problem Solving	Course Work			
Group or Self Study		14	1	14
Completion of Assignments and Submission as Reports		2	3	6
Term Project				
Project Presentation				
Other Works		2	4	8
Midterm Exam	Exam	1	2	2
	Self Study for exam	1	8	8
Final Exam	Exam	1	2	2
	Self Study for exam	1	8	8
TOTAL WORKLOAD (Hour)		**90**		
ECTS CREDITS		Total Work Load / 30 = 90 / 30		3 Credits

Last Updated Date	29.03.2019
Updater	Ens. Ayhan IŞIK

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
ENGINEERING COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Dynamics	MKM-223	2/II	(3+0+0)	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Physics-1, Mathematics-2
Instructor	:	
Aims	:	Thorough understanding of the basic principles of mechanics and their implementation to solve engineering problems. Explanation of the basic concepts of Dynamics including Force, Mass and Acceleration, Work and Energy, Impulse and Momentum.
Course Learning Outcomes	:	Students who successfully complete this course: 1. Will be able to define the basic concepts of Dynamics. 2. Analyze motion parameters. 3. Can identify the types of particle motion. 4. Explain the relationship between particle motion versus force, mass, acceleration. 5. Can define work and energy concepts and perform their analysis. 6. Can define impulse and momentum concepts and perform their analysis.
Course Content	:	Kinematics of particles, kinetics of force points, mass and acceleration, principle of work and energy, linear motion, curvilinear motion, kinematics of rigid bodies, absolute and relative velocity in plane motion, planar motion of rigid bodies, impulse and momentum principle, collision

<table>
<tr><td>Textbook</td><td> 

<table>
<tr><td>Mühendislik Mekaniği Dinamik</td><td>R.C. Hibbeler</td><td>Literatür</td><td>2009</td></tr>
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<tr><td>Other Resources</td><td></td></tr>
<tr><td>Homework and Projects</td><td></td></tr>
<tr><td>Use of computer</td><td>Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Success Assessment System</td><td>
<table>
<tr><th colspan="2">Activities</th><th>Base Grade</th><th>Piece</th><th colspan="2">Contribution to Assessment,%</th></tr>
<tr><td colspan="2">Midterm</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Assessment</td><td>Quizzes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homework</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Project / Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Application</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up exam / GUE</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course Exam / GUE</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
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RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

	MECHANICAL ENGINEERING														
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	4		3	3	1		3			3			2		5
CA-2	5		3	4	1		3			3			2		5
CA-3	5		4	4	1		3			3			2		5
CA-4	5		3	4	1		3			3			2		5
CA-5	4		4	4	1		3			3			2		5
CA-6	4		4	4	1		3			3			2		5

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					x
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.					
3	Students should be able to design a system, component or process to meet the desired requirements (Mechanical systems, Thermal systems).			x		
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems).				x	
5	The student should be able to show the ability to work independently or in interdisciplinary teams.	x				
6	Students should be able to work as managers, planners or coordinators in team and project works.					
7	Students should be able to detect and identify problem areas and select the areas and methods for solving the subject.			x		
8	Students should be able to access, evaluate, use and produce solutions the information they need.					
9	Students should have the skill of lifelong learning.					
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.			x		
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.					
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.		x			
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.					
15	Students should be able to show the competence of understanding the universal and social effects of Mechanical Engineering solutions.					x

SYLLABUS	
WEEK	**Subjects**
1	Kinematics of particles
2	Force, mass and acceleration
3	General curvilinear motion
4	General curvilinear motion
5	Kinematics of rigid bodies
6	Rotation around a fixed axis
7	General motion
8	**MIDTERM**
9	General motion
10	Kinetics of particles (forces and accelerations)
11	Planar kinetics of rigid bodies (forces and accelerations)
12	Kinetics of particles (work and energy)
13	Planar kinetics of rigid bodies (work and energy)
14	Kinetics of particles (impulse and momentum)
15	Kinetics of particles (impulse and momentum)

ECTS CREDITS / WORK LOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course		14	3	42
Guided Problem	Course Work			
	Group or Self Study	14	2	28
Completion of Assignments and Submission as Reports		2	3	6
Term Project				
Project Presentation				
Midterm		1	2	2
Self Study for exam		1	5	5
Final Exam		1	2	2
Self Study for exam		1	5	5
TOTAL WORKLOAD(Hour)		**90**		
ECTS CREDITS		Total Work Load / 30 = 90 / 30		3 Credits

Last Updated	20.03.2019
Updater	Ens. Ali GÜN

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
ENGINEERING COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Strength of Materials	MKM-311	3/I	(4+0+0)	4	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree, Required
Prerequisite Course	:	Physics-1, Statics
Instructor	:	
Aims	:	Fundamental concepts of strength, mechanical properties of materials, axial normal force, shear stress and force, bending stress, and to teach the elastic curve subject and the problems encountered in the use of solution.
Course Learning Outcomes	:	Students who successfully complete this course: 1. Recognize the general concepts of strength. 2. Understand one-dimensional and two-dimensional stress analysis. 3. Can solve stress and strain problems in axial loading. 4. Students can calculate the status of the elements in the case of torsional stability. 5. Calculate the normal stress in the loading state. 6. Analyze the required shear force, normal force and moment diagrams in the design and perform their drawings.
Course Content	:	The concept of internal forces and stress, stress and strain in axial loading, torsion, simple bending, transverse loading, stress and strain deformations, design of beams and shafts according to strength, calculation of beam's deflection, energy methods, examination of beam problems.

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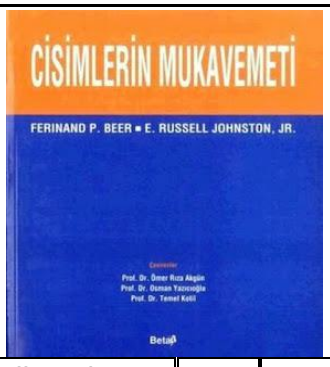
<tr><td>Textbook</td><td> 

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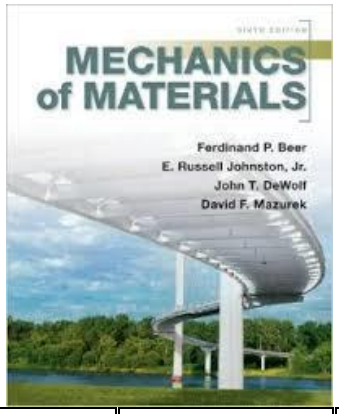
<tr><td>Other Resources</td><td> 

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<tr><td>Engineering Mechanics of Materials</td><td>Ferdinand P.Beer</td><td>McGrawhill</td><td>2012</td></tr>
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<tr><td>Term Project / Project</td><td>50</td><td>1</td><td>%</td></tr>
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<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
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RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Level of Contribution	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

	MECHANICAL ENGINEERING														
	PQ-1	PQ-2	PQ-3	PQ-4	PQ-5	PQ-6	PQ-7	PQ-8	PQ-9	PQ-10	PQ-11	PQ-12	PQ-13	PQ-14	PQ-15
CA-1	5	2	3	3	1		3	3		3	4		4	1	4
CA-2	5	2	3	3	1		4	3		3	4		4	1	4
CA-3	5	3	4	4	1		4	4		3	4		4	1	4
CA-4	5	3	4	4	1		4	4		3	4		4	1	4
CA-5	5	3	4	4	1		4	4		3	4		4	1	4
CA-6	5	3	4	4	1		4	4		3	4		4	1	4

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					x
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.				x	
3	Students should be able to design a system, component or process to meet the desired requirements (Mechanical systems, Thermal systems).				x	
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems).			x		
5	The student should be able to show the ability to work independently or in interdisciplinary teams.	x				
6	Students should be able to work as managers, planners or coordinators in team and project works.					
7	Students should be able to detect and identify problem areas and select the areas and methods for solving the subject.				x	
8	Students should be able to access, evaluate, use and produce solutions the information they need.				x	
9	Students should have the skill of lifelong learning.					
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.			x		
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.				x	
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.				x	
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.	x				
15	Students should be able to show the competence of understanding the universal and social effects of Mechanical Engineering solutions.				x	

SYLLABUS	
WEEK	**Subjects**
1	The concept of internal forces and stress.
2	Stress and strain in axial loading.
3	Shear force, shear stress.
4	The Mohr circle.
5	Moment of inertia
6	Simple bending.
7	Torsion.
8	**MIDTERM**
9	Stress resultants (normal force and bending)
10	Stress resultants (normal force and torsion)
11	Stress resultants (bending and torsion)
12	Stress and strain deformations.
13	Design of beams and shafts on the basis of strength.
14	The calculation of deflection on the beams.
15	Buckling of columns.

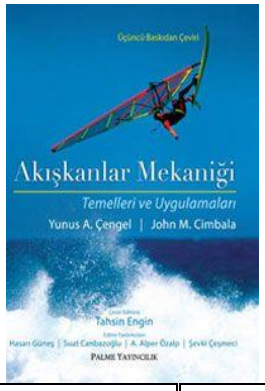
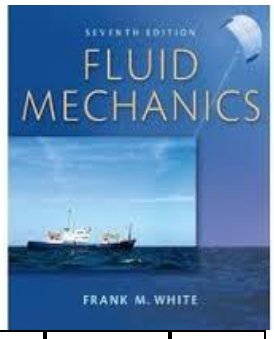
ECTS CREDITS/WORK LOAD TABLE				
ACTIVITIES		**NUMBER**	**HOUR**	**TOTAL WORKLOAD (Hour)**
Theoretical Course		15	4	60
Application				
Study Hours Out of Class				
Guided Problem	Course Work			
	Group or Self Study	2	5	10
Completion of Assignments and Submission as Reports				
Term Project		--	--	--
Project Presentation		--	--	--
Quizzes		--	--	--
Midterm		1	2	2
Other Practices		2	1	2
Self-study for Midterm		1	4	4
Final Exam		1	2	2
Self-study for Final Exam		1	10	10
TOTAL WORKLOAD (Hour)		90		
ECTS CREDITS		Total Work Load / 30 = 90 / 30		3 Credits

Last Updated	04.04.2019
Updater	Ens. Ali GÜN

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Fluid Mechanics	MKM-312	3/I	(4+0+0)	4	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Physics-I & Differential Equations
Instructor	:	Mechanical Engineering Instructor
Aims	:	Introducing the basic principles of Fluid Mechanics. To define, formulate and simplify the basic equations of Fluid Mechanics and and to use the ability to solve problems.
Course Learning Outcomes	:	Students who successfully complete this course; 1. Will have knowledge of properties of fluids, and will be able to perform basic analysis of flow systems. 2. Can calculate the fluid pressure at the static state and the forces applied by static fluids on surfaces. 3. Can solve Bernoulli and energy equations 4. Can do momentum analysis of flow systems 5. Can perform dimensional analysis and similitude 6. Can define the basic characteristics of laminar and turbulent flows 7. Can define major and minor losses in pipe systems 8. Can develop flow equations in integral and differential forms and can perform basic solutions. 9. Can evaluate drag and buoyancy forces.
Course Content	:	Basic concepts and definitions. Flow properties, pressure, pressure variation in static fluids, hydrostatic force on inclined surfaces, relative equilibrium, linear acceleration, flow characteristics, flow types, open system general equations, continuity equation and Bernoulli equation, energy and momentum equations, dimensional analysis and modeling, Buckingham π theorem, similarity, modeling, laminar and turbulent flow in pipes, major and minor losses in pipes, differential flow analysis, exact solutions of Navier Stokes equations, external flow, drag and buoyancy

Textbook	 Akışkanlar Mekaniği Temelleri ve Uygulamaları — Yunus A.Çengel — Güven yayınları — 2008
Other References	 Akışkanlar Mekaniği — Frank M.White — Literatür — 2004
Homework & Projects	Homework is required by the instructor in the required weeks.
Use of Computer	Students can do their homework by using computer (not obligatory).
Other Applications	

Success Assessment System

Activities		Base Grade	Piece	Contribution to Assessment,%	
Midterm		50	1	24%	
Semester Assessment	Quizzes	50	1	%	16%
	Homework	50	1	%	
	Projects	50	1	%	
	Term Project /Project	50	1	%	
	Laboratory Application	50	1	%	
	Other Application	50	1	%	
Final Exam		50	1	60%	
Make-up Exam/ GUE		50	-	100%	
Single Course Exam / GUE		50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

MECHANICAL ENGINEERING															
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	5			4				4			4				4
CA-2	5		4	4			3				4				
CA-3	5			4				4			3				3
CA-4	4			3											
CA-5	4			3											
CA-6	4			4			3	3			3				4
CA-7	5	5	4	4			4	4			4				4
CA-8	5														
CA-9	5		3	4			3	3			4				3

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					X
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.			X		
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)			X		
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)				X	
5	The student should be able to show the ability to work in independent or interdisciplinary teams.					
6	Students should be able to work as managers, planners or coordinators in team and project works.					
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.				X	
8	Students should be able to access, evaluate, use and produce solutions the information they need.				X	
9	Students should have the skill of lifelong learning.					
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.				X	
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.				X	
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.				X	
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.				X	
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.			X		

SYLLABUS	
WEEK	**Subjects**
1	Fluid properties
2	Pressure, pressure variation in static fluids
3	Hydrostatic force on submerged surfaces
4	Relative equilibrium, linear acceleration, flow characteristics, flow types, open system equations
5	Fluid kinematics
6	Continuity equation and Bernoulli equation
7	Energy and momentum equations
8	**MIDTERM**
9	Dimensional analysis and modeling, Buckingham π theorem
10	π theorem pressure coefficient, Reynolds, Froud, Weber and Mach numbers, similarity, modeling
11	Laminar and turbulent flow in pipes
12	Major and minor losses in pipes
13	Differential flow analysis
14	Exact solutions of Navier Stokes equations
15	External flow, drag and buoyancy

ECTS CREDITS / WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (HOUR)**	**TOTAL WORKLOAD (HOUR)**
Theoretical Course	Theoretical Instruction	14	4	56
Laboratory Practice				
Guided Problem Solving	Course Work			
Group or Self Study		10	1	10
Completion of Assignments and Submission as Reports		2	2	4
Term Project				
Project Presentation				
Other Works				
Midterm Exam	Exam	1	2	2
	Self Study for exam	1	8	8
Final Exam	Exam	1	2	2
	Self Study for exam	1	8	8
TOTAL WORKLOAD (Hour)		**90**		
ECTS CREDITS		Total Work Load / 30 = 90 / 30		**3**

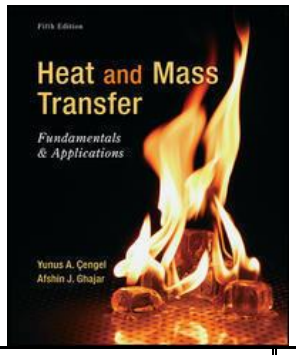
Last Updated Date	10.04.2019

Updater	Ens.Ayhan IŞIK

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Fundamentals of Heat Transfer	MKM-321	3/II	(2+0+0)	2	2

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Physics-I, Differential Equations, Thermodynamics-II, Fluid Mechanics
Instructor	:	Mechanical Engineering Instructor
Aims	:	Introducing the basic principles of heat transfer. To introduce the methods of heat transfer (including conduction, convection and radiation) and to gain the ability to calculate the heat transfer for each. To develop the ability to solve engineering problems by defining and formulating thermal systems.
Course Learning Outcomes	:	Students who successfully complete this course can; 1. Define heat transfer methods 2. Analyze heat conduction and convection problems 3. Evaluate heat transfer in laminar and turbulent flow systems 4. Identify and analyze heat exchangers 5. Have ability to gain analysis, application and interpretation of heat transfer problems in theoretical and applied fields.
Course Content	:	Basic concepts and principles, Fourier law of conduction, heat transfer via conduction and convection, thermal conductivity, one dimensional heat conduction and multilayer wall systems, steady-state heat conduction, turbulent flow on horizontal plane, laminar and turbulent flow in pipes and channels, hydraulics and thermal boundary layers, boiling and condensation, heat exchangers.

Textbook	 Isı ve Kütle Geçişinin Temelleri — Frank P.Incropera — Literatür — 2001					
Other References	 Heat and Mass Transfer Fundamentals and Applications — Yunus A.Çengel — Mc Grawhill — 2011					
Homework & Projects	Homework is assigned by the instructor in the required weeks.					
Use of Computer	Students can do their homework by using computer (not obligatory).					
Other Applications						

Success Assessment System	**Activities**		**Base Grade**	**Piece**	**Contribution to Assessment, %**	
	Midterm		50	1	24%	
	Semester Assessment	Quizzes	50	1	%	16%
		Homework	50	1	%	
		Projects	50	1	%	
		Term Project /Project	50	1	%	
		Laboratory Application	50	1	%	
		Other Application	50	1	%	
	Final Exam		50	1	60%	
	Make-up Exam/ GUE		50	-	100%	
	Single Course Exam / GUE		50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

MECHANICAL ENGINEERING														
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	4			4				4							
CA-2	5			4			4	4			4				3
CA-3	5	3	3	4				3							3
CA-4	4	3	3	3			3	3			3				3
CA-5	4	3	3	3			4	4			4				4

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					X
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.				X	
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)			X		
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)				X	
5	The student should be able to show the ability to work in independent or interdisciplinary teams.					
6	Students should be able to work as managers, planners or coordinators in team and project works.					
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.				X	
8	Students should be able to access, evaluate, use and produce solutions the information they need.				X	
9	Students should have the skill of lifelong learning.					
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.				X	
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.				X	
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.			X		
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.			X		
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.			X		

SYLLABUS	
WEEK	**Subjects**
1	Introduction to heat transfer, conservation of energy principle
2	General heat diffusion equations, boundary and initial conditions
3	Heat conduction
4	One dimensional steady-state heat conduction and multilayer wall systems
5	One dimensional steady-state heat conduction and multilayer wall systems
6	Conduction with thermal energy generation
7	Heat convection
8	**MIDTERM**
9	Heat convection
10	Turbulent flow on horizontal plane
11	Laminar and turbulent flow in pipes and channels
12	Hydraulics and thermal boundary layers
13	Natural convection
14	Boiling and condensation
15	Heat exchangers

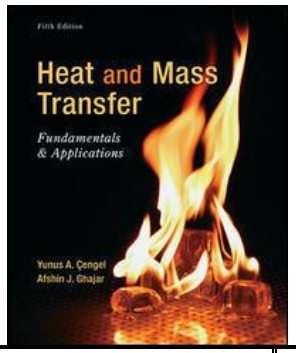
ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	14	2	28
Laboratory Practice				
Guided Problem Solving	Course Work			
Group or Self Study		14	1	14
Completion of Assignments and Submission as Reports		1	2	2
Term Project				
Project Presentation				
Other Works				
Midterm Exam	Exam	1	2	2
	Self Study for exam	1	6	6
Final Exam	Exam	1	2	2
	Self Study for exam	1	6	6
TOTAL WORKLOAD (Hour)		**60**		
ECTS CREDITS		Total Work Load / 30 = 60 / 30		2

Last Updated Date	16.04.2019
Updater	Ens. Ayhan IŞIK

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Heat Transfer	MKM-321	3/II	(3+0+0)	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Physics-I, Differential Equations, Thermodynamics II, Fluid Mechanics
Instructor	:	Mechanical Engineering Instructor
Aims	:	Introducing the basic principles of Heat Transfer. To introduce heat transfer forms (conduction, convection and radiation) and to gain the ability to calculate the heat transfer for each. To develop the ability to solve engineering problems by defining and formulating thermal systems. To achieve to interpret on thermal systems.
Course Learning Outcomes	:	Students who successfully complete this course; 1. Can define heat transfer methods. 2. Can analyze the heat conduction, convection and radiation and solve the related problems. 3. Can calculate the heat transfer in the form of laminar and turbulent flow in various systems 4. Can identify and analyze heat exchangers 5. Can gain the ability to analyze, solve and interpret of heat transfer problems in practice and theory.
Course Content	:	Basic concepts and principles, Fourier law of conduction, heat transfer via conduction, convection and radiation, thermal conductivity, one dimensional heat conduction and multilayer wall systems, steady heat conduction, un-steady heat conduction, radial heat conduction, finned surfaces (extended surface), turbulent flow on horizontal plane, laminar and turbulent flow in pipes and channels, hydraulics and thermal boundary layers, boiling and condensation, heat exchangers

Textbook	 Isı ve Kütle Geçişinin Temelleri | Frank P.Incropera | Literatür | 2001
Other References	 Heat and Mass Transfer Fundamentals and Applications | Yunus A.Çengel | Mc Grawhill | 2011
Homework & Projects	Homework is required by the instructor in the required weeks.
Use of Computer	Students can do their homework by using computer (not obligatory).
Other Applications	

Success Assessment System

	Activities	Base Grade	Piece	Contribution to Assessment,%	
	Midterm	50	1	24%	
Semester Assessment	Quizzes	50	1	%	16%
	Homework	50	1	%	
	Projects	50	1	%	
	Term Project /Project	50	1	%	
	Laboratory Application	50	1	%	
	Other Application	50	1	%	
	Final Exam	50	1	60%	
	Make-up Exam/ GUE	50	-	100%	
	Single Course Exam / GUE	50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

MECHANICAL ENGINEERING															
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	4			4				4							
CA-2	5			4			4	4			4				3
CA-3	5	3	3	4				3							3
CA-4	4	3	3	3			3	3			3				3
CA-5	4	3	3	3			4	4			4				4

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					X
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.				X	
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)			X		
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)				X	
5	The student should be able to show the ability to work in independent or interdisciplinary teams.					
6	Students should be able to work as managers, planners or coordinators in team and project works.					
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.				X	
8	Students should be able to access, evaluate, use and produce solutions the information they need.				X	
9	Students should have the skill of lifelong learning.					
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.				X	
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.				X	
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.			X		
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.			X		
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.			X		

SYLLABUS	
WEEK	**Subjects**
1	Introduction to heat transfer, conservation of energy
2	Heat conduction
3	One dimensional steady heat conduction and multilayer wall systems
4	Transient heat conduction
5	Finned surfaces (extended surface)
6	Heat convection
7	Turbulent flow on horizontal plane
8	**MIDTERM**
9	Laminar and turbulent flow in pipes and channels
10	Hydraulics and thermal boundary layers
11	Natural convection
12	Boiling and condensation
13	Radiation
14	Radiation, heat exchangers
15	Heat exchangers

ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (HOUR)**	**TOTAL WORKLOAD (HOUR)**
Theoretical Course	Theoretical Instruction	14	3	42
Laboratory Practice				
Guided Problem Solving	Course Work			
Group or Self Study		14	1	14
Completion of Assignments and Submission as Reports		2	2	4
Term Project				
Project Presentation				
Other Works		2	3	6
Midterm Exam	Exam	1	2	2
	Self Study for exam	1	10	10
Final Exam	Exam	1	2	2
	Self Study for exam	1	10	10
TOTAL WORKLOAD (Hour)		**90**		
ECTS CREDITS		Total Work Load / 30 = 90 / 30		3 Credits

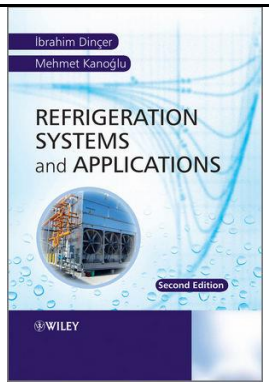
Last Updated Date	10.04.2019
Updater	Ens.Ayhan IŞIK

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
HVAC and Refrigeration	MKM-322	3/II	(2+0+0)	2	2

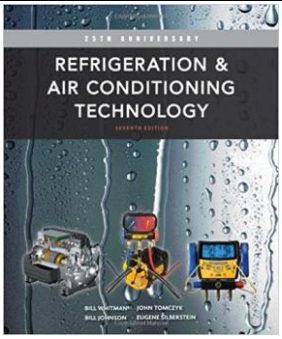
Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Thermodynamics II, Fluid Mechanics
Instructor	:	Mechanical Engineering Instructor
Aims	:	This course aims to introduce fundamentals of Refrigeration and HVAC Systems used in ships and land facility. Obtaining the design, operation and maintenance ability of these facilities. To be able to design and selection of Refrigeration and HVAC Systems. To teach the calculation of heating and cooling loads.
Course Learning Outcomes	:	Students who successfully complete this course; 1. Can define Refrigeration and HVAC Systems used in ships and land facilities 2. Can apply thermodynamics analysis of Refrigeration and HVAC Systems 3. Can calculate cooling load 4. Can design cooling towers and surfaces 5. Can design air duct
Course Content	:	Refrigerants, refrigeration principles, refrigeration cycles, multi-stage evaporator systems, compressor types and working principles, evaporators, valves and capillary pipe systems, condenser, thermodynamics of mixtures, absorption refrigeration cycle, cooling engines with reception, ship refrigeration systems, cold/freezing rooms, refrigeration systems with air refrigerant, liquefaction of gases, psychrometrics, cooling towers, air-conditioning cycle, cooling and dehumidification systems, specific humidity, relative humidity, condensation point, water spray air-conditioning, ventilation, air duct design, heating systems

Textbook



Refrigeration Systems and Applications	Dinçer Kanoğlu	Wiley	2010

Other References



Refrigeration and Air Conditioning Techonology	Bill Whitman	Cengage Learning	2013

Homework & Projects

Homework is required by the instructor in the required weeks.

Use of Computer

Students can do their homework by using computer (not obligatory).

Other Applications

Success Assessment System

Activities		Base Grade	Piece	Contribution to Assessment,%	
Midterm		50	1	24%	
Semester Assessment	Quizzes	50	1	%	16%
	Homework	50	1	%	
	Projects	50	1	%	
	Term Project /Project	50	1	%	
	Laboratory Application	50	1	%	
	Other Application	50	1	%	
Final Exam		50	1	60%	
Make-up Exam/ GUE		50	-	100%	
Single Course Exam / GUE		50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

MECHANICAL ENGINEERING															
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	4			4				4			4				5
CA-2	5	4		4				4			4				4
CA-3	5			4				3			4				4
CA-4	4		4	3			3	4			3				3
CA-5	4		4	3			3	3			3				3

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					X
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.			X		
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)			X		
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)				X	
5	The student should be able to show the ability to work in independent or interdisciplinary teams.					
6	Students should be able to work as managers, planners or coordinators in team and project works.					
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.				X	
8	Students should be able to access, evaluate, use and produce solutions the information they need.					X
9	Students should have the skill of lifelong learning.					
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.				X	
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.					X
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.			X		
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.			X		
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.				X	

SYLLABUS	
WEEK	**Subjects**
1	Refrigerants, refrigeration principles, refrigeration cycles
2	Multi-stage evaporator systems
3	Compressor types and working principles
4	Evaporators, valves and capillary pipe systems
5	Condenser, thermodynamics of mixtures
6	Absorption refrigeration cycle, cooling engines with reception
7	Refrigeration systems with air refrigerant, obtaining liquid air and cryogenics
8	**MIDTERM**
9	Specific humidity, relative humidity, condensation point
10	Psychrometrics, cooling tower
11	Air-conditioning cycle, cooling and dehumidification systems
12	Water spray air-conditioning, ventilation
13	Ventilation, air duct design, heating systems
14	Cooling systems in ships, food and ship’s load safety
15	Cooling systems in ships, food and ship’s load safety

ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (HOUR)**	**TOTAL WORKLOAD (HOUR)**
Theoretical Course	Theoretical Instruction	14	2	28
Laboratory Practice				
Guided Problem Solving	Course Work			
Group or Self Study		10	1	10
Completion of Assignments and Submission as Reports				
Term Project				
Project Presentation				
Other Works (Midterm)		2	3	6
Midterm Exam	Exam	1	2	2
	Self Study for exam	1	6	6
Final Exam	Exam	1	2	2
	Self Study for exam	1	6	6
TOTAL WORKLOAD (Hour)		**60**		
ECTS CREDITS		Total Work Load / 30 = 60 / 30		2

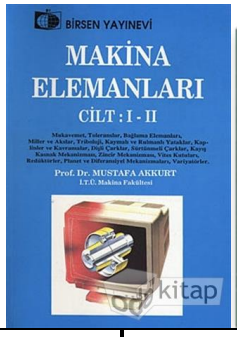
Last Updated Date	10.04.2019
Updater	Ens.Ayhan IŞIK

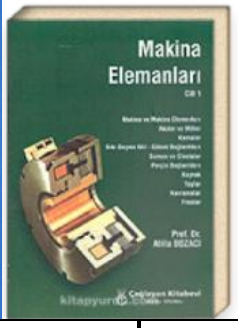
NAVAL ACADEMY
DEPARTMENT OF MECHANİCAL ENGINEERING
ENGINEERING COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Machine Elements	MKM-323	3/II	(4+0+0)	4	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Statics, Dynamics, Strength of Materials, Materials Science
Instructor	:	Mechanical Engineering Instructor
Aims	:	To teach the basic information and calculation methods to make the most appropriate design of the elements that make up the machine and which have certain features that make the machine work.
Course Learning Outcomes	:	Students who successfully complete this course; 1. Can define and classify machine elements according to their functions 2. Can categorize the behavior of machine elements under static and dynamic constraints. 3. Can make two and three dimensional deformations related to machine elements. 4. Will learn the fundamentals of rivet connections, riveting methods, opening methods of rivet holes, can associate rivet patterns and make the calculations of rivet connections strength. 5. Can relate and calculate the elements used in shaft, pin and other connections. 6. Can calculate the strength of bolt connections and choose their size.
Course Content	:	Basic concepts, strength theories, structure of machine elements, loading types, rivets, welds, bolts, keys, springs, shafts, bearing housings

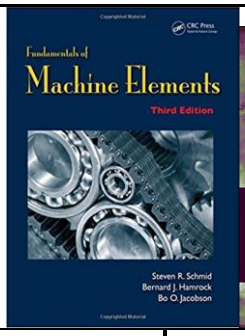
Textbook

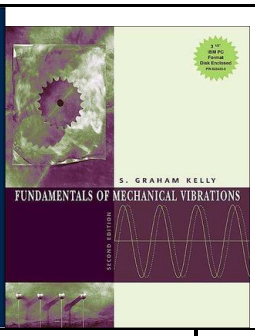




Makine Elemanları (1.Cilt)	Atilla Bozacı	Seç Yayınevi	2000
Makine Elemanları Cilt I	Mustafa Akkurt	Birsen Yayınevi	1997
Makine Elemanları Cilt II	Mustafa Akkurt	Birsen Yayınevi	1997

Other References





Fundamentals of Mechanical Vibrations	S.Graham Kelly	McGraw Hill	2000
Fundemantals of Machine Elements	Steven R.Schmid	CRC Press	2014

Homework & Projects

Computer Use

Students can do their homework by using computer (not obligatory).

Other Activities

Assessment Criteria

	Activities	Base Grade	Quantity	Effects on Grading, %	
	Midterm Exams	50	1	24%	
Semester Assessment	Quizzes	50	1	%	16%
	Homework	50	1	%	
	Projects	50	1	%	
	Term Paper/Project	50	1	%	
	Laboratory Work	50	1	%	
	Other Activities	50	1	%	
	Final Exam	50	1	60%	
	Makeup Exam	50	-	100%	
	Single-course Exam	50	-	100%	

Seq. No	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					X
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.				X	
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)					X
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems).				X	
5	The student should be able to show the ability to work in independent or interdisciplinary teams.		X			
6	Students should be able to work as managers, planners or coordinators in team and project works.		X			
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.			X		
8	Students should be able to access, evaluate, use and produce solutions the information they need.			X		
9	Students should have the skill of lifelong learning.			X		
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.			X		
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.			X		
12	Students should have the ability to communicate effectively.		X			
13	Students should have professional and ethical responsibility.		X			
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.			X		
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.				X	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Level of Contribution	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

MECHANICAL ENGINEERING														
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	4	4	5	4			4	4	4	3			2		4
CA-2	5	4	5	4			4	4	2	3			2		4
CA-3	5	4	5	4			4	4	2	3			2		4
CA-4	5	4	5	4			4	4	2	3			2		4
CA-5	5	4	5	4			4	4	2	3			2		4
CA-6	5	4	5	4			4	4	2	3			2		4

SYLLABUS	
WEEK	**Subjects**
1	Definitions and concepts
2	Strength theories
3	Fatigue, strength limit, notch precision diagrams
4	Structure of machine elements, loading types
5	Stress boosters and design equations
6	Rivets
7	Objectives, methods, shapes and dimensions in welds
8	**MIDTERM**
9	Stresses and connection quality in welds
10	Bolts (terminology, classification, materials)
11	Bolts (strength, bolt stresses in static and dynamic load)
12	Keys
13	Housing
14	Springs
15	Shafts

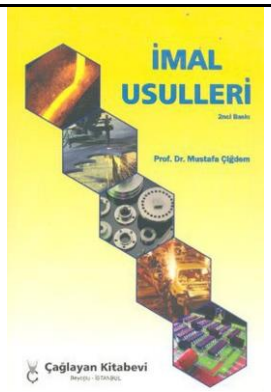
ECTS CREDITS / WORK LOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	14	4	56
	Laboratory Practice	0	0	0
Guided Problem Solving	Course Work	14	1	14
	Group or Self Study	14	1	14
Completion of Assignments and Submission as Reports				
Term Project		4	1	4
Project Presentation				
Other Works				
Midterm Exam	Exam	1	2	2
	Self Study for exam	1	6	6
Final Exam	Exam	1	2	2
	Self Study for exam	1	6	6
TOTAL WORKLOAD (Hour)		**90**		
ECTS CREDITS		Total Work Load / 30 = 90 / 30		3

Last Updated Date	10.04.2019
Updater	Ens. Musa Cenk ÖZEKİNCİ

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Year / Semester	Class hour (T+P+L)	Credit	ECTS
Manufacturing Processes	MKM-324	3/II	2+0+1	2.5	4

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	None
Instructor	:	Mechanical Engineering Instructor
Aims	:	To introduce the principles and application areas of basic manufacturing methods, to give information about casting, plastic forming, machining, and powder metallurgy.
Course Learning Outcomes	:	The students who pass this course successfully: 1. Have basic information about the principles and application areas of manufacturing methods. 2. To have knowledge about the advantages, limitations and application areas of manufacturing methods. 3. To provide the ability to determine the most appropriate method for solving engineering problems with the knowledge of manufacturing. 4. Will be able to use the knowledge of conventional manufacturing methods and to make basic calculations. 5. Can choose the working parameters related to manufacturing methods. 6. Comprehends the necessity of reaching the optimum in all operations.
Course Content	:	Manufacturing technologies and general concepts, casting technique, manufacturing errors and solutions, plastic forming, machining, welding, powder metallurgy, micro and nano-manufacturing, hydride manufacturing, electrical discharge machining, water cutting, laser processing, rapid prototyping, production, CNC Introduction to G codes and machining parts

<table>
<tr><td>Course Book</td><td> 

<table>
<tr><td>İmal Usulleri</td><td>Mustafa Çiğdem</td><td>Çağlayan</td><td>2006</td></tr>
</table></td></tr>
<tr><td>Other Resources</td><td></td></tr>
<tr><td>Works/Project</td><td>The use of CNC G codes in processing a part to be covered theoretically</td></tr>
<tr><td>Using Computer</td><td>Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Success Assessment System</td><td>
<table>
<tr><th colspan="2">Assessment</th><th>Minimum Score</th><th>Number</th><th colspan="2">Grade Percentage, %</th></tr>
<tr><td colspan="2">Midterm Exam</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester evaluation</td><td>Quizzes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homework</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Project /Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Application</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Other Application</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam/ GUE</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course Exam / GUE</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Medium	High	Very High

MECHANICAL ENGINEERING															
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	3		3				3	4						5	
CA-2	3		4				5	4						4	
CA-3	4		4	3			5	4						4	
CA-4	5		4				4	4						4	
CA-5	4		4				4	4						4	
CA-6	5		4	3			4	4						5	

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.		x			
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.					x
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)				x	
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)			x		
5	The student should be able to show the ability to work in independent or interdisciplinary teams.					
6	Students should be able to work as managers, planners or coordinators in team and project works.					
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.				x	
8	Students should be able to access, evaluate, use and produce solutions the information they need.			x		
9	Students should have the skill of lifelong learning.				x	
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field					
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.					
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.					
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.			x		
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.					

SYLLABUS	
Week	**Subjects**
1	Casting technology
2	Model preparation and molding techniques, core preparation, melting and casting techniques
3	Die casting techniques: sand mold casting, ceramic mold, shell mold, plaster mold, precision casting
4	Fixed mold casting techniques; metal, pressure casting, centrifugal and continuous casting and casting cleaning techniques
5	Plastic deformation of metals (tension, strain, tensile test, slip, cold deformation)
6	Crystal geometry concepts - microstructure - hot deformation
7	Rolling - extrusion - forging and wire drawing - plastering - sheet metal working - pipe manufacturing
8	**MIDTERM**
9	Basic principles of welding - melting techniques (gas, arc, termite sources)
10	Combining techniques by applying pressure and melting (pressure, gas technique, resistance, induction)
11	Terminology of machining, introduction to CNC G codes and their meanings
12	Chip removal (cutting zone, chip formation, chip removal - temperature control)
13	Machining methods (turning - milling - drilling - grinding)
14	Cutting tools (cutting tool materials, insert selection, tool geometry, cutting and feed speeds, tool life)
15	Powder metallurgy - CNC G codes for machining

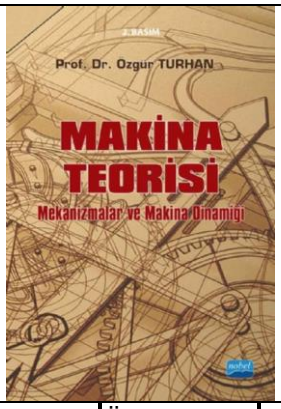
ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	15	4	60
	Laboratory Practice	--	--	--
Guided Problem Solving	Course Work	10	1	10
	Group or Self Study	--	--	--
Completion of Assignments and Submission as Reports		-	--	--
Term Project		4	1	4
Project Presentation		-	--	--
Other Works		-	--	--
Midterm Exam	Exam	1	2	2
	Self Study for exam	1	6	6
Final Exam	Exam	1	2	2
	Self Study for exam	1	6	6
TOTAL WORKLOAD (Hour)		90 Hours		
ECTS CREDITS		Total Work Load / 30 = 90 / 30		3 Credits

Last Updated	10.04.2019
Updater	Ens. Murat URYAN

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
ENGINEERING COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Mechanisms	MKM-325	3/II	(2+0+0)	2	2

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree, Required
Prerequisite Course	:	Statics, Dynamics
Instructor	:	
Aims	:	To understand the structure and movements of mechanisms, to determine the degree of freedom of mechanism, to learn the movements that can be realized by mechanisms, to learn speed and acceleration analysis methods
Course Learning Outcomes	:	Students who successfully complete this course: 1. When look at a mechanism, he/she can understand the structure, find the degree of freedom, and make structural changes. 2. Can analyze mechanisms and design them for some purposes. 3. Will be able to do kinematic analysis of ordinary and planetary gear mechanisms. 4. Will be able to analyze the speed and acceleration of mechanisms.
Course Content	:	Main concepts in mechanism technique, kinematic chains, degree of freedom, equations of motion of plane machines, force analysis in machines, gyroscopic effects

Textbook	 Makine Teorisi | Özgür TURHAN | Nobel | 2014
Other Resources	Dizel motorları teorisi | | Birsen | 2008
Homework and Projects	
Use of computer	Students can do their homework by using computer (not obligatory).
Other Applications	

Success Assessment System

Activities		Base Grade	Piece	Contribution to Assessment,%	
Midterm		50	1	24%	
Semester Assessment	Quizzes	50	1	%	16%
	Homework	50	1	%	
	Projects	50	1	%	
	Term Project / Project	50	1	%	
	Laboratory Application	50	1	%	
	Other Applications	50	1	%	
Final Exam		50	1	60%	
Make-up exam / GUE		50	-	100%	
Single Course Exam / GUE		50	-	100%	

PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES RELATIONSHIP

Contribution Level	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

	MECHANICAL ENGINEERING														
	PQ-1	PQ-2	PQ-3	PQ-4	PQ-5	PQ-6	PQ-7	PQ-8	PQ-9	PQ-10	PQ-11	PQ- 12	PQ-13	PQ-14	PQ-15
CA-1	5		3	3	4		4	4		3	4				4
CA-2	5		3	3	4		4	4		3	4				4
CA-3	5		3	3	4		4	4		3	4				4
CA-4	5		3	3	4		4	4		3	4				4

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					x
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.					
3	Students should be able to design a system, component or process to meet the desired requirements (Mechanical systems, Thermal systems).			x		
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems).			x		
5	The student should be able to show the ability to work independently or in interdisciplinary teams.				x	
6	Students should be able to work as managers, planners or coordinators in team and project works.					
7	Students should be able to detect and identify problem areas and select the areas and methods for solving the subject.				x	
8	Students should be able to access, evaluate, use and produce solutions the information they need.				x	
9	Students should have the skill of lifelong learning.					
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.			x		
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.				x	
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.					
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.					
15	Students should be able to show the competence of understanding the universal and social effects of Mechanical Engineering solutions.				x	

SYLLABUS	
WEEK	**Subjects**
1	Introduction to mechanisms
2	Mechanism systematic
3	Kinematic of mechanisms
4	Mechanism design
5	Introduction to machine dynamic
6	Equations of motion of planes with one degree of freedom
7	Static balance of machine
8	**MIDTERM**
9	Operating forces impact on the machines
10	Evaluation of motion equations in machine
11	Force analysis in machines
12	Shaking forces, mass balancing on machines
13	Mass balancing in rigid rotors
14	Gyroscopic effects
15	The overview

ECTS CREDITS/WORK LOAD TABLE			
ACTIVITIES	**NUMBER**	**HOUR**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	14	2	28
Application			
Study Hours Out of Class			0
Completion of Assignments and Submission as Reports	10	1	10
Term Project	--	--	--
Project Presentation	--	--	--
Quizzes	--	--	--
Midterm	1	2	2
Self-study for Midterm	1	9	9
Final Exam	1	2	2
Self-study for Final Exam	1	9	9
TOTAL WORKLOAD (Hour)	60		
ECTS CREDITS	Total Work Load / 30 = 60 / 30		2 Credits

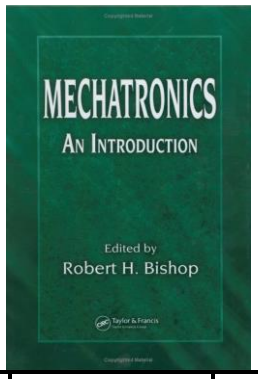
Last Updated	04.04.2019
Updater	Ens. Ali GÜN

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Year / Semester	Class hour (T+P+L)	Credit	ECTS
Automatic Control	MKM-411	4/I	(3+0+0)	3	2

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Mathematics-2, Physics-1, Physics-2
Instructor	:	Mechanical Engineering Instructor
Aims	:	To introduce the basic principles of automatic control systems consisting of sensors, mechanical, electrical/electronic and programming. These and similar courses are intended to be successful, knowledgeable, and able to follow new technologies.
Course Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Can define the fundamentals of automatic control systems. 2. Can use sensors in systems. 3. Define data collection systems. 4. Can grasp the Boolean algebra. 5. Can apply pneumatic, hydraulic, mechanical systems in automatic control systems. 6. Can control mechatronic systems with PLC.
Course Content	:	Automatic control input, control systems, open / close systems, Boolean algebra, actuators and sensors, data acquisition systems, measuring systems, pneumatic systems, mechanical systems.
Textbook		

Otomatik Kontrol Sistemleri	Benjamin C.Kuo	Literatür	2009

Other Resources	

Mechatronics an Introduction	Robert H.Bishop	CRC Taylor and Francis	2006

Homework and Projects	
Use of computer	Students can do their homework by using computer (not obligatory).
Other Applications	

Assessment Criteria	**Activities**		**Base Grade**	**Piece**	**Contribution to Assessment,%**	
	Midterm Exam		50	1	24%	
	Semester Assessment	Quizzes	50	1	%	16%
		Homework	50	1	%	
		Projects	50	1	%	
		Term Project /Project	50	1	%	
		Laboratory Application	50	1	%	
		Other Application	50	1	%	
	Final Exam		50	1	60%	
	Make-up Exam/ GUE		50	-	100%	
	Single Course Exam / GUE		50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Level of Contribution	1	2	3	4	5
	Very Low	Low	Medium	High	Very High

MECHANICAL ENGINEERING														
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	5		5				4			5					
CA-2	3		5	5			5								5
CA-3	4		5	5			5								5
CA-4	4		4							5					
CA-5	5		4	5			5			5					5
CA-6	3	4		4			4			3					4

Seq. No.	Program Qualifications	Dersin Katkı Düzeyi				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					X
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.		X			
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)					X
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)			X		
5	The student should be able to show the ability to work in independent or interdisciplinary teams.			X		
6	Students should be able to work as managers, planners or coordinators in team and project works.		X			
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.			X		
8	Students should be able to access, evaluate, use and produce solutions the information they need.			X		
9	Students should have the skill of lifelong learning.			X		
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.			X		
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.		X			
12	Students should have the ability to communicate effectively.	X				
13	Students should have professional and ethical responsibility.			X		
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.		X			
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.					X

SYLLABUS	
Week	**Subjects**
1	Automatic control input, control systems, open / closed systems, Boolean algebra
2	Sensors, performance terms, types of sensors, inductive and capacitive sensors, encoders, tachogenerators
3	Pressure / temperature sensors, light sensors and their applications
4	Data acquisition systems, pumps and their applications
5	Control systems and programming with servo and stepper motors
6	Measuring systems, analog/digital measuring devices, recorders
7	Data acquisition system, indicators, test and calibration
8	**MIDTERM**
9	Pneumatic actuators, cylinders, valves and connectors
10	Hydraulic systems, their advantages and disadvantages, system elements
11	Mechanical systems, gearboxes, rack and pinion systems.
12	Gear-wheel mechanisms, guideways, housing.
13	Electric drive systems
14	Relay, diode, transistor, solenoid
15	Electric motors, DC / AC motors, step / linear motors

ECTS CREDIT / WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	14	3	42
	Laboratory Practice			
Guided Problem Solving	Class Work			
	Group or Self Study			
Completion of Assignments and Submission as Reports		2	1	2
Term project		1	5	5
Project Presentation				
Other Works				
Midterm Exam	Exam	1	2	2
	Self Study for exam	1	3	3
Final exam	Exam	1	2	2
	Self Study for exam	1	4	4
TOTAL WORKOAD (Hour)		**60**		
ECTS CREDITS		Total Work Load / 30 = 60 / 30		**2**

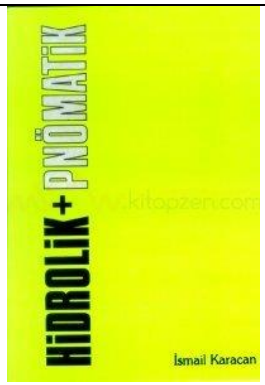
Last Updated	15.04.2019
Updater	Ens. Muhammet Taha AKKOÇ

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Year / Semester	Class hour (T+P+L))	Credit	ECTS
Hydraulic and Pneumatic Systems	MKM-412	4/I	(3+0+0)	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Fluid mechanics
Instructor	:	Mechanical Engineering Instructor
Aims	:	In this course, hydraulic and pneumatic circuit design recognition, planning and finding solutions are aimed. It also provides information on operating pressures, operating temperatures, transmission of hydraulics and losses on the operation of existing hydraulic systems in ships.
Course Learning Outcomes	:	Students who successfully complete this course; 1. Can define hydraulic and pneumatic systems and circuit elements. 2. Can distinguish pumps, motors, cylinders and seals. 3. Can make calculations of pneumatic and hydraulic system. 4. Can choose the hydraulic-pneumatic control systems used in the Navy 5. Can define hydraulic-pneumatic control systems in submarines, frigates and assault boats.
Course Content	:	Introduction to hydraulics and introduction of hydraulic system, Flow control methods, accumulators and fluids, Maintenance and safety measures in hydraulic circuits, Hydraulic and pneumatic standard hydraulic circuit samples and representation with symbols. Introduction to pneumatics, calculations of pneumatic systems, cylinders, sealing elements, motors, drawing of pneumatic circuits, maintenance fault detection and isolating guides, hydraulic-pneumatic control systems in our fleet, hydraulic-pneumatic control system applications in submarines, frigates and assault boats.

Textbook



Hidrolik ve Pnömatik	İsmail Karacan	Bizim Büro	1997

Other Resources

Hidrolik pnömatik sistemler		Birsen	2012
Hidrolik pnömatik		Birsen	2013
Hidrolik makinalar : çözülmüş problemlerle		Birsen	1984

Homework and Projects

Use of computer

Students can do their homework by using computer (not obligatory).

Success Assessment System

Activities		**Base Grade**	**Piece**	**Contribution to Assessment,%**	
Midterm		50	1	24%	
Semester Assessment	Quizzes	50	1	%	16%
	Homework	50	1	%	
	Projects	50	1	%	
	Term Project /Project	50	1	%	
	Laboratory Application	50		%	
	Other Application	50	1	%	
Final Exam		50	1	60%	
Make-up Exam/ GUE		50	-	100%	
Single Course Exam / GUE		50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Medium	High	Very High

MECHANICAL ENGINEERING														
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	3	5	5	5			4								4
CA-2	3	3	5	4											4
CA-3	5	4	5	5											4
CA-4	3													5	
CA-5	3													5	

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					X
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.					X
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)					X
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)				X	
5	The student should be able to show the ability to work in independent or interdisciplinary teams.			X		
6	Students should be able to work as managers, planners or coordinators in team and project works.		X			
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.				X	
8	Students should be able to access, evaluate, use and produce solutions the information they need.				X	
9	Students should have the skill of lifelong learning.			X		
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.				X	
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.		X			
12	Students should have the ability to communicate effectively.	X				
13	Students should have professional and ethical responsibility.			X		
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.					X
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.				X	

SYLLABUS	
Week	**Subjects**
1	Introduction to hydraulics and of hydraulic systems
2	Advantages of hydraulic system and introduction of hydraulic circuit elements, oil tanks, pipes and hoses
3	Pumps, motors, cylinders and sealing elements
4	Directional and flow control valves
5	Flow control methods, accumulators and fluids
6	Filters, sealing elements, manometers, maintenance and safety measures in hydraulic circuits
7	Hydraulic and pneumatic standard symbols, hydraulic circuit samples and representation with symbols.
8	**MIDTERM**
9	Introduction to pneumatics, advantages of circuit elements
10	Production and distribution of compressed air , elements used production of compressed air
11	Pneumatic system calculations, cylinders, sealing elements, motors
12	Operating principles of pneumatic directional control valves
13	Pressure control valves, flow control valves, special valves, servo valves, circuit elements, power control
14	Drawing of pneumatic circuits, maintenance-fault detection and isolating guides, hydraulic-pneumatic controlled systems in our fleet
15	Examples of hydraulic-pneumatic control systems in submarines, frigates and assault boats.

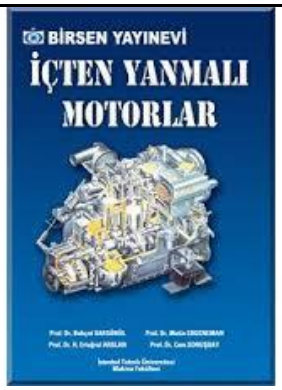
ECTS CREDIT/WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME (HOUR)**	**TOTAL WORKLOAD (HOUR)**
Theoretical Course	14	3	42
Practices			
Study Hours Out of Class	14	1	14
Completion of Assignments and Submission Reports	4	4	16
Term project			
Project Presentation			
Quiz			
Midterm Exam	1	2	2
Self Study for midterm exam	1	7	7
Final Exam	1	2	2
Self Study for final exam	1	7	7
TOTAL WORKLOAD (Hour)	**90**		
ECTS CREDITS	Total Work Load / 30 = 90 / 30		3

Last Updated Date	15.04.2019
Updater	Ens. Muhammet Taha AKKOÇ

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Internal Combustion Engines	MKM-413	4/I	(3+0+0)	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Static, Machine Elements, Thermodynamics I-II, Heat Transfer
Instructor	:	Mechanical Engineering Instructor
Aims	:	The aim of this course is to teach the working principles, new technologies of internal combustion engines and design and selection of main engines of warships.
Course Learning Outcomes	:	Students who successfully complete this course; 1. Can define the thermodynamic model, air intake and exhaust flow, friction and combustion, emission analysis in internal combustion engines. 2. Can apply the basic principles of thermodynamics, fluid mechanics and heat transfer to the application fields in internal combustion engines with the current modeling and analysis techniques. 3. Can do thermodynamic analysis of internal combustion engines. 4. Can determine the design parameters of internal combustion engines. 5. Can use basic experiments and testing systems for internal combustion engines. 6. Can make the selection and design of the main engine of the warships.
Course Content	:	Introduction to internal combustion engines, operation and power characteristics, engine parameters, ideal power cycles, P-V diagram, timing diagram, standard air cycles, air and fuel intake systems, mixture formation and combustion chemistry, charge systems, exhaust systems, emissions, heat transfer in machines and cooling systems, friction and lubrication, dynamics and kinematics of internal combustion engines, dimensioning of engine elements, main engine selection, principles of safe machine operation

Textbook	 İçten Yanmalı Motorlar | Behçet Saf Gönül | Birsen Yayınevi | 2005
Other References	İçten Yanmalı Motorlar | | Birsen | 2003
Homework & Projects	
Computer Use	Students can do their homework by using computer (not obligatory).
Other Activities	

Success Assessment System

	Activities	Base Grade	Piece	Contribution to Assessment,%	
	Midterm	50	1	24%	
Semester Assessment	Quizzes	50	1	%	16%
	Homework	50	1	%	
	Projects	50	1	%	
	Term Project/Project	50	1	%	
	Laboratory Application	50	1	%	
	Other Application	50	1	%	
	Final Exam	50	1	60%	
	Make-up Exam/ GUE	50	-	100%	
	Single Course Exam / GUE	50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

MECHANICAL ENGINEERING															
	PP-1	**PP-2**	**PP-3**	**PP-4**	**PP-5**	**PP-6**	**PP-7**	**PP-8**	**PP-9**	**PP-10**	**PP-11**	**PP-12**	**PP-13**	**PP-14**	**PP-15**
CA-1	5	5	4	5			4	4	2	2			3		4
CA-2	5	5	4	5			4	4	2	2			3		4
CA-3	5	5	4	5			4	4	2	2			3		4
CA-4	5	5	4	5			4	4	2	2			3		4
CA-5	5	5	4	5			4	4	2	2			3		4
CA-6	5	5	4	5			5	5	2	2			3		4

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					X
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.				X	
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)				X	
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)					X
5	The student should be able to show the ability to work in independent or interdisciplinary teams.			X		
6	Students should be able to work as managers, planners or coordinators in team and project works.			X		
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.				X	
8	Students should be able to access, evaluate, use and produce solutions the information they need.				X	
9	Students should have the skill of lifelong learning.			X		
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.			X		
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.			X		
12	Students should have the ability to communicate effectively.		X			
13	Students should have professional and ethical responsibility.		X			
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.			X		
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.				X	

SYLLABUS	
WEEK	**Subjects**
1	Introduction to internal combustion engines, classification of engines, definition of engine terms, main engine cycles
2	Operation and power characteristics, engine parameters
3	Ideal power cycles, standard air cycles, Otto cycle, diesel cycle, hybrid cycle, Stirling cycles
4	Air and fuel intake systems, volumetric efficiency of machines, fuel injection, super-charging and turbo-charging, sweeping methods on two-stroke machines
5	Mixture formation and combustion chemistry, hydrocarbon fuels, diesel fuels, alternative fuels
6	Charge systems, exhaust systems, emissions
7	Heat transfer and cooling systems in engines
8	**MIDTERM**
9	Friction and lubrication
10	Dynamics and kinematics of internal combustion engines
11	Dimensioning of engine elements, piston, piston pin, connecting rod, crankshaft
12	Dimensioning of engine elements, valves, piston head, shim
13	Main engine selection, selection, principles,
14	Resistance calculations, engine characteristic
15	Principles of safe machine operation

ECTS CREDITS / WORK LOAD TABLE					
ACTIVITIES		**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**	
Theoretical Course	Theoretical Instruction	14	3	42	
	Laboratory Practice	0			
Guided Problem Solving	Course Work				
	Group or Self Study	14	1	14	
Completion of Assignments and Submission as Reports					
Term Project					
Presentation					
Other Presentation					
Midterm Exam	Exam	1	3	3	
	Self Study for exam	1	14	14	
Final Exam	Exam	1	3	3	
	Self Study for exam	1	14	14	
TOTAL WORKLOAD(Hour)		**90**			
ECTS CREDITS		Total Work Load / 30 = 90 / 30			3

Last Updated Date	15.04.2019
Updater	Ens. Musa Cenk ÖZEKİNCİ

	NAVAL ACADEMY DEPARTMENT OF MECHANICAL ENGINEERING COURSE DESCRIPTION	

Course	Code	Year / Semester	Class hour (T+P+L)	Credit	ECTS
Laboratory	MKM-414	4/I	2+0+0	2	2

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Thermodynamics, Materials Science, Fluid Mechanics, Heat Transfer, Strength of Materials
Instructor	:	Mechanical Engineering Instructor
Aims	:	In the Machine Laboratory course, experiments related to the basic courses of Mechanical Engineering such as Fluid Mechanics, Thermodynamics, Strength of Materials, Material Sciences, etc. are performed, and the results are compared with the analytical calculations and experimental results. In this way, students can do the applications of these courses in laboratory environment. These experiments include experiments such as the steam cycle, loss of pipes, lubrication of the bearings, strength of the material, cooling and air conditioning cycles that students will encounter in ships in the next years. In this way, the students gain the skills to recognize and run the devices that make up these experimental sets, to record data, to compare the theoretical results with experimental results and to prepare a technical report.
Course Learning Outcomes	:	The students to pass the course successfully; 1. Can establish experimental setup. 2. Can compare theoretical calculations with practical application. 3. Can solve engineering problems. 4. Can make assessment. 5. Can compare the measurement systems. 6. Interpret the results of the experiment.
Course Content	:	The importance of measurement in engineering, analysis of experimental findings, dimension, pressure, flow, temperature measurements. Introduction of experiments and standard test result report format. Refrigeration cycle and implementation of relevant tests. Flow measurement in pipes and application of related experiments. Friction losses in pipes and implementation of related experiments. Heat exchangers and application of related experiments. Resistance and buoyant forces on the object within a flow, air tunnel test. Hydrodynamic theory, introduction to materials science, tensile strength theory of materials, tensile test and hardness measurement.

Course Book	 Ölçme Tekniği | Osman F.Genceli | Birsen | 2012
Other Resources	Ölçme Tekniği | | Birsen | 2000
Works/Project	
Using Computer	Students can do their homework by using computer (not obligatory).
Other Applications	

Success Assessment System	**Assessment**		**Minimum Score**	**Number**	**Grade Percentage, %**	
	Mid Term Exam		50	1	24%	
	Semester evaluation	Quizzes	50	1	%	16%
		Homework	50	1	%	
		Projects	50	1	%	
		Term Paper/Project	50	1	%	
		Laboratory Work	50	1	%	
		Other Activities	50	1	%	
	Final Exam		50	1	60%	
	Make-up Exam/ GUE		50	-	100%	
	Single Course Exam / GUE		50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Medium	High	Very High

MECHANICAL ENGINEERING

	PQ-1	PQ-2	PQ-3	PQ-4	PQ-5	PQ-6	PQ-7	PQ-8	PQ-9	PQ-10	PQ-11	PQ-12	PQ-13	PQ-14	PQ-15
CA-1	3	5	3		5		4	4	3					4	
CA-2	5	5			4		4	4							3
CA-3	5	5		5				3							
CA-4	5	5						5							
CA-5	5	5													3
CA-6		5					4	4							3

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					x
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.					x
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)					x
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)				x	
5	The student should be able to show the ability to work in independent or interdisciplinary teams.					x
6	Students should be able to work as managers, planners or coordinators in team and project works.			x		
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.				x	
8	Students should be able to access, evaluate, use and produce solutions the information they need.				x	
9	Students should have the skill of lifelong learning.					
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.		x			
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.					
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.			x		
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.				x	
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.			x		

SYLLABUS	
Week	**Subject**
1	The importance of measurement in engineering, introduction of experiments and standard test result report format, dimensional standards error analysis
2	Size, pressure, flow, temperature measurements.
3	Cooling theory, flow measurement in pipes, friction loss experiments.
4	Introduction to materials science, tensile strength theory of materials, air tunnel, heat exchangers, introduction of hydrodynamic lubrication tests.
5	Conducting experiments assigned to groups
6	Conducting experiments assigned to groups
7	Conducting experiments assigned to groups
8	Conducting experiments assigned to groups
9	**MIDTERM**
10	Conducting experiments assigned to groups
11	Conducting experiments assigned to groups
12	Conducting experiments assigned to groups
13	Conducting experiments assigned to groups
14	Presentation of the experiments by groups
15	Presentation of the experiments by groups

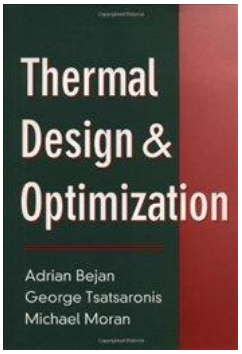
ECTS CREDITS/ WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	15	1	15
	Laboratory Practice	15	1	15
Guided Problem Solving	Course Work	5	1	5
	Group or Self Study	15	1	15
Completion of Assignments and Submission as Reports		-	--	--
Term Project		--	--	--
Project Presentation		-	--	--
Other Works		-	--	--
Midterm Exam	Exam	1	1	1
	Self Study for exam	1	4	4
Final Exam	Exam	1	1	1
	Self Study for exam	1	4	4
TOTAL WORKLOAD (Hour)		**60**		
ECTS CREDITS		Total Work Load / 30 = 60 / 30		2

Last Updated	15.04.2019
Updater	Ens. Murat URYAN

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Design of Thermal Systems	MKM-415	4/I	(3+0+0)	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Thermodynamics I-II, Heat Transfer, Fluid Mechanics
Instructor	:	Mechanical Engineering Instructor
Aims	:	In the light of previously learned information, it is aimed to teach the design, modeling, and simulation and optimization principles of the thermal system which serve a specific purpose.
Course Learning Outcomes	:	Students who successfully complete this course; 1. Can define machine or system and determine their functions. 2. Can make the calculations of the thermal system according to the desired properties. 3. Can identify and combine the system elements appropriately.. 4. Can make drawings of thermal system. 5. Can calculate the cost of the thermal system. 6. Can evaluate the results by making comparisons.
Course Content	:	Fundamentals of machine design, concept development and innovation, design input parameters, review of basic information to be used in design (Thermodynamics I-II, Heat Transfer, Fluid Mechanics), design and preparation of feasibility / solid model, cost analysis, preparation of project report and project presentation.

<table>
<tr><td>Textbook</td><td> 

<table>
<tr><td>Thermal Design & Optimization</td><td>Adrian Bejan</td><td>John Wiley</td><td>1995</td></tr>
</table></td></tr>
<tr><td>Other References</td><td>1-Design and Optimization of Thermal Systems, Yogesh JALURIA, CRC
2-Design of Thermal Systems, W.F. STOECKER, McGraw Hill</td></tr>
<tr><td>Homework & Projects</td><td></td></tr>
<tr><td>Computer Use</td><td>Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td>Other Activities</td><td></td></tr>
<tr><td>Success Assessment System</td><td>
<table>
<tr><th colspan="2">Activities</th><th>Base Grade</th><th>Piece</th><th colspan="2">Contribution to Assessment,%</th></tr>
<tr><td colspan="2">Midterm Exams</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Assessment</td><td>Quizzes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homework</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Paper/Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Work</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Other Activities</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam/ GUE</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course Exam / GUE</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

MECHANICAL ENGINEERING															
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	4	4	4	4	3	3	4	5	2	3			3		4
CA-2	5	5	4	5	3	3	4	5	2	3			3		4
CA-3	5	5	4	5	3	3	4	5	2	3			3		4
CA-4	5	5	4	5	3	3	4	5	2	3			3		4
CA-5	5	5	4	5	3	3	4	5	2	3			3		4
CA-6	5	5	4	5	3	3	4	5	2	3			3		4

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					X
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.				X	
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)					X
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)					X
5	The student should be able to show the ability to work in independent or interdisciplinary teams.				X	
6	Students should be able to work as managers, planners or coordinators in team and project works.				X	
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.			X		
8	Students should be able to access, evaluate, use and produce solutions the information they need.				X	
9	Students should have the skill of lifelong learning.			X		
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.		X			
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.		X			
12	Students should have the ability to communicate effectively.		X			
13	Students should have professional and ethical responsibility.			X		
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.			x		
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.				X	

SYLLABUS	
WEEK	**Subjects**
1	Distribution of design subjects
2	Principles of machine design
3	Principles of machine design
4	Development of Concept and innovation
5	Determination of design input parameters
6	Review of basic information to be used in design
7	Review of basic information to be used in design
8	**MIDTERM**
9	Design process
10	Design process
11	Design process
12	Cost analysis
13	Preparation of the project final report
14	Presentation of the project
15	Evaluation

ECTS CREDITS / WORK LOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	14	3	42
	Laboratory Practice	0	0	0
Guided Problem Solving	Course Work			
	Group or Self Study	14	1	14
Completion of Assignments and Submission as Reports				
Term Project				
Project Presentation				
Other Works				
Midterm Exam	Exam	1	3	3
	Self Study for exam	1	14	14
Final Exam	Exam	1	3	3
	Self Study for exam	1	14	14
TOTAL WORKLOAD(Hour)		**90**		
ECTS CREDITS		Total Work Load / 30 = 90 / 30		3

Last Updated Date	15.04.2019
Updater	Ens. Musa Cenk ÖZEKİNCİ

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
ENGINEERING COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Graduation Project-I	MKM-416	4/I	(0+2+0)	1	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	-
Instructor	:	Mechanical Eng. Teaching staff
Aims	:	To students; 1. To provide the opportunity to have experience in all stages of design within the framework of an engineering problem, 2. Developing innovative ideas and gaining team awareness, 3. To give the ability to search literature, 4. To encourage to use time effectively, 5. To raise awareness about scientific and technological innovations. 6. To gain experience in research and development on a project subject, 7. To create an opportunity to make technical contributions to Turkish Naval Forces with the project to be worked on.
Course Learning Outcomes	:	Students who successfully complete this course; 1. Will have knowledge about design methodology, 2. Will be able to define and explain a design problem, together with their requirements and constraints, by means of their open-end design project. 3. Will be able to gain access to and use information, to create an alternative concept, to select and develop concepts, to reach a solution, to test the data and to present the results. 4. Will be able to prepare a project plan that includes work packages, stages and task sharing among team members, 5. Will be informed in terms of professional ethics.
Course Content	:	This course includes a comprehensive design experience by using the knowledge acquired during the undergraduate study. Within the scope of this course, the design of a system or a process is considered within the scope of open-ended projects. The problem in the project is tried to be solved individually by the students or with the help of teams.

<table>
<tr><td>Textbook</td><td colspan="5">While a textbook is not particularly recommended, utilization of the Mechanical Engineering Handbook is recommended.</td></tr>
<tr><td>Other Resources</td><td colspan="5">• Richard G. Budyas ve J. Keith Nisbett, Shigley’den Makine Mühendisliğinde Tasarım, 2008 McGraw-Hill, 2015 Literatür, 8. Metrik Basımdan Çeviri.
• Jan O. Fischer, Gerd Holbach, Cost Management in Shipbuilding - Planning, Analysing and Controlling Product Cost in the Maritime Industry, GKP Publishing, Cologna, 2011.
• Yılmaz, T. (Ed.), 2008, Gemi Mühendisliği El Kitabı, Gemi Mühendisleri Odası, İstanbul.
• D.G. Ullman, ”The Mechanical Design Process”, McGraw Hill, 1992
• K.T. Ulrich, S.D. Eppinger, “Product Design and Development”, McGraw Hill, 1995
• G.E. Dieter, “Engineering Design”2.ed., McGraw Hill, 1991
• J.E. Shigley, C. Mischke, “Standard Handbook of Machine Design”, McGraw Hill, 1986
• H. Rothbart, “Mechanical Design and Systems Handbook”, 2.ed., McGraw Hill, 1985</td></tr>
<tr><td>Homework and Projects</td><td colspan="5">There will be a design project covering one semester. Project work will be carried out individually or in teams, and a project subject and a consultant instructor / staff will be present.</td></tr>
<tr><td>Use of computer</td><td colspan="5">For the literature review of the project, planning, design, calculation, modeling, analysis, preparation of the study report and presentation, computers will be used.</td></tr>
<tr><td>Other Applications</td><td colspan="5"></td></tr>
<tr><td rowspan="10">Success Assessment System</td><td colspan="2">Activities</td><td>Base Grade</td><td>Piece</td><td>Contribution to Assessment,%</td></tr>
<tr><td colspan="2">Midterm</td><td></td><td></td><td></td></tr>
<tr><td rowspan="6">Semester Assessment</td><td>Quizzes</td><td></td><td></td><td rowspan="6">%40</td></tr>
<tr><td>Homework</td><td></td><td></td></tr>
<tr><td>Projects</td><td></td><td></td></tr>
<tr><td>Term Project / Project</td><td>50</td><td>1</td></tr>
<tr><td>Laboratory Application</td><td></td><td></td></tr>
<tr><td>Other Applications</td><td></td><td></td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>%60</td></tr>
<tr><td colspan="2">Make-up exam / GUE</td><td>50</td><td>-</td><td>%100</td></tr>
<tr><td colspan="2">Single Course Exam / GUE</td><td>50</td><td>-</td><td>%100</td></tr>
</table>

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

	MECHANICAL ENGEENRING														
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ -10**	**PQ -11**	**PQ -12**	**PQ -13**	**PQ -14**	**PQ -15**
CA-1	5		5				3	4		3					5
CA-2	5	4	5				3	4		3					5
CA-3	5	4	5				3	4		3					5
CA-4	5			4	3										5
CA-5	5					5							5		5

Seq. No.	Program Qualifications	Course Contribution				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					x
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.				x	
3	Students should be able to design a system, component or process to meet the desired requirements (Mechanical systems, Thermal systems).					x
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems).				x	
5	The student should be able to show the ability to work independently or in interdisciplinary teams.			x		
6	Students should be able to work as managers, planners or coordinators in team and project works.					x
7	Students should be able to detect and identify problem areas and select the areas and methods for solving the subject.			x		
8	Students should be able to access, evaluate, use and produce solutions the information they need.				x	
9	Students should have the skill of lifelong learning.					
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.			x		
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.					
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.					x
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.					
15	Students should be able to show the competence of understanding the universal and social effects of Mechanical Engineering solutions.					x

SYLLABUS	
WEEK	**Subjects**
1	Determination of Graduation Study
2	Determination of Graduation Study
3	Graduation Study Preliminary Preparation
4	Graduation Study Preliminary Preparation
5	Literature Study
6	Intermediate Presentation-1
7	Literature Study
8	Literature Study
9	Literature Study
10	Planning the graduation project
11	Planning the graduation project
12	Intermediate Presentation-2
13	Writing the project report
14	Writing the project report
15	Report check
16	Report evaluation

ECTS CREDITS / WORK LOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course			
Application			
Study Hours Out of Class	15	4	60
Completion of Assignments and Submission as Reports			
Term Project	1	15	15
Project Presentation			
Quizzes			
Midterm			
Self-study for Midterm			
Final Exam	1	1	1
Self-study for Final Exam	1	14	14
TOTAL WORKLOAD (Hour)	90 Saat		
ECTS CREDITS	Total Work Load / 30 = 90 / 30		3 Credits

Last Updated	25.03.2019
Updater	Ens. Ali GÜN

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE DESCRIPTION

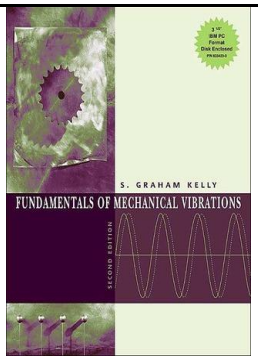
Course	Code	Year / Semester	Class hour (T+P+L)	Credit	ECTS
Mechanical Vibrations	MKM-421	4/II	(3+0+0)	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Mathematics I-II, Physics-I, Dynamics
Instructor	:	Mechanical Engineering Instructor
Aims	:	To determine the mechanical vibrations that dynamic machine elements face, to determine the frequencies with the highest vibration and to specify the basic design principles for the safe operation of the machine elements by determining the required structural change and reducing the vibration.
Course Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Define basic vibration terms 2. Have knowledge about working principles of vibration measurement instruments. 3. Examine vibrational motion by energy method 4. Can classify forced vibrations 5. Illustrate vibration isolation 6. Can analyze multi-degree-of-freedom systems
Course Content	:	Basic concepts, simple harmonic motion, sum of two vibration motions, vibrations of single degree of freedom systems, damped free vibrations, equivalent systems, viscous damping, free vibrations with dry friction, forced vibrations, vibration isolation, vibration-measuring devices, vibrations of two degree of freedom systems, vibrations of multi-freedom systems, spindle, examples on vibration of bed gear-wheel systems

Textbook

Mekanik Titreşimler	Fuat Pasin	Birsen	2000

Other Resources



Fundamentals of mechanical vibrations	S.Graham Kelly	McGraw Hill	2000
Machinery vibration:balancing		McGraw Hill	1995

Homework and Projects

Use of computer

Students can do their homework by using computer (not obligatory).

Other Applications

Assessment Criteria

Assessment		Min. Score	Number	Grade Percentage,%	
Mid term Exam		50	1	24%	
Semester Assessment	Quizzes	50	1	%	16%
	Homework	50	1	%	
	Projects	50	1	%	
	Term Project /Project	50	1	%	
	Laboratory Application	50	1	%	
	Other Application	50	1	%	
Final Exam		50	1	60%	
Make-up Exam		50	-	100%	
Single Course Exam		50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Level of Contribution	1	2	3	4	5
	Very Low	Low	Medium	High	Very High

MECHANICAL ENGINEERING														
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	5	3			3			4							4
CA-2		5		5	4									5	
CA-3	5		5		5										5
CA-4				4											
CA-5	4		5		4										
CA-6	5	3	5		5		4		3		4				4

Seq. No	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					X
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.			X		
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)					X
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)					X
5	The student should be able to show the ability to work in independent or interdisciplinary teams.			X		
6	Students should be able to work as managers, planners or coordinators in team and project works.		X			
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.				X	
8	Students should be able to access, evaluate, use and produce solutions the information they need.			X		
9	Students should have the skill of lifelong learning.				X	
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.				X	
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.		X			
12	Students should have the ability to communicate effectively.	X				
13	Students should have professional and ethical responsibility.			X		
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.			X		
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.					X

SYLLABUS	
Week	**Subjects**
1	Basic concepts, simple harmonic motion, sum of two vibration
2	Single degree of freedom of vibrational motion, undamped free vibrations
3	Investigation of vibrational motion by energy method
4	Equivalent systems, combined springs, sample problems
5	Damped free vibrations, viscous damping
6	Free vibrations with dry friction
7	Forced and damped vibrations
8	**MIDTERM**
9	Sample problems related to forced vibrational motion
10	Vibration insulation and vibration measuring devices
11	Degenerate vibrations of two degrees of freedom systems, characteristic equation
12	Degenerate vibrations of two degrees of freedom systems, characteristic equation
13	Vibrations of two degrees of freedom systems, problems with two degrees of freedom and multi-degree of freedom systems
14	Multi-degree of freedom systems, dependent and independent vibrations
15	Problems on vibrations of shaft and gear-wheel systems

ECTS CREDIT/WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME (HOUR)**	**TOTAL WORKLOAD (HOURS)**
Theoretical Course	14	3	42
Laboratory Practice			
Study Hours Out of Class	14	1	14
Completion of Assignments and Submission Reports	2	5	10
Term project			
Project Presentation			
Midterm Exam	1	2	2
Self Study for midterm exam	1	10	10
Final Exam	1	2	2
Self Study for final exam	1	10	10
TOTAL WORKLOAD (HOUR)	**90**		
ECTS CREDITS	Total Work Load / 30 = 90 / 30		3

Last Updated	15.04.2019
Updater	Ens. Muhammet Taha AKKOÇ

NAVAL ACADEMY
DEPARTMENT OF MECHANİCAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Year / Semester	Class hour (T+P+L)	Credit	ECTS
Mechanical Systems Design	MKM-422	4/II	(1+2+0)	2	2

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Materials Science, Strength of Materials, Machine Elements
Instructor	:	Mechanical Engineering Instructor
Aims	:	The aim of this course is to design a machine and/or system for a desired purpose based on the information obtained from different courses of students and to report it in a project format.
Course Acquirements	:	Students who successfully complete this course will be able to: 1- Define the machine or system and determine its functions. 2- Make calculations according to the desired properties and size. 3- Identify and assemble the system elements appropriately. 4- Make his drawings. 5- Calculate the cost. 6- Evaluate the results by making a comparison.
Course Content	:	Principles of machine design, concept development and innovation, determination of design input parameters, basic information to be used in design (material science, strength of materials, machine elements, machine drawing, mechatronics) review, design and preparation of solid model, cost analysis, preparation of project report and project presentation.

<table>
<tr><td>Textbook</td><td> 

<table>
<tr><td>Design in Mechanical Engineering from Shigley</td><td>Richard Budynas</td><td>Literatür</td><td>2016</td></tr>
</table></td></tr>
<tr><td>Other Resources</td><td>1-Engineering books
2-Databases
3-Design in Mechanical Engineering from Shigley 2008</td></tr>
<tr><td>Homework and Projects</td><td></td></tr>
<tr><td>Use of computer</td><td>Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Assessment Criteria</td><td>
<table>
<tr><th colspan="2">Activities</th><th>Base Grade</th><th>Quantity</th><th colspan="2">Effects on Grading, %</th></tr>
<tr><td colspan="2">Mid term Exam</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Assessment</td><td>Quizzes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Homework</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Project /Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Application</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Other Application</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Level of Contribution	1	2	3	4	5
	Very Low	Low	Medium	High	Very High

MECHANICAL ENGINEERING															
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	5	4	5	5	3	3	4								5
CA-2	5	5	5		4							3		3	
CA-3			5	5	5	3	4		4				3		5
CA-4	4		5	4											
CA-5	4		5		4				4	3			4	4	5
CA-6		5		4	5		5		3	4	4	3	4		5

Seq. No	Program Qualifications	Course Contribution S				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					X
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.					X
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)					X
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems).				X	
5	The student should be able to show the ability to work in independent or interdisciplinary teams.				X	
6	Students should be able to work as managers, planners or coordinators in team and project works.			X		
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.				X	
8	Students should be able to access, evaluate, use and produce solutions the information they need.					X
9	Students should have the skill of lifelong learning.					X
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.		X			
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.		X			
12	Students should have the ability to communicate effectively.		X			
13	Students should have professional and ethical responsibility.			X		
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.				X	
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.				X	

SYLLABUS	
Week	**Subjects**
1	Distribution of design issues
2	Principles of machine design
3	Principles of machine design
4	Concept development and innovation
5	Determination of design input parameters
6	Review of basic information to be used in design
7	Review of basic information to be used in design
8	**MIDTERM**
9	Design process
10	Design process
11	Design process
12	Design process
13	Cost analysis
14	Preparation of the final report of the project
15	Presentation of the project

ECTS CREDITS / WORKLOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (HOURS)**	**TOTAL WORKLOAD (HOURS)**
Theoretical Course	Theoretical Instruction	14	1	14
	Laboratory Practice	14	2	28
Guided Problem Solving	Class Work			
	Group or Self Study			
Completion of Assignments and Submission as Reports				
Term Project		1	4	4
Project Presentation		1	2	2
Other Studies (Midterm)				
Midterm Exam	Exam	1	2	2
	Self Study for exam	1	4	4
Final exam	Exam	1	2	2
	Self Study for exam	1	4	4
TOTAL WORKLOAD (HOUR)		**60**		
ECTS CREDITS		Total Work Load / 30 = 60 / 30		**2**

Last Updated	10.04.2019
Updater	Ens. Muhammet Taha AKKOÇ

NAVAL ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE DESCRIPTION

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Gas Turbines	MKM-413	4/I	(3+0+0)	3	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	Thermodynamics I-II, Heat Transfer, Fluid Mechanics
Instructor	:	Mechanical Engineering Instructor
Aims	:	The aim of the course is to teach basic concepts, system components and theoretical and real cycles of gas turbines.
Course Learning Outcomes	:	Students who successfully complete this course; 1. Can define heat transfer methods and mechanism in gas turbines. 2. Can calculate the heat transfer in various geometric components in gas turbines and explain the heat transfer in case of heat generation. 3. Can define and calculate heat exchangers in gas turbines. 4. Can calculate the heat transfer in laminar and turbulent flow in various systems. 5. Can identify and design parts of gas turbines. 6. Can calculate gas work cycles. 7. Can design additional systems that help the operation of gas turbines.
Course Content	:	Working principles, moving parts, cycles, system elements, fixed parts, combustion systems, lubrication systems, compressors and enterprises of gas turbines.

Textbook	

Gaz Türbinleri	Selim Çetinkaya	Nobel	1999

Other References	

Buhar ve gaz türbinleri		Birsen	2007

Homework & Projects	
Computer Use	Students can do their homework by using computer (not obligatory).
Other Activities	

Success Assessment System

	Activities	**Base Grade**	**Piece**	**Contribution to Assessment,%**	
	Midterm Exams	50	1	24%	
Semester Assessment	Quizzes	50	1	%	16%
	Homework	50	1	%	
	Projects	50	1	%	
	Term Project/Project	50	1	%	
	Laboratory Work	50	1	%	
	Other Activities	50	1	%	
	Final Exam	50	1	60%	
	Make-up Exam/ GUE	50	-	100%	
	Single Course Exam / GUE	50	-	100%	

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

MECHANICAL ENGINEERING															
	PQ-1	**PQ-2**	**PQ-3**	**PQ-4**	**PQ-5**	**PQ-6**	**PQ-7**	**PQ-8**	**PQ-9**	**PQ-10**	**PQ-11**	**PQ-12**	**PQ-13**	**PQ-14**	**PQ-15**
CA-1	5	3	4	4			4	5	3	2			3		4
CA-2	5	3	4	4			4	5	3	2			3		4
CA-3	5	3	4	4			4	5	3	2			3		4
CA-4	5	3	4	4			4	5	3	2			3		4
CA-5	5	3	4	4			4	5	3	2			3		4
CA-6	5	3	4	4			4	5	3	2			3		4
CA-7	5	3	4	4			4	5	3	2			3		4

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					X
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.			X		
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)				X	
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)				X	
5	The student should be able to show the ability to work in independent or interdisciplinary teams.			X		
6	Students should be able to work as managers, planners or coordinators in team and project works.		X			
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.			X		
8	Students should be able to access, evaluate, use and produce solutions the information they need.				X	
9	Students should have the skill of lifelong learning.			X		
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.			X		
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.		X			
12	Students should have the ability to communicate effectively.		X			
13	Students should have professional and ethical responsibility.		X			
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.			X		
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.				X	

SYLLABUS	
WEEK	**Subjects**
1	Historical development of gas turbines, classification, and classification of flow processes.
2	Compressibility, one dimensional compressible flow of ideal gases, flow in channels.
3	Theoretical cycles, Theoretical Brayton Cycle, regeneration, intercooler.
4	Heated gas turbines, closed system gas turbines.
5	Real cycles, stagnation values, compressor and turbine efficiency, regenerator efficiency.
6	Performance, work and air rates, mechanical losses and combustion efficiency, pressure losses.
7	Aviation gas turbines, non-compressor jet engines, turbojet, turbofan
8	**MIDTERM**
9	Compressors, centrifuges, compressors, axial compressors.
10	Velocity diagrams of compressor stage, stage characteristics.
11	Combustion chambers, fuel supply
12	Combustion chamber types, combustion characteristics
13	Turbines, turbine stages, velocity diagrams
14	Fuel economy, weight and dimensions, transmission requirement, materials, comparison
15	Real cycles, stagnation values, compressor and turbine efficiency

ECTS CREDITS / WORK LOAD TABLE				
ACTIVITIES		**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course	Theoretical Instruction	14	3	42
	Laboratory Practice	0	0	0
Guided Problem Solving	Course Work			
	Group or Self Study	14	1	14
Completion of Assignments and Submission as Reports				
Term Project				
Project Presentation				
Other Works				
Midterm Exam	Exam	1	3	3
	Self Study for exam	1	14	14
Final Exam	Exam	1	3	3
	Self Study for exam	1	14	14
TOTAL WORKLOAD(Hour)		**90**		
ECTS CREDITS		Total Work Load / 30 = 90 / 30		3

Last Updated Date	15.04.2019
Updater	Ens. Musa Cenk ÖZEKİNCİ

	NAVAL ACADEMY DEPARTMENT OF MECHANICAL ENGINEERING ENGINEERING COURSE DESCRIPTION	

Course	Code	Year / Semester	Class Hour (T+P+L)	Credit	ECTS
Graduation Project-II	MKM-424	4/II	(1+2+0)	2	3

Language of Instruction	:	Turkish
Level of the Study	:	Bachelor's Degree
Prerequisite Course	:	-
Instructor	:	Mechanical Engineering Instructor
Aims	:	Students will be able to use the time effectively, working order, lectern and subject dominance, oral and written presentation to gain experience. To contribute to the professional and ethical development of students.
Course Learning Outcomes	:	Students who successfully complete this course; 1. Will analyze performances by applying designs and based on artificial (simulation and modeling) and actual measurements, 2. Will prepare presentations and reports in an informative template to communicate project progress and results, 3. Will learn to conduct tests to verify compliance with the requirements and constraints of the product, 4. Will work in groups of 2-4 people to gain teamwork experience, 5. Will be conscious of professional ethics.
Course Content	:	This course includes a comprehensive design and application experience by using the knowledge acquired in undergraduate studies. Within the scope of this course, the design of a system or a process is considered within the scope of open-ended projects. It includes an application that includes stages from the selection of an appropriate project to its completion. The problem in the project is tried to be solved individually by the students or with the help of teams.

<table>
<tr><td>Textbook</td><td colspan="5">It is recommended to use Mechanical Engineering Manuals although not particularly recommended.</td></tr>
<tr><td>Other Resources</td><td colspan="5">Richard G. Budyas ve J. Keith Nisbett, Shigley’den Makine Mühendisliğinde Tasarım, 2008 McGraw-Hill, 2015 Literatür, 8. Metrik Basımdan Çeviri.
Jan O. Fischer, Gerd Holbach, Cost Management in Shipbuilding - Planning, Analysing and Controlling Product Cost in the Maritime Industry, GKP Publishing, Cologna, 2011.
Yılmaz, T. (Ed.), 2008, Gemi Mühendisliği El Kitabı, Gemi Mühendisleri Odası, İstanbul.
D.G. Ullman, ”The Mechanical Design Process”, McGraw Hill, 1992
K.T. Ulrich, S.D. Eppinger, “Product Design and Development”, McGraw Hill, 1995
G.E. Dieter, “Engineering Design”2.ed.,McGraw Hill, 1991
J.E. Shigley, C. Mischke, “Standard Handbook of Machine Design”, McGraw Hill, 1986
H. Rothbart, “Mechanical Design and Systems Handbook”, 2.ed., McGraw Hill, 1985</td></tr>
<tr><td>Homework and Projects</td><td colspan="5">There will be a design project covering a semester. Project work will be carried out individually or in teams, and a project subject and a consultant instructor / staff will be present.</td></tr>
<tr><td>Use of computer</td><td colspan="5">The literature review of the project, planning, design, calculation, modeling, analysis, reporting, writing a text appropriate to a template and presentation stages can be used.</td></tr>
<tr><td>Other Applications</td><td colspan="5"></td></tr>
<tr><td rowspan="10">Success Assessment System</td><td colspan="2">Activities</td><td>Base Grade</td><td>Piece</td><td>Contribution to Assessment, %</td></tr>
<tr><td colspan="2">Midterm</td><td></td><td></td><td></td></tr>
<tr><td rowspan="6">Semester Assessment</td><td>Quizzes</td><td></td><td></td><td rowspan="6">40%</td></tr>
<tr><td>Homework</td><td></td><td></td></tr>
<tr><td>Projects</td><td></td><td></td></tr>
<tr><td>Term Project / Project</td><td>50</td><td>1</td></tr>
<tr><td>Laboratory Application</td><td></td><td></td></tr>
<tr><td>Other Applications</td><td></td><td></td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td>60%</td></tr>
<tr><td colspan="2">Make-up Exam/ GUE</td><td>50</td><td>-</td><td>100%</td></tr>
<tr><td colspan="2">Single Course Exam / GUE</td><td>50</td><td>-</td><td>100%</td></tr>
</table>

RELATIONSHIP BETWEEN PROGRAM QUALIFICATIONS AND LEARNING OUTCOMES

Contribution Level	1	2	3	4	5
	Very Low	Low	Middle	High	Very High

	MECHANICAL ENGINEERING													
	PQ-1	PQ-2	PQ-3	PQ-4	PQ-5	PQ-6	PQ-7	PQ-8	PQ-9	PQ-10	PQ-11	PQ-12	PQ-13	PQ-14	PQ-15
CA-1	5		5				3	4		3					5
CA-2	5	4	5				3	4		3					5
CA-3	5	4	5				3	4		3					5
CA-4	5			4	3										5
CA-5	5					5							5		5

Seq. No.	Program Qualifications	Course Contribution Scale				
		1	2	3	4	5
1	Students should have knowledge about mathematics, science and engineering in theoretical and applied fields.					x
2	Students should be able to design and conduct experiments, analyze and interpret the results of experiments.				x	
3	Students should have the ability to design a system, component or process to meet the desired requirements. (Mechanical systems, Thermal systems)					x
4	Students should have the ability to define and solve mechanical engineering problems, use the necessary techniques, skills and modern tools (mechanical problems, thermal problems)				x	
5	The student should be able to show the ability to work in independent or interdisciplinary teams.			x		
6	Students should be able to work as managers, planners or coordinators in team and project works.					x
7	Students should be able to identify and identify problem areas and to select the areas and methods for solving the subject.			x		
8	Students should be able to access, evaluate, use and produce solutions the information they need.				x	
9	Students should have the skill of lifelong learning.					
10	Students should be able to use modern communication methods to transfer their knowledge and thoughts about the field.			x		
11	Students should be able to communicate their feelings, thoughts and suggestions effectively in oral and written form.					
12	Students should have the ability to communicate effectively.					
13	Students should have professional and ethical responsibility.					x
14	The student should have sufficient knowledge about occupational health and safety and environmental protection.					
15	Students should be able to show the competence of understanding the universal and social effects of mechanical engineering solutions.					x

SYLLABUS		
WEEK	**Subjects**	
	Theory	**Application**
1	Determination of Graduation Study	--
2	Determination of Graduation Study	--
3	Graduation Study Preliminary Preparation	--
4	Literature Study	--
5	Literature Study	--
6	Intermediate Presentation-1	--
7	Testing and testing	Laboratory work
8	Testing and testing	Laboratory work
9	Testing and testing	Laboratory work
10	Analysis of test and test results	Laboratory work
11	Analysis of test and test results	Laboratory work
12	Intermediate Presentation-2	--
13	Writing the project	--
14	Writing the project	--
15	Project control	--
16	Evaluation of the project	--

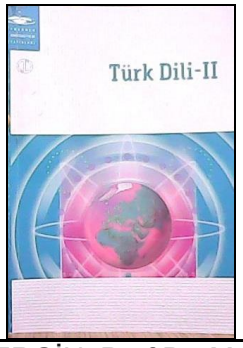
ECTS CREDITS / WORKLOAD TABLE			
ACTIVITIES	**NUMBER**	**TIME (Hour)**	**TOTAL WORKLOAD (Hour)**
Theoretical Course			
Laboratory Practice			
Study Hours Out of Class			
Completion of Assignments and Submission as Reports			
Term Project	1	30	30
Project Presentation			
Quizzes			
Midterm			
Self Study for Midterm			
Final Exam	1	14	14
Self Study for Final Exam	2	8	16
TOTAL WORKLOAD (Hour)	**60**		
ECTS CREDITS	Total Work Load / 30 = 90 / 30		3

Last Updated	15.04.2019
Updater	Ens. Ali GÜN

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
TURKISH LANGUAGE-I	SBB-111	1/I	2+0+0	2	2

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	Turkish Language Instructor
Aim of the course	:	The aim of this course is to enable students to understand and carry out the structure and usage of Turkish language in the light of Linguistics correctly.
Learning Outcomes	:	Students who successfully complete this course will be able to; 1. use spelling and punctuation rules correctly . 2. acquire critical reading skills. 3. improve writing skills. 4. have knowledge about military writing techniques.
Content	:	Military writing techniques and punctuation rules, incomprehensibility reading and writing skills are studied.

<table>
<tr><td>Course</td><td>AKALIN, Şükrü Haluk, TOLKUN, Selahattin, CAVKAYTAR, Serap, DURMUŞ, Tuba Işınsu, KOLAÇ, Emine, DURMUŞ, Mustafa, Turkish Language-II, Anadolu University Publications, Second Edition, 2013.
  </td></tr>
<tr><td>Other Sources</td><td>1. ERGİN, Prof.Dr. Muharrem, Turkish Language for Universities, Bogazici Publications, Ozal Press, Istanbul, 1986.
2. COMMITTEE, TURKISH LANGUAGE AND COMPOSITION INFORMATION, YÖK, Ankara 1997.
3. BOARD, Turkish Dictionary, Turkish Language Institution Publications, Ankara, 2005.
4. BOARD, Writing Guide, Turkish Language Institution Publications, Ankara, 2005.
5. KORKMAZ, Prof.Dr. Zeynep, Turkey The Turkish Grammar (Morphology), TDK Yay .: 827, Ankara 2003.
6. COMMITTEE, TD Problems of Turkish Grammar -23 Meeting (22-23 October 1993), TDK Publication: 600, Ankara 1995.
7. COMMITTEE, Problems of Turkish Grammar II, TDK Publication: 718, Ankara 1999.
8. AKSOY, Ömer Asım, Language Errors, Adam Publications, Istanbul 1997</td></tr>
<tr><td>Assignments and Projects</td><td>Appropriate writing and reading assignments are given to students related to the course.</td></tr>
<tr><td>Computer Usage</td><td></td></tr>
<tr><td>Other Applications</td><td>Assignments are controlled through Moodle.</td></tr>
<tr><td>Evaluation System</td><td>
<table>
<tr><th colspan="2">Activities</th><th>Base Grade</th><th>Number</th><th colspan="2">Contribution to Review, %</th></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>--</td><td>--</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Assigments</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Projects</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Other Applications</td><td>--</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

	Single Course / Extra Make-up Exam	50	-	100%

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to stick to democratic, secular and social law state principles in the direction of Atatürk's principle and reforms.					X
2	To be able to acquire the skills of describing problems and produce innovative solutions by adapting what students learnt to Social Sciences and Humanities courses.		X			
3	To be able to follow scientific studies which are done at national and international level and keep abreast of scientific developments.		X			
4	To be able to understand the interdisciplinary relationship, take advantage of other disciplinaries and associate together, have neccessary planning by managing the time effectively, conducting and leading.		X			
5	To be able to use language in writing expression correctly and carry out the rules.					X
6	To be able to use writing rules and punctuations appropriately.					X
7	To be able to follow the developments in language and carry out.				X	
8	To be able to have reading-understanding, listening-understanding, interpretation and conveying skills.					X
9	To be able to collect information, analyse, evaluate, interpret.				X	
10	To be able to follow the developments in the social and cultural fields.				X	
11	To be able need to have the conscious of long life learning by innovating information, skills and competences they acquire.			X		

COURSE QUALIFICATIONS AND COURSE RELATIONS											
Level of Contribution		**1**		**2**		**3**		**4**		**5**	
		Very low		Low		Medium		High		Very high	
All Departments											
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**	**CR-9**	**CR-10**	**CR-11**
LC-1	3	5	5	3	3	2	3	3	5	5	4
LC-2	3	5	5	3	4	5	3	4	5	5	5
LC-3	3	2	3	2	5	3	4	5	5	5	5
LC-4	4	4	5	5	4	5	5	5	4	4	4
LC-5	4	5	5	4	4	3	3	3	5	4	5

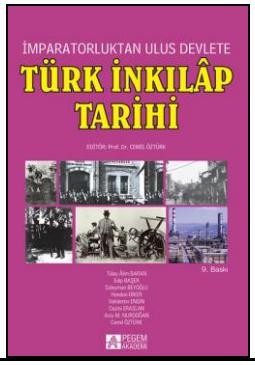
WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Writing rules	--
2	Writing rules	--
3	Punctuation	--
4	Punctuation	--
5	Incomprehensibility	--
6	Incomprehensibility	--
7	Reading	--
8	**MID TERM**	--
9	**MID TERM**	--
10	Reading	--
11	Reading	--
12	Writing	--
13	Writing	--
14	Military Writing Techniques	--
15	Military Writing Techniques	--
16	**FINAL EXAM**	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Guided Problem Solving	16	2	32
Assignments and Report Submission	1	13	13
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	--	--	--
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	73 Hours		
ECTS CREDIT OF THE COURSE	Total Workload 73/ 30 =2,4		2 Credits

TURKISH NAVAL ACADEMY
DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
ATATURK'S PRINCIPLES AND HISTORY OF TURKISH REVOLUTION I	SBB-112	1/I	2+0+0	2	2

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	History Instructor
Aim of the course	:	The aim of this course is to enable students to know about Ataturk's system of thought well, analyse this system, reveal differences and strengths by comparing other different ideologies, educate them as knowledgeable, patriot and democratic young people by foreseeing and solving problems.
Learning Outcomes	:	Students who successfully complete this course will be able to ; 1. describe a variety of actors and factors that determine the history. 2. analyse different roles these actors and factors play. 3. interpret concepts such as independence, freedom and national sovereignty. 4. evaluate process of formation of the Republic of Turkey that is a contemporary, democratic, secular and social law state. 5. evaluate historical meaning and importance of Turkish revolution in terms of Turkish nation.
Content	:	While sophisticated information about recent history of Turkey is given in this course, foundation and existential philosophy of secular and democratic republic system is conveyed. Considering that Otoman Empire went out of existence and the Republic of Turkey was established, the future and problems of globalizing world are assessed through Ataturk's method and world-view. The meaning of concepts such as republic, democracy and secularism in terms of integrity of Turkey is illustrated from current affairs.

<table>
<tr><td>Course</td><td>History of Turkish Revolution from Empire to Nation State, Editor: Prof.Dr.Cemil ÖZTÜRK, Pegem Akademi Publications, 2017, İstanbul
 
</td></tr>
<tr><td>Other Sources</td><td>1. Nutuk, Mustafa Kemal ATATÜRK, Boyut Publications, 2006
2. History of Turkish Revolution, Yusuf Hikmet BAYUR, Ankara, 1983
3. Atatürk: Rebirth of a Nation, Lord Kinross, Istanbul, 1994
4. The Emergence of Modern Turkey, Bernard Lewis, Ankara, 1984
5. Vahidettin, Mustafa Kemal and the National Struggle, Turgut ÖZAKMAN, Bilgi Publishing House, Ankara, 1997
6. The Crazy Turks, Turgut ÖZAKMAN, Bilgi Publishing House, 2005
7. History of Turkish Revolution, (4 volumes, 6 books) Şerafettin TURAN, Bilgi Publishing House, 1999
8. History of Turkish Revolution, Toktamis ATES, Der Publications, Istanbul, 1999
9. Tek Adam, Şevket Süreyya AYDEMİR, Remzi Bookstore, 2016
10. Kurtuluş-Establishment, Bülent TANÖR, Republic Books, 2010</td></tr>
<tr><td>Assignments and Projects</td><td></td></tr>
<tr><td>Computer Usage</td><td></td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Evaluation System</td><td>
<table>
<tr><th colspan="2">Activities</th><th>Base Grade</th><th>Number</th><th colspan="2">Contribution to Review, %</th></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>--</td><td>--</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Assigments</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Projects</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Other Applications</td><td>--</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
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</td></tr>
</table>

Nu..	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to stick to democratic, secular and social law state principles and have consciousness of duty in the direction of Atatürk's principle and reforms.					X
2	To be able to use Turkish in oral and written environment effectively.			X		
3	To be able to understand historical meaning and importance of Turkish revolution.					X
4	To be able to recognise Ataturk's personality of soldier, statesman, revolutionary and leadership.					X
5	To be able to adopt Ataturkism and understand Ataturk's world-view and ideas.					X
6	To be able to understand final stage, development and results related to entering the First World War of Ottoman Empire.				X	
7	To be able to understand organization activity in the period of national struggle.					X
8	To be able to understand under which conditions Independence War took place and the unity and solidarity of Turkish nation collectively in that war.				X	
9	To be able to understand and interpret concepts such as independence, freedom and national sovereignty.					X
10	To be able to be conscious of occupational and ethical responsibility.			X		
11	To be able to recognize national and international characteristics of Turkish revolution and make inferences about situation of Turkey.				X	

COURSE QUALIFICATIONS AND COURSE RELATIONS

Level of Contribution	1	2	3	4	5
	Very low	Low	Medium	High	Very high

All Departments

	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR-10	CR-11
LC-1	3	5	5	3	3	2	3	3	5	5	4
LC-2	3	5	5	3	4	5	3	4	5	5	5
LC-3	3	2	3	2	5	3	4	5	5	5	5
LC-4	4	4	5	5	4	5	5	5	4	4	4
LC-5	4	5	5	4	4	3	3	3	5	4	5

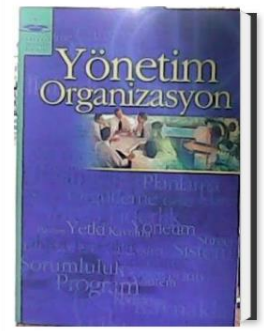
WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	General Conceptions, the History of Turkish Revolution and the Aim of Studying Ataturkism Lesson and Revolution Concept.	--
2	The First Constitutionalist Period Wars. The Second Constitutionalist Period Wars.	--
3	The First World War and Ottoman Empire.	--
4	Overview of Mustafa Kemal's Life	--
5	Mustafa Kemal's Departure to Samsun, Havza and Amasya Circular Letters.	--
6	The Period of Congresses.	--
7	Ottoman Parliament and National Treaty, The Opening of Turkish Parliament in Ankara.	--
8	**MID TERM**	--
9	**MID TERM**	
10	Rebellions in Period of National Struggle, The Plans of Sharing Turkey and Treaty of Sevres.	--
11	Irregular Forces and Foundation of National Army, East Frontline.	--
12	Irregular Forces and Foundation of National Army, East Frontline.	--
13	South Frontline Wars	--
14	West Frontline Wars	--
15	West Frontline Wars	--
16	**FINAL EXAM**	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Guided Problem Solving	16	2	32
Assignments and Report Submission	--	--	--
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	1	13	13
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	73 Hours		
ECTS CREDIT OF THE COURSE	Total Workload 73/ 30 =2,4		Total Workload 73/ 30 =2,4

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
MANAGEMENT AND ORGANIZATION	SBB-113	1/I	2+0+0	2	3

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	Business instructor
Aim of the course	:	The aim of the course is to teach cadets basic principles of necessary management knowledge, skill and techniques so that we provide cadets who will participate in a variety of ranks and departments in the Turkish Navy Forces to be a successful commander, manager and leader.
Learning Outcomes	:	Students who successfully complete this course will be able to , 1- understand the basic concepts about management and organization. **2-** have knowledge about management types, assignments and characteristics of managers, foundations of decision making and planning **3-** have knowledge about types of organizations, vertical and horizontal organizations, superior-subordinate relationships **4-** have knowledge about the components of human resource management and group management **5-** have knowledge about necessary actions for managing information, managing communication and controlling an organization
Content	:	People and organizations, individual differences and diversity, organization development, culture and change, perception and communication, work motivation and job satisfaction, work groups and teams, organization structure and design, the role and nature of management, organizational strategy, ethics and responsibilities, organizational control and power, leadership in organizations, controlling quality in organizations, organization theory and design, communication in organizations.

Course	GENÇ, Nurullah. (2007) Management and Organization, Contemporary Systems and Approaches, 3rd Edition. Seçkin Publishing House, 2007 
Other Sources	Management and Organization, Koparal C. and Özalp İ, Anadolu University Spring, 2013 
Assignments and Projects	
Computer Usage	
Other Applications	

Evaluation System

Activities		**Base Grade**	**Number**	**Contribution to Review, %**	
Mid term		50	1	24%	
Semester Evaluation	Quizes	--	--	%	16%
	Assigments	--	--	%	
	Projects	--	--	%	
	Term Paper/ Project	--	--	%	
	Laboratory Applications	--	--	%	
	Other Applications	--	1	%	
Final Exam		50	1	60%	
Make-up Exam		50	-	100%	
Single Course / Extra Make-up Exam		50	-	100%	

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to stick to democratic, secular and social law state principles and have consciousness of duty in the direction of Atatürk's principle and reforms.					X
2	To be able to use Turkish in oral and written environment effectively.					X
3	To be able to determine purpose and aims for their institution where they work and manage activities towards progress of employees.					X
4	To be able to work independently by using information and skills they acquire in the field of business and management sciences.			X		
5	To be able to evaluate critically by using information and skills they acquire in the field of business and management sciences, determining their learning requirements and leading their own learning.			X		
6	To be able to inform related person and institutions with consciousness of social responsibility in the field of business and management sciences; share their ideas and solution suggestions concerning problems in a written and oral way.				X	
7	To be able to access to information, do literature review and use data base and other information sources.			X		
8	To be able to examine concepts and ideas in the fields of business and management sciences with scientific methods, interpret and assess the data.				X	
9	To be able to work individually or as member of a team.					X
10	To be able to be conscious of occupational and ethical responsibility.					X
11	To be able to understand importance of life long learning and improve themselves by following developments in scientific areas.				X	

COURSE QUALIFICATIONS AND COURSE RELATIONS											
Level of Contribution	**1**		**2**		**3**		**4**		**5**		
	Very low		Low		Medium		High		Very high		
All Departments											
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**	**CR-9**	**CR-10**	**CR-11**
LC-1	3	5	5	3	3	2	3	3	5	5	4
LC-2	3	5	5	3	4	5	3	4	5	5	5
LC-3	3	2	3	2	5	3	4	5	5	5	5
LC-4	4	4	5	5	4	5	5	5	4	4	4
LC-5	4	5	5	4	4	3	3	3	5	4	5

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	General Concepts	--
2	Classical Management Theories	--
3	Neoclassical Management Theories	--
4	Theories About Human	--
5	Modern Management Theories	--
6	Planning	--
7	Organizing	--
8	**MID TERM**	--
9	**MID TERM**	
10	Directing	--
11	Coordination	--
12	Control (Supervision)	--
13	Total Quality Management	--
14	Motivation	--
15	Post-modern, Contemporary and Actual Concepts, Approaches and Applications.	--
16	**FINAL EXAM**	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Out-of-Class Activities of Study Hours	15	2	30
Assignments and Report Submission	1	20	20
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	--	--	--
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	78 Hours		
ECTS CREDIT OF THE COURSE	Total Workload 78/ 30 =2,6		3 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
EFFECTIVE COMMUNICATION SKILLS	SBB-114	1/I	2+0+0	2	3

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	Turkish Instructor
Aim of the course	:	The aim of this course is to develop student teachers verbal and nonverbal communication skills and help them to comprehend interpersonal personal communication processes, problem solving abilities and communication conflicts. The course also aims to explain interaction between culture and communication, psycho-linguistic structures to student teachers and to develop their emphatic thinking skills.
Learning Outcomes	:	Students who successfully complete this course will be able to ; 1- gain knowledge on describing communication, and explain the process and elements of communication. 2- gain knowledge on giving examples about listening and feedback mechanisms in effective communication. 3- gain knowledge on comprehening the importance of communication within classroom settings. 4- gain knowledge on identifying the factors which prevent effective communication 5- gain knowledge on the importance of communication with parents
Content	:	Definition of the communication among people, communication model, element of communication, affective listening and feedback, factors effecting people communication (source, canal, receiver etc.), factors facilitating communication, role of sense in communication and their usage, conflict in communication and its precaution, important matters of student, teacher and parent communication, communication applications.

<table>
<tr><td>Course</td><td>Effective Communication Techniques, Eroğlu et al., Anadolu University Publications, 2014
   </td></tr>
<tr><td>Other Sources</td><td>Abaci, R. (2005). Quality of Life, Form Style Publishing, Istanbul. Voltan Acar, N. (2008). Human Relations and Communication, Ankara: Nobel Yayın Dağıtım. Cüceloglu, D. (2002). Communication Equipment, Istanbul: Remzi Bookstore. Casting, Ü. (1998). Communication Conflicts and Empathy, İstanbul: Sistem Yayıncılık Thomson, P. (2002). Secrets of Communication, Istanbul: Arion Publishing House.</td></tr>
<tr><td>Assignments and Projects</td><td></td></tr>
<tr><td>Computer Usage</td><td></td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Evaluation System</td><td>
<table>
<tr><th colspan="2">Activities</th><th>Base Grade</th><th>Number</th><th colspan="2">Contribution to Review, %</th></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Assigments</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>-</td><td>-</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to stick to democratic, secular and social law state principles and have consciousness of duty in the direction of Atatürk's principle and reforms.					X
2	To be abe to use Turkish in oral and written environment effectively.					X
3	To be able to carry out verbal and non-verbal communication skills effectively when they contact in house and external institution					X
4	To be able to convey given instructions and directions clearly in implementing manager duties so that the subordinates are conducted.					X
5	To be able to define the comunication problems, analyse and deliver solutions				X	
6	To be able to acquire awareness of speaking in the face of public and putting into practice.				X	
7	To be able to access to information, do literature review and use data base and other information sources			X		
8	To be able to gain and carry out consciousness of cultural awareness and empathy					X
9	To be able to work individually or as member of a team.					X
10	To be able to be conscious of occupational and ethical responsibility.				X	
11	To be able to understand importance of life long learning and improve themselves by following developments in scientific areas.					X

COURSE QUALIFICATIONS AND COURSE RELATIONS											
Level of Contribution		**1**		**2**		**3**		**4**		**5**	
		Very low		Low		Medium		High		Very high	
All Departments											
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**	**CR-9**	**CR-10**	**CR-11**
LC-1	1	5	5	4	5	4	3	4	5	4	5
LC-2	1	5	5	4	5	4	3	5	5	4	5
LC-3	1	5	5	5	4	5	3	4	5	4	5
LC-4	1	5	5	5	4	5	3	5	5	4	5
LC-5	1	5	5	5	4	4	3	5	5	4	5

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Writing rules	--
2	Writing rules	--
3	Punctuation	--
4	Punctuation	--
5	Incomprehensibility	--
6	Incomprehensibility	--
7	Reading	--
8	**MID TERM**	--
9	**MID TERM**	--
10	Reading	--
11	Reading	--
12	Writing	--
13	Writing	--
14	Military Writing Techniques	--
15	Military Writing Techniques	--
16	**FINAL EXAM**	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Guided Problem Solving	15	2	30
Assignments and Report Submission	1	20	20
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	--	--	--
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	78 Hours		
ECTS CREDIT OF THE COURSE	Total Workload / 30 = 78/ 30 = 2,6		3 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
TURKISH LANGUAGE-II	SBB-121	1/II	2+0+0	2	2

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	Turkish Language Instructor
Aim of the course	:	The aim of this course is to enable students to understand and carry out the structure and usage of Turkish language-II in the light of Linguistics correctly.
Learning Outcomes	:	Students who successfully complete this course will be able to; 1) learn diction and rhetoric rules. 2) know basic qualities of effective and decent speaking.
Content	:	Basic graces of diction and rhetoric art, effective and decent techniques, exemplary rhetoric texts are examined.

<table>
<tr><td>Course</td><td>ÖZDEMİR, Text, Oratory, Altınordu Publishing House, 2017.
MACIT, Muhsin and CAVKAYTAR Serap, Turkish Language II, Anadolu Uni. Publications
  </td></tr>
<tr><td>Other Sources</td><td>1. ERGİN, Prof.Dr. Muharrem, Turkish Language for Universities, Bogazici Publications, Ozal Press, Istanbul, 1986.
2. COMMITTEE, TURKISH LANGUAGE AND COMPOSITION INFORMATION, YÖK, Ankara 1997.
3. BOARD, Turkish Dictionary, Turkish Language Institution Publications, Ankara, 2005.
4. BOARD, Writing Guide, Turkish Language Institution Publications, Ankara, 2005.
5. KORKMAZ, Prof.Dr. Zeynep, Turkey The Turkish Grammar (Morphology), TDK Yay .: 827, Ankara 2003.
6. COMMITTEE, TD Problems of Turkish Grammar -23 Meeting (22-23 October 1993), TDK Publication: 600, Ankara 1995.
7. COMMITTEE, Problems of Turkish Grammar II, TDK Publication: 718, Ankara 1999.
8. AKSOY, Ömer Asım, Language Errors, Adam Publications, Istanbul 1997.</td></tr>
<tr><td>Assignments and Projects</td><td>Students are made prepared and unprepared speaking activities.</td></tr>
<tr><td>Computer Usage</td><td></td></tr>
<tr><td>Other Applications</td><td>Assignments are controlled through Moodle.</td></tr>
<tr><td>Evaluation System</td><td>
<table>
<tr><th colspan="2">Activities</th><th>Base Grade</th><th>Number</th><th colspan="2">Contribution to Review, %</th></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>--</td><td>--</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Assigments</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Projects</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Other Applications</td><td>--</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to stick to democratic, secular and social law state principles and have consciousness of duty in the direction of					X
2	To be able to acquire the skills of describing problems and producing innovative solutions by adapting what students learnt to Social Sciences and Humanities courses.		X			
3	To be able to have the ability to follow scientific studies which are done in national and internatinal level and keep abreast of scientific developments.		X			
4	To be able to have the ability to understand the interdisciplinary relationship, take advantage of other disciplinaries and associate together, have neccessary planning by managing the time effectively, conducting and leading.		X			
5	To be able to have basic graces of diction and rhetoric art.					X
6	To be able to recognise effective and decent speaking techniques.					X
7	To be able to acquire knowledge and skill to use Turkish language correctly.					X
8	To be able to express themselves decently and have empathy skill.					X
9	To be able to have the ability to collect information, analyse, evaluate, interpret.				X	
10	To be able to follow the developments in the social and cultural fields.				X	
11	To be able to need to have the conscious of long life learning by innovating information, skill and competences they acquire.			X		

COURSE QUALIFICATIONS AND COURSE RELATIONS

Level of Contribution	1	2	3	4	5
	Very low	Low	Medium	High	Very high

All Departments

	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR-10	CR-11
LC-1	3	5	5	3	3	2	3	3	5	5	4
LC-2	3	5	5	3	4	5	3	4	5	5	5
LC-3	3	2	3	2	5	3	4	5	5	5	5
LC-4	4	4	5	5	4	5	5	5	4	4	4
LC-5	4	5	5	4	4	3	3	3	5	4	5

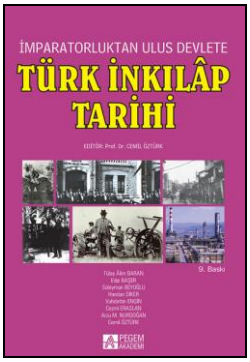
WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Communication Concepts	--
2	Speaking Skills	--
3	Cognitive and Physical Components of Speaking	--
4	Diaphragm Works	--
5	Relaxation Training	--
6	Breathing Training	--
7	Voice Training	--
8	**MID-TERM**	--
9	**MID-TERM**	--
10	Intonation, articulation, tune	--
11	Pause, Stress, appendix	--
12	Listening	--
13	Body Language	--
14	Kinds of Rhetoric, extemporize	--
15	Kinds of Rhetoric	--
16	**FİNAL EXAM**	

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Out-of-Class Activities of Study Hours	16	2	32
Assignments and Report Submission	1	13	13
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	--	--	--
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	73 Hours		
ECTS CREDIT OF THE COURSE	Total Workload 73/ 30 =2,4		2 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
Atatürk's Principles and History of Turkish Revolution II	SBB-122	I/II	2+0+0	2	2

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	History Instructor
Aim of the course	:	The aim of this course is to enable students to know about Ataturk's system of thought well, analyse this system, reveal differences and strengths by comparing other different ideologies, bring them up as knowledgeable, patriot and democratic young people by foreseeing and solving problems.
Learning Outcomes	:	Students who successfully complete this course will be able to , 1. describe a variety of actors and factors that determine the history. 2. analyse different roles these actors and factors play. 3. interpret concepts such as independence, freedom and national sovereignty. 4. evaluate process of formation of the Republic of Turkey that is a contemporary, democratic, secular and social law state. 5. evaluate historical meaning and importance of Turkish revolution in terms of Turkish nation
Content	:	While sophisticated information about recent history of Turkey is given in this course, foundation and existential philosophy of secular and democratic republic system is conveyed. Considering that Otoman Empire went out of existence and the Republic of Turkey was established, the future and problems of globalizing world are assessed through Ataturk's method and world-view. The meaning of concepts such as republic, democracy and secularism in terms of integrity of Turkey is illustrated from current affairs.

Course	History of Turkish Revolution from Empire to Nation State, Editor; Prof. dr. Cemil ÖZTÜRK, Pegem Academy Publications, 2017, İstanbul 
Other Sources	1. Nutuk, Mustafa Kemal ATATÜRK, Boyut Publications, 2006 2. History of Turkish Revolution, Yusuf Hikmet BAYUR, Ankara, 1983 3. Atatürk: Rebirth of a Nation, Lord Kinross, Istanbul, 1994 4. The Emergence of Modern Turkey, Bernard Lewis, Ankara, 1984 5. Vahidettin, Mustafa Kemal and the National Struggle, Turgut ÖZAKMAN, Bilgi Publishing House, Ankara, 1997 6. The Crazy Turks, Turgut ÖZAKMAN, Bilgi Publishing House, 2005 7. History of Turkish Revolution, (4 volumes, 6 books) Şerafettin TURAN, Bilgi Publishing House, 1999 8. History of Turkish Revolution, Toktamis ATES, Der Publications, Istanbul, 1999 9. Tek Adam, Şevket Süreyya AYDEMİR, Remzi Bookstore, 1965 10. Kurtuluş-Establishment, Bülent TANÖR, Republic Books, 2010
Assignments and Projects	
Computer Usage	
Other Applications	

Evaluation System

		Activities	Base Grade	Number	Contribution to Review, %	
		Mid term	50	1	24%	
Semester Evaluation		Quizes	--	--	%	16%
		Assigments	--	--	%	
		Projects	--	--	%	
		Term Paper/ Project	--	--	%	
		Laboratory Applications	--	--	%	
		Other Applications	--	1	%	
		Final Exam	50	1	60%	
		Make-up Exam	50	-	100%	
		Single Course / Extra Make-up Exam	50	-	100%	

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to stick to democratic, secular and social law state principles and have consciousness of duty in the direction of Atatürk's principle and reforms.					X
2	To be able to understand characteristics and goal of Turkish Revolution					X
3	To be able to understand historical meaning and importance of Turkish revolution.					X
4	To be able to recognise Ataturk's personality of soldier, statesman, revolutionary and leadership.					X
5	To be able to adopt Ataturkism and understand Ataturk's world-view and ideas.					X
6	To be able to recognize revolution movements of Ataturk's political, law, education, social and economical fields.					X
7	To be able to understand basic principles of Atatürk's period Turkish Foreign Policy.					X
8	To be able to understand situation of Turkey before World War II and the policy of Turkey which followed in WW II				X	
9	To be able to recognize basic principles of Turkish Revolution.					X
10	To be able to be conscious of occupational and ethical responsibility.			X		
11	To be able to recognize properties of national and international characteristics of Turkish revolution and make inferences about situation of Turkey.				X	

COURSE QUALIFICATIONS AND COURSE RELATIONS											
Level of Contribution		**1**		**2**		**3**		**4**		**5**	
		Very low		Low		Medium		High		Very high	
All Departments											
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**	**CR-9**	**CR-10**	**CR-11**
LC-1	3	5	5	3	3	2	3	3	5	5	4
LC-2	3	5	5	3	4	5	3	4	5	5	5
LC-3	3	2	3	2	5	3	4	5	5	5	5
LC-4	4	4	5	5	4	5	5	5	4	4	4
LC-5	4	5	5	4	4	3	3	3	5	4	5

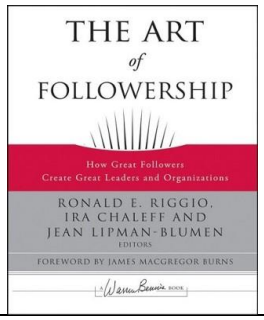
WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Characteristics and Goals of Turkish Revolution, Revolutions In Political Areas.	--
2	Trials to transition to a multi-party system	--
3	Revolution Movements in The Field of Law, Education and Culture.	--
4	Developments in The Field of Economics.	--
5	Basic Principles of Turkish Foreign Policy.	--
6	Turkish Foreign Policy in The Periods of 1923-1932	--
7	Turkish Foreign Policy in The Periods of 1932-1939	--
8	**MID-TERM**	--
9	**MID-TERM**	
10	The Definition and Importance of Ataturkism	--
11	Ataturk and His State Life	--
12	Ataturk and Establishing Foundation, Ataturk and Governing State.	--
13	Ataturk and His Ideas: Rationalism, Ataturk and His Ideas: Science and Technology.	--
14	Ataturk and Woman Rights, Ataturk and Youth	--
15	World War II and Turkey	--
16	**FINAL EXAM**	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Out-of-Class Activities of Study Hours	16	2	32
Assignments and Report Submission	--	--	--
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	1	13	13
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	73 Hours		
ECTS CREDIT OF THE COURSE	Total Workload / 30 = 73 / 30 = 2,4		2 Credits

TURKISH NAVAL ACADEMY
DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
INTRODUCTION TO BEHAVIOURAL SCIENCES AND MILITARY LEADERSHIP	SBB-123	1/II	2+0+0	2	3

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	Social Science Instructor
Aim of the course	:	The aim of the course is to teach cadets basic principles of necessary management knowledge, skill and techniques so that we provide cadets who will participate in a variety of ranks and departments in the Turkish Navy Forces to be a successful commander, manager and leader.
Learning Outcomes	:	Students who successfully complete this course will be able to , 1- understand the basic concepts about management and organization. 2- have knowledge about management types, assignments and characteristics of managers, foundations of decision making and planning 3- have knowledge about types of organizations, vertical and horizontal organizations, superior-subordinate relationships 4- have knowledge about the components of human resource management and group management 5- have knowledge about necessary actions for managing information, managing communication and controlling an organization
Content	:	1.Management science and theoretical development of organizational behaviour area 2.Perception, attitude, emotions. 3.Individual differences , personality and values. 4.Motivation, stress and stress management 5.Leadership 6.Communication and social culture 7.Strength and policy in organizations 8.Dark side of organizational behaviour 9.Research methods in organizational behaviour

Course	Editor: KIREL, A. Çiğdem and SUNGUR, Zerrin. Behavioral Sciences I Anadolu Uni. Publishing 
Other Sources	The Art of Followership, Ronald E.Rıggıo J-B Warren Bennise Yay, 2008 
Assignments and Projects	
Computer Usage	
Other Applications	

Evaluation System

Activities		**Base Grade**	**Number**	**Contribution to Review, %**	
Mid term		50	1	24%	
Semester Evaluation	Quizes	--	--	%	16%
	Assigments	--	--	%	
	Projects	--	--	%	
	Term Paper/ Project	--	--	%	
	Laboratory Applications	--	--	%	
	Other Applications	--	1	%	
Final Exam		50	1	60%	
Make-up Exam		50	-	100%	
Single Course / Extra Make-up Exam		50	-	100%	

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to stick to democratic, secular and social law state principles and have consciousness of duty in the direction of Atatürk's principle and reforms.					X
2	To be able to use Turkish in oral and written environment effectively.			X		
3	To be able to determine purpose and aims for their institution where they work and manage activities towards progress of employees.					X
4	To be able to work independently by using information and skills they acquire in the field of business and management sciences.			X		
5	To be able to evaluate critically by using information and skills they acquire in the field of business and management sciences, determining their learning requirements and leading their own learning.			X		
6	To be able to inform related person and institutions with consciousness of social responsibility in the field of business and management sciences; share their ideas and solution suggestions concerning problems in a written and oral way.				X	
7	To be able to access to information, do literature review and use data base and other information sources.			X		
8	To be able to examine concepts and ideas in the fields of business and management sciences with scientific methods, interpret and assess the data.				X	
9	To be able to work individually or as member of a team.					X
10	To be able to be conscious of occupational and ethical responsibility.					X
11	To be able to understand importance of life long learning and improve themselves by following developments in scientific areas.				X	

COURSE QUALIFICATIONS AND COURSE RELATIONS											
Level of Contribution		**1**		**2**		**3**		**4**		**5**	
		Very low		Low		Medium		High		Very high	
All Departments											
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**	**CR-9**	**CR-10**	**CR-11**
LC-1	3	5	5	3	3	2	3	3	5	5	4
LC-2	3	5	5	3	4	5	3	4	5	5	5
LC-3	3	2	3	2	5	3	4	5	5	5	5
LC-4	4	4	5	5	4	5	5	5	4	4	4
LC-5	4	5	5	4	4	3	3	3	5	4	5

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	General Concepts	--
2	Management Science and Theoretical Development of Organizational Behaviour Area	--
3	Perception, Attitude, Emotions.	--
4	Individual Differences , Personality and Values.	--
5	Motivation	--
6	Stress and Stress Management	--
7	Leadership	--
8	**MID TERM**	--
9	**MID TERM**	--
10	Communication and Social Culture	--
11	Strength in Organizations	--
12	Strength in Organizations	--
13	Policy in Organizations	--
14	Dark Side of Organizational Behaviour	--
15	Research Methods in Organizational Behaviour	--
16	**FINAL EXAM**	

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Out-of-Class Activities of Study Hours	15	2	30
Assignments and Report Submission	1	20	20
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	--	--	--
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	78 Hours		
ECTS CREDIT OF THE COURSE	Total Workload / 30 = 78/ 30 = 2,6		3 Credits

TURKISH NAVAL ACADEMY
DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
INTRODUCTION TO LAW AND DEFENCE LEGISLATION	SBB-211	2/I	2+0+0	2	2

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	Law Instructor
Aim of the course	:	The aim of the course is to teach cadets basic law concepts and military legislation information so that we provide cadets who will participate in a variety of ranks and departments in the Turkish Navy Forces to be a successful commander, manager and leader.
Learning Outcomes	:	Students who successfully complete this course will be able to , 1. know the basic concepts of civil war 2. recognize sub sections of civil law and make necessary interpretations. 3.explain basic principles of law of persons, differentiate natural persons and legal people. 4. explain the concept of personal rights and know the defence methods to be used in assaults on personal rights. 5. know the difference between the capacity to have rights and capacity to act. Knows how to limite persons by these capacities. understand Hierarchy of Norms 6. Recognize Constitution, Penal and Administrative law's principles.
Content	:	Examining basic legislation regarding basic concepts of law and defence and security.

<table>
<tr><td>Course</td><td colspan="6">INTRODUCTION TO LAW AND DEFENCE LEGISLATION</td></tr>
<tr><td>Other Sources</td><td colspan="6">1. The Law No. 211 Turkish Armed Forces Internal Service Law
2. The Law No . 4566 Turkish Military Academy Law
3. The Law No. 6413 Turkish Armed Forces Discipline Law</td></tr>
<tr><td>Assignments and Projects</td><td colspan="6"></td></tr>
<tr><td>Computer Usage</td><td colspan="6"></td></tr>
<tr><td>Other Applications</td><td colspan="6"></td></tr>
<tr><td rowspan="11">Evaluation System</td><td colspan="2">Activities</td><td>Base Grade</td><td>Number</td><td colspan="2">Contribution to Review, %</td></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Assigments</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>-</td><td>-</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>

NU.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to stick to democratic, secular and social law state principles and have consciousness of duty in the direction of Atatürk's principle and reforms.					X
2	To be able to use Turkish in oral and written environment effectively.					X
3	To be able to determine purpose and aims for their institution where they work and manage activities towards progress of employees.					X
4	To be able to work independently by using information and skills they acquire in the field of business and management sciences					X
5	To be able to define communication problems, analyse and deliver solutions.				X	
6	To be able to examine, interpret, evaluate the basic law texts at a minimum.				X	
7	To be able to use the knowledge in the law and other close social science fields which is learnt, related to law's basic concepts law methodologies and basic law problems					X
8	To be able to gain skills which will provide them to meet and use basic knowledge in legal service field.				X	
9	To be able to have knowledge about basic problems faced in the law practice.					X
10	To be able to have knowledge about security legislation.				X	
11	To be able to convey their thoughts in the level of basic knowledge and skills about law's basic concepts and problems in a written and oral way.					X

COURSE QUALIFICATIONS AND COURSE RELATIONS											
Level of Contribution		**1**		**2**		**3**		**4**		**5**	
		Very low		Low		Medium		High		Very high	
All Departments											
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**	**CR-9**	**CR-10**	**CR-11**
LC-1	1	5	5	4	5	4	3	4	5	4	5
LC-2	1	5	5	4	5	4	3	5	5	4	5
LC-3	1	5	5	5	4	5	3	4	5	4	5
LC-4	1	5	5	5	4	5	3	5	5	4	5
LC-5	1	5	5	5	4	4	3	5	5	4	5

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	The Importance of Rules: What is Law? What is Right? What is Justice?	--
2	The Information Source of Law : Legislation, Judicial Decisions, Scientific Works.	--
3	The Hierarchy of Norms	--
4	The Parts of Law: Difference between Private and Public Law	--
5	Law Systems	--
6	Judical Organizations and The Organization of Turkish Judgement	--
7	Constitutional Law- Administrative Law- Penal Law	--
8	**MID-TERM**	--
9	**MID-TERM**	--
10	Basic International Law Knowledge	--
11	Basic International Law Knowledge	--
12	Internal Service Code in The Context of Concepts in Turkish Armed Forces	--
13	Military Offence and Military Panel Code	--
14	Basic Naval Law Knowledge	--
15	Basic Naval Law Knowledge	--
16	**FINAL EXAM**	

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Guided Problem Solving	15	2	30
Assignments and Report Submission	1	10	10
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	--	--	--
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	68 Hours		
ECTS CREDIT OF THE COURSE	Total Workload / 30 = 68/ 30 = 2,3		2 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
TURKISH WAR PHILOSOPHY AND STRATEGIC CULTURE	SBB-212	2/I	2+0+0	2	3

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	History Instructor
Aim of the course	:	The aim of the course is to gain cadets soldier-nation mentality developed with army mentality and military tradition as well as foundation of Turkish states and state culture throughout the history so that we provide cadets who will participate in a variety of ranks and departments in the Turkish Navy Forces to be a successful commander, manager and leader.
Learning Outcomes	:	Students who successfully complete this course will be able to , 1. describe a variety of actors and factors that determine the history. 2. analyse different roles these actors and factors play. 3. define the military and state tradition of Turkish people. 4. analyse the relationship between Turkish weapon and battle culture and Turkish tactic and strategic culture.
Content	:	Inforation on strategic culture which consists in the light of accumulation Turkish people obtained from the past to nowadays is given in this course.

<table>
<tr><td>Course</td><td colspan="6">Instructor’s Notes about Course</td></tr>
<tr><td>Other Sources</td><td colspan="6"></td></tr>
<tr><td>Assignments and Projects</td><td colspan="6"></td></tr>
<tr><td>Computer Usage</td><td colspan="6"></td></tr>
<tr><td>Other Applications</td><td colspan="6"></td></tr>
<tr><td rowspan="11">Evaluation System</td><td colspan="2">Activities</td><td>Base Grade</td><td>Number</td><td colspan="2">Contribution to Review, %</td></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Assigments</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>-</td><td>-</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to stick to democratic, secular and social law state principles and have consciousness of duty in the direction of Atatürk's principle and reforms.					X
2	To be able to express Turkish weapon and war culture effectively.					X
3	To be able to analyse military activities of Turkish people in the historical process.					X
4	To be able to convey given instructions and directions clearly in implementing manager duties so that the subordinates are conducted.					X
5	To be able to define the comunication problems, analyse and deliver solutions				X	
6	To be able to recognize Ataturk's military genius, war tactics and strategic ways					X
7	To be able to acquire awareness of speaking in the face of public and putting into practice.			X		
8	To be able to gain and carry out consciousness of cultural awareness and empathy					X
9	To be able to work individually or as member of a team.					X
10	To be able to be conscious of occupational and ethical responsibility.				X	
11	To be able to understand importance of life long learning and improve themselves by following developments in scientific areas.					X

COURSE QUALIFICATIONS AND COURSE RELATIONS											
Level of Contribution		**1**		**2**		**3**		**4**		**5**	
		Very low		Low		Medium		High		Very high	
All Departments											
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**	**CR-9**	**CR-10**	**CR-11**
LC-1	1	5	5	4	5	4	3	4	5	4	5
LC-2	1	5	5	4	5	4	3	5	5	4	5
LC-3	1	5	5	5	4	5	3	4	5	4	5
LC-4	1	5	5	5	4	5	3	5	5	4	5
LC-5	1	5	5	5	4	4	3	5	5	4	5

WEEKLY TOPICS		
week	**TOPICS**	
	Theoritical	**Laboratory**
1	Introducing and Concepts	--
2	Occupational Culture in Turkish Army	--
3	Culture of Holy War and Conquest Politics in Turkish States	--
4	Organization Culture	--
5	Organization Culture	--
6	Decision Processes in Turkish Culture	--
7	From Tent to Headquarter, Military Camp and Spirituality	--
8	**MID-TERM**	--
9	**MID-TERM**	
10	From Tent to Headquarter, Military Camp and Spirituality	--
11	Army-Nation/Soldier-Nation Mentality	--
12	Training, Readiness for War and Military Gaming	--
13	Effect of Literal Culture on Military Culture	--
14	Turkish Weapon and War Culture	--
15	Turkish Tactic and Strategic Culture	--
16	**FINAL EXAM**	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Guided Problem Solving	15	2	30
Assignments and Report Submission	1	20	20
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	--	--	--
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	78 Hours		
ECTS CREDIT OF THE COURSE	Total Workload / 30 = 78/ 30 = 2,6		3 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
MILITARY HISTORY	SBB-213	2/I	3+0+0	3	4

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	Military History Instructor
Aim of the course	:	The aim of the course is to enable cadets to understand Turkish naval history in all its parts by providing them to have knowledge about concepts and theories regarding military history and martial art, tactics and strategy.
Learning Outcomes	:	Students who successfully complete this course will be able to , 1. describe a variety of actors and factors that determine the history. 2. analyse different roles these actors and factors play. 3. interpret concepts such as independence, freedom and national sovereignty. 4. have knowledge and evaluate about historical development of Turkish naval and naval force throughout historical process. 5. examine and interpret war principles and operational principles with the aspect of naval operation.
Content	:	While concepts and theories regarding military history and topics about recent history of Turkey are mentioned in this course , information with regard to Turkish naval history and world naval history is given. The process starting from the period of Anatolian principalities gives information about Ottoman Empire, history of the Republic of Turkey and recent naval history.

<table>
<tr><td>Course</td><td colspan="6">Instructor’s Notes About Course</td></tr>
<tr><td>Other Sources</td><td colspan="6">Military History, Land, Naval and Air Force 1792-1918, Editor; Gültekin YILDIZ, Timaş Publishing House, Istanbul, 2013 2. Researching the Ottoman Military History: New Sources New Approaches, Compilers Cevat Şayin, Gültekin YILDIZ, History Foundation Yurt Yayınları, Istanbul, 2012 3. The Ottomans and the Sea: The Organization of the Sea Organization Gemiler Idris BOSTAN, Küre Publications, Istanbul, 2007</td></tr>
<tr><td>Assignments and Projects</td><td colspan="6"></td></tr>
<tr><td>Computer Usage</td><td colspan="6"></td></tr>
<tr><td>Other Applications</td><td colspan="6"></td></tr>
<tr><td rowspan="11">Evaluation System</td><td colspan="2">Activities</td><td>Base Grade</td><td>Number</td><td colspan="2">Contribution to Review, %</td></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>--</td><td>--</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Assigments</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Projects</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Other Applications</td><td>--</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>

NU.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to stick to democratic, secular and social law state principles and have consciousness of duty in the direction of Atatürk's principle and reforms,					X
2	To be able to understand historical development of Turkish naval in all its parts.				X	
3	To be able to examine and analyse war principles and operational principles with the aspect of naval operation.					X
4	To be able to recognise naval wars which happened in Turkish and world history, strategical tactics which were followed in these wars.					X
5	To able to have knowledge about martial art, tactics and strategy.			X		
6	To be able to understand final stage, development and results related to entering the First World War of Ottoman Empire.				X	
7	To be able to understand Turkish-Greek relations and historical development, the history of the Aegean Sea and islands, problems and politics on The Aegean islands.					X
8	To be able to analyse success and failure of military strategies which were carried out in important naval wars which happened in the world.				X	
9	To be able to understand strategy and policy in the sea of Otoman Empire.					X
10	To be able to be conscious of occupational and ethical responsibility			X		
11	To be able to have knowledge and evaluate about historical development of Turkish naval and naval force throughout historical process.				X	

COURSE QUALIFICATIONS AND COURSE RELATIONS

Level of Contribution	1	2	3	4	5
	Very low	Low	Medium	High	Very high

All Departments

	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR-10	CR-11
LC-1	1	5	5	4	5	4	3	4	5	4	5
LC-2	1	5	5	4	5	4	3	5	5	4	5
LC-3	1	5	5	5	4	5	3	4	5	4	5
LC-4	1	5	5	5	4	5	3	5	5	4	5
LC-5	1	5	5	5	4	4	3	5	5	4	5
LC-6	1	5	5	5	4	5	3	4	5	4	5

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Examining War Principles and Operational Principles with the Aspect of Naval Operation.	Lecture note, presentation
2	Examining War Principles and Operational Principles with the Aspect of Naval Operation.	Lecture note, presentation
3	The Historical Development of Turkish Naval (Until the Period of Anatolian Turkish Principalities)	Lecture note, presentation
4	The Historical Development of Turkish Naval (Until the Period of the Establisment and Rise of Ottoman Empire	Lecture note, presentation
5	The Historical Development of Turkish Naval (The Period of the Second Bayezid,Yavuz Sultan Selim)	Lecture note, presentation
6	The Historical Development of Turkish Naval (The Period of Suleyman the Magnificent) –The Period of Regression of Ottoman Empire)	Lecture note, presentation
7	The Importance of Balkan War in terms of Military History	Lecture note, presentation
8	**MID-TERM**	Lecture note, presentation
9	**MID-TERM**	Lecture note, presentation
10	Balkan War Naval Operation, The First World War and Aftermath of the Wars	Lecture note, presentation
11	Historical Development and Turkish-Greek Relations	Lecture note, presentation
12	The History of the Aegean Sea and Islands, Problems and Politics on The Aegean Islands.	Lecture note, presentation
13	The Treaties which Determined the Status of the Aegean Islands	Lecture note, presentation
14	Important Naval Wars which Happened in the World.	Lecture note, presentation
15	Leyte Operation, Falkland Naval War	Lecture note, presentation
16	**FINAL EXAM**	Lecture note, presentation

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	3	39
General Laboratory Practice	--	--	--
Guided Problem Solving	16	3	48
Assignments and Report Submission	1	20	20
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	1	13	13
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	122 Hours		
ECTS CREDIT OF THE COURSE	Total Workload 122/ 30 = 4,06		4 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
GEOPOLITICS OF TURKEY	SBB-221	2/II	2+0+0	2	3

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	History Instructor
Aim of the course	:	The aim of the course is to teach cadets institutional information about geopolitics and regional and international location of Turkey so that we provide cadets who will participate in a variety of ranks and departments in the Turkish Navy Forces to be a successful commander, manager and leader.
Learning Outcomes	:	Students who successfully complete this course will be able to , 1. understand the importance of geoplitics in military strategy. 2. learn geopolitic theories. 3. experience the importance of geopolitics as a method of analysis in the process of making political decisions. 4. evaluate international location of Turkey and its policy in the region in terms of concepts and theories regarding geopolitics.
Content	:	Being taught the effect on international relationships of the meaning, content of geopolitics and different geopolitical approaches in specific to Turkey.

Course	Basic Geopolitical Texts and Instructor's Notes About Course
Other Sources	1. Van Houtum, Henk. "The geopolitics of borders and boundaries." Geopolitics 10.4 (2005): 672-679. 2. Dittmer, Jason, and Klaus Dodds. "Popular geopolitics past and future: Fandom, identities and audiences." Geopolitics 13.3 (2008): 437-457. 3. Hyndman, Jennifer. "The geopolitics of migration and mobility." Geopolitics 17.2 (2012): 243-255.
Assignments and Projects	
Computer Usage	
Other Applications	

Evaluation System

Activities		**Base Grade**	**Number**	**Contribution to Review, %**	
Mid term		50	1	24%	
Semester Evaluation	Quizes	50	1	%	16%
	Assigments	50	1	%	
	Projects	50	1	%	
	Term Paper/ Project	50	1	%	
	Laboratory Applications	-	-	%	
	Other Applications	50	1	%	
Final Exam		50	1	60%	
Make-up Exam		50	-	100%	
Single Course / Extra Make-up Exam		50	-	100%	

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to stick to democratic, secular and social law state principles and have consciousness of duty in the direction of Atatürk's principle and reforms.					X
2	To be able to use Turkish in oral and written environment effectively.			X		
3	To be able to carry out verbal and non-verbal communication skills effectively when they contact in house and external institution					X
4	To be able to convey given instructions and directions clearly in implementing manager duties so that the subordinates are conducted.				X	
5	To be able to define the comunication problems, analyse and deliver solutions				X	
6	To be able to acquire awareness of speaking in the face of public and put into practice.				X	
7	To be able to access to information, do literature review and use data base and other information sources			X		
8	To be able to gain and carry out consciousness of cultural awareness and empathy					X
9	To be able to understand geopolitical theories.					X
10	To be able to understand geography and policy relationships.					X
11	To be able to examine international location and regional policy of Turkey.					X

COURSE QUALIFICATIONS AND COURSE RELATIONS											
Level of Contribution		1		2		3		4		5	
		Very low		Low		Medium		High		Very high	
All Departments											
	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR-10	CR-11
LC-1	1	5	5	4	5	4	3	4	5	4	5
LC-2	1	5	5	4	5	4	3	5	5	4	5
LC-3	1	5	5	5	4	5	3	4	5	4	5
LC-4	1	5	5	5	4	5	3	5	5	4	5
LC-5	1	5	5	5	4	4	3	5	5	4	5

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	General Orientation and Introduction	--
2	Conceptual Framework and Definitions	--
3	Strategy, Geostrategy, Geopolitics	--
4	Geography Foreign Policy Relationship	--
5	Geopolitical Theories and Power Elements	--
6	Classical Geopolitics	--
7	Critical Geopolitics	--
8	**MID-TERM**	--
9	**MID-TERM**	--
10	Regional Geopolitical Analyses	--
11	Regional Geopolitical Analyses	--
12	Location of Turkey in Geopolitical Theories and Turkey in World Geopolitics	--
13	International Location of Turkey	--
14	Geopolitical Power Sources of Turkey	--
15	Reflection on Turkey's Geopolitics of Developments in Post-cold War	--
16	**FINAL EXAM**	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Guided Problem Solving	16	2	32
Assignments and Report Submission	--	--	--
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	1	15	15
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	75 Hours		
ECTS CREDIT OF THE COURSE	Total Workload 75/ 30 =2,5		3 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
THE HISTORY OF TURKISH NAVAL ORGANIZATION	SBB-222	2/II	2+0+0	2	3

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	History Instructor
Aim of the course	:	The aim of the course is to provide cadets to have knowledge about the historical development of Turkish naval organization and understand basic terminology in naval history.
Learning Outcomes	:	Students who successfully complete this course will be able to , 1. describe a variety of actors and factors that determine the history. 2. analyse different roles these actors and factors play. 3. have comprehensive knowledge of basic terminology regarding naval history. 4. have knowledge about historical development of Turkish naval and naval force , evaluate deveopment and change throughout historical process.
Content	:	In this course, being taught main sources about organization of Turkish navy; establishment and expansion of Turkish navy; Great Turkish Fleet Admiral: Barbaros Hayreddin Pahsa, the navy of Mehmet the Conqueror, Sultan Selim the Stern and Suleyman the Magnificent period; Ottoman shipyard, the opening of Imperial School of Naval Engineering; international experts in Ottoman navy are come up.

Course	İsmail Hakkı Uzunçarşılı, Ottoman Center and Naval Organization, Ankara 1984 Instructor's Notes about Course
Other Sources	1-) Idris Bostan, Ottoman Navy Organization, Ankara 1992. 2-) Halil Inalcik, Rising Sailor in Western Anatolia Gazi Beylikler, Ankara 2002.
Assignments and Projects	
Computer Usage	
Other Applications	

Evaluation System

	Activities	**Base Grade**	**Number**	**Contribution to Review, %**	
	Mid term	50	1	24%	
Semester Evaluation	Quizes	-	-	%	16%
	Assigments	-	-	%	
	Projects	-	-	%	
	Term Paper/ Project	-	-	%	
	Laboratory Applications	-	-	%	
	Other Applications	-	1	%	
	Final Exam	50	1	60%	
	Make-up Exam	50	-	100%	
	Single Course / Extra Make-up Exam	50	-	100%	

NU.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to stick to democratic, secular and social law state principles and have consciousness of duty in the direction of Atatürk's principle and reforms,					X
2	To be able to understand historical development of Turkish naval in all its parts.				X	
3	To be able to examine and analyse war principles and operational principles with the aspect of naval operation.					X
4	To be able to recognise naval wars which happened in Turkish and world history, strategical tactics which were followed in these wars.					X
5	To be able to have knowledge about martial art, tactics and strategy.			X		
6	To be able to understand final stage, development and results related to entering the First World War of Ottoman Empire.				X	
7	To be able to understand Turkish-Greek relations and historical development, the history of the Aegean Sea and islands, problems and politics on The Aegean islands.					X
8	To be able to analyse success and failure of military strategies which were carried out in important naval wars which happened in the world.				X	
9	To be able to understand strategy and policy in the sea of Ottoman Empire.					X
10	To be able to be conscious of occupational and ethical responsibility			X		
11	To be able to have knowledge and evaluate about historical development of Turkish naval and naval force throughout historical process.				X	

COURSE QUALIFICATIONS AND COURSE RELATIONS

Level of Contribution	1	2	3	4	5
	Very low	Low	Medium	High	Very high

All Departments

	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR-10	CR-11
LC-1	1	5	5	4	5	4	3	4	5	4	5
LC-2	1	5	5	4	5	4	3	5	5	4	5
LC-3	1	5	5	5	4	5	3	4	5	4	5
LC-4	1	5	5	5	4	5	3	5	5	4	5

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Bibliography with regard to Ottoman Naval Organization	--
2	The Starting of Turkish Naval and Chaka Bey	--
3	Seljukians and Naval in Anatolian Principalities	--
4	The Period of Sea Principalities	--
5	The First Ottoman Sultans and Naval Activities	--
6	Chief Admiral / The Period of Captain Admirals	--
7	The Rise of Ottoman Empire / Ottoman Naval	--
8	**MID TERM**	--
9	**MID TERM**	
10	Seventeenth and Eighteenth Century Ottoman Naval	--
11	The Period of Navy Ministry	--
12	Ottoman Shipyards	--
13	Ottoman Ship Types	--
14	The Period of Naval Representation (The Period of Turkish Republic Turkish Naval)	--
15	The Period of Undersecretary for Maritime Affairs (The Period of Turkish Republic Turkish Naval)	--
16	**FINAL EXAM**	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	15	2	30
General Laboratory Practice	-	-	-
Out-of-Class Activities of Study Hours	16	2	32
Assignments and Report Submission	-	-	-
Term project	-	-	-
Project Presentation	-	-	-
Quiz	-	-	-
Midterm Exam	1	1	1
Individual Study for Midterm Exam	1	13	13
Final Exam	1	1	1
Individual Study for Final Exam	-	-	-
TOTAL WORKLOAD	77 Hours		
ECTS CREDIT OF THE COURSE	Total Workload 77/ 30 =2,5		3 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
CONTEMPORARY WORLD AND TURKISH HISTORY	SBB-311	3/I	3+0+0	3	4

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	History Instructor
Aim of the course	:	The aim of the course is to understand political, military, financial and cultural changes and transformations and effects of these so that we provide cadets who will participate in a variety of ranks and departments in the Turkish Navy Forces to be a successful commander, manager and leader.
Learning Outcomes	:	Students who successfully complete this course will be able to , 1. comprehend the structure, working processes and phases of international system; behaviours and interactions of states, international organizations and nonstate actors within the scope of History of Contemporary World 2. provide them to be learnt historical-hypothesis information related to politics history of Turkey. 3. comprehend military, political, and cultural developments which affected the world in the 19th and 20th century.19.
Content	:	Military, political and cultural developments which affected the world in the 19th and 20th century will be dealt with. Then, in the course which will be dwelt on developments which is clarified and evoked in the process of formation of 20th century Turkish world –especially expansionist Russian policies etc. –, the topics which are detailed in lesson plan such as independent Turkish Republics and other Turkish societies will be evaluated one by one on the basis of independent countries and Turkish societies.

<table>
<tr><td>Course</td><td colspan="6">Instructor’s Notes about Course</td></tr>
<tr><td>Other Sources</td><td colspan="6">ARMAOĞLU, Fahir, Political History of the 19th Century N.Devlet.Cağdaş Turkish World, Istanbul, 1989.
V.Barthold.Middle Asian Turkish history.Istanbul, 2011
SARAY, Mehmet, Ataturk and the Turkish World, Turkish Historical Society Publications, Ankara 1995.
GÖMEÇ, Saadettin, History of Turkic Republics and Communities, Akçağ Publications, Ankara 2006.
GÖMEÇ, did Felicity, "An Evaluation on Turkey regarding Turkish Republics Relations", International Journal of Social Research (Fall 2007), C. 1, p 1, p. 114-130</td></tr>
<tr><td>Assignments and Projects</td><td colspan="6"></td></tr>
<tr><td>Computer Usage</td><td colspan="6"></td></tr>
<tr><td>Other Applications</td><td colspan="6"></td></tr>
<tr><td rowspan="11">Evaluation System</td><td colspan="2">Activities</td><td>Base Grade</td><td>Number</td><td colspan="2">Contribution to Review, %</td></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Assigments</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>-</td><td>-</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to stick to democratic, secular and social law state principles and have consciousness of duty in the direction of Atatürk's principle and reforms,					X
2	To be able to enable them to have ability to associate historical education with actual, local, regional and global issues.				X	
3	To be able to enable them to equip with necessary institutional and applied information and upskill to use these so that cadets can study in the academic field.					X
4	To be able to convey given instructions and directions clearly in implementing manager duties so that the subordinates are conducted.					X
5	To be able to provide them to have ability of analytical thinking, critical perspective, study in an interdisciplinary way, connect with events, versatile thinking, interpretation, inference for a successful, political and historical education of students.				X	
6	To be able to acquire awareness of speaking in the face of public and put into practice.				X	
7	To be able to access to information, do literature review and use data base and other information sources			X		
8	To be able to gain and carry out consciousness of cultural awareness and empathy					X
9	To be able to work individually or as member of a team.					X
10	To be able to be conscious of occupational and ethical responsibility.				X	
11	To be able to understand importance of life long learning and improve themselves by following developments in scientific areas.					X

COURSE QUALIFICATIONS AND COURSE RELATIONS

Level of Contribution	1	2	3	4	5
	Very low	Low	Medium	High	Very high

All Departments

	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR-10	CR-11
LC-1	1	5	5	4	5	4	3	4	5	4	5
LC-2	1	5	5	4	5	4	3	5	5	4	5
LC-3	1	5	5	5	4	5	3	4	5	4	5

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Europe and World in the Early Part of Eighteenth Century	--
2	French Revolution and Effects on World	--
3	Industrial Revolution	--
4	World in the Early Part of Nineteenth Century	--
5	The World Order and The First World War in the Early Part of Twentieth Century	--
6	Europe and World Inter-war Period	--
7	Ataturk's Period Turkish Foreign Policy	--
8	**MID-TERM**	--
9	**MID-TERM**	--
10	The Second World War	--
11	The Second World War	--
12	Cold War Period	--
13	Detente Period and Afterwards	--
14	Globalizing World	--
15	Changing World and Turkish Foreign Policy	
16	**FINAL EXAM**	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Out-of-Class Activities of Study Hours	15	3	45
Assignments and Report Submission	1	30	30
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	1	13	13
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	116 Hours		
ECTS CREDIT OF THE COURSE	Total Workload /30 = 116/ 30 = 3,8		4 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
International Relations Instructor	SBB-312	3/I	2+0+0	2	3

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	International Relations Instructor
Aim of the course	:	The aim of the course is to teach students the concepts which belongs to International Relations discipline for the purpose of being excellent commander, manager and leader in the Turkish Naval Forces
Learning Outcomes	:	Students who successfully complete this course will be able to; 1. have theoric knowledge about World politics and globalization 2. have knowledge about the history of international system, phases, system's political economical, and judicial structure and working process 3. have background knowledge about analyzing of foreign policy with the international location of Turkey
Content	:	This course contains some of the most important concepts of the field such as political systems, political processes, diplomatic history, Cold War and so on..

<table>
<tr><td>Course</td><td colspan="6">Course’s Instructor Notes</td></tr>
<tr><td>Other Sources</td><td colspan="6">

Waltz, Kenneth Neal. Man, the state, and war: A theoretical analysis. Columbia University Press, 2001.
Diamond, Jared M. Guns, germs and steel: a short history of everybody for the last 13,000 years. Random House, 1998.
Mearsheimer, John J. The tragedy of great power politics. WW Norton & Company, 2001.
Anderson, Benedict. Imagined communities: Reflections on the origin and spread of nationalism. Verso Books, 2006.
Schelling, Thomas C. "Arms and influence." Strategic Studies. Routledge, 2008. 96-114.

</td></tr>
<tr><td>Assignments and Projects</td><td colspan="6">-</td></tr>
<tr><td>Computer Usage</td><td colspan="6">-</td></tr>
<tr><td>Other Applications</td><td colspan="6">-</td></tr>
<tr><td rowspan="11">Evaluation System</td><td colspan="2">Activities</td><td>Base Grade</td><td>Number</td><td colspan="2">Contribution to Review, %</td></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Yarıyıl Değerlendirme</td><td>Quizes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Assigments</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>-</td><td>-</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>

NU.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	In the direction of Atatürk's principle and reforms, sticking to democratic, secular and social law state principles.					X
2	To be able to Use Turkish in oral and written environment effectively.					X
3	To be able to carry out verbal and non-verbal communication skills effectively when they contact in house and external institution					X
4	To be able to convey given instructions and directions clearly in implementing manager duties so that the subordinates are conducted.					X
5	To be able to define the comunication problems, analyse and deliver solutions				X	
6	To be able to acquire awareness of speaking in the face of public and put into practice.				X	
7	To be able to access to information, do literature review and be use data base and other information sources			X		
8	To be able to make sense of basic concepts of international, regional and global contexts.					X
9	To be able to Evaluate and comprehend the theories and approaches of international relations with critical and interdisciplinary perspective.					X
10	To be able to identify the key actors in international relations including states, intergovernmental organizations, non-governmental organizations, transnational corporations, global civil society, illegitimate groups and individuals and understand how these actors interact to give substance to international relations.				X	
11	To be able to explain the historical and cultural dynamics which necessitate studies of international relations in theorical context					X

COURSE QUALIFICATIONS AND COURSE RELATIONS

Level of Contribution	1	2	3	4	5
	Very low	Low	Medium	High	Very high

All Departments

	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR-10	CR-11
LC-1	1	5	5	4	5	4	3	4	5	4	5
LC-2	1	5	5	4	5	4	3	5	5	4	5
LC-3	1	5	5	5	4	5	3	4	5	4	5
LC-4	1	5	5	5	4	5	3	5	5	4	5
LC-5	1	5	5	5	4	4	3	5	5	4	5

WEEKLY TOPICS		
week	**TOPICS**	
	Theoritical	**Laboratory**
1	General Adaptation and Introduction	--
2	Basic Approaches and Perspectives	--
3	The Theories of International Relations	--
4	The theories of International Relations	--
5	International Organizations and Supra-national Integration	--
6	Political History	--
7	The Development of Modern States: War and Peace	--
8	**MID-TERM**	--
9	**MID-TERM**	--
10	The Modern International System and International Law	--
11	International Politics and Analysis of Foreign Policy and Diplomacy	--
12	Global and Regional Issues	--
13	Globalization, Nationalizm and Minorities	--
14	Cold War and Afterwards World Politics	--
15	The Images of Global Future	--
16	**FINAL EXAM**	

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Guided Problem Solving	16	2	32
Assignments and Report Submission	--	--	--
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	1	15	15
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	75 Hours		
ECTS CREDIT OF THE COURSE	Total Workload 75/ 30 =2,5		3 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
THE HISTORY OF NAVAL WAR	SBB-321	3/II	2+0+0	3	4

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	Military History Instructor
Aim of the course	:	The aim of the course is to enable cadets to understand Turkish naval history in all its parts by providing them to have knowledge about concepts and theories regarding military history and martial art, tactics and strategy.
Learning Outcomes	:	Students who successfully complete this course will be able to ; 1. describe a variety of actors and factors that determine the history. 2. analyse different roles these actors and factors play. 3. interpret concepts such as independence, freedom and national sovereignty. 4. have knowledge and evaluate about historical development of Turkish naval and naval force throughout historical process. 5. examine and interpret war principles and operational principles with the aspect of naval operation.
Content	:	While concepts and theories regarding military history and topics about recent history of Turkey are mentioned in this course , information with regard to Turkish naval history and world naval history is given. The process starting from the period of Anatolian principalities gives information about Ottoman Empire, history of the Republic of Turkey and recent naval history.

<table>
<tr><td>Course</td><td colspan="6">Instructor’s Notes about Course</td></tr>
<tr><td>Other Sources</td><td colspan="6">1-)Military History, Land, Naval and Air Force 1792-1918, Editor; Gültekin YILDIZ, Timaş Publishing House, Istanbul, 2013
2-) Researching the Ottoman Military History: New Sources New Approaches, Compilers Cevat Şayin, Gültekin YILDIZ, History Foundation Yurt Yayınları, Istanbul, 2012
3-) The Ottomans and the Sea: The Organization of the Sea Organization Gemiler Idris BOSTAN, Küre Publications, Istanbul, 2007</td></tr>
<tr><td>Assignments and Projects</td><td colspan="6"></td></tr>
<tr><td>Computer Usage</td><td colspan="6"></td></tr>
<tr><td>Other Applications</td><td colspan="6"></td></tr>
<tr><td rowspan="11">Evaluation System</td><td colspan="2">Activities</td><td>Base Grade</td><td>Number</td><td colspan="2">Contribution to Review, %</td></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>--</td><td>--</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Assigments</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Projects</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Other Applications</td><td>--</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>

NU.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to stick to democratic, secular and social law state principles and have consciousness of duty in the direction of Ataturk's principle and reforms					X
2	To be able to understand historical development of Turkish naval in all its parts.					X
3	To be able to examine and analysing war principles and operational principles with the aspect of naval operation.					X
4	To be able to recognise naval wars which happened in Turkish and world history, strategical tactics which were followed in these wars.					X
5	To be able to have knowledge about martial art, tactics and strategy.				X	
6	To be able to understand final stage, development and results related to entering the First World War of Ottoman Empire.				X	
7	To be able to understand Turkish-Greek relations and historical development, the history of the Aegean Sea and islands, problems and politics on The Aegean islands.			X		
8	To be able to analyse success and failure of military strategies which were carried out in important naval wars which happened in the world.					X
9	To be able to understand strategy and policy in the sea of Otoman Empire.					X
10	To be able to be conscious of occupational and ethical responsibility					X
11	To be able to have knowledge and evaluate about historical development of Turkish naval and naval force throughout historical process.					X

COURSE QUALIFICATIONS AND COURSE RELATIONS

Level of Contribution	1	2	3	4	5
	Very low	Low	Medium	High	Very high

All Departments

	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR-10	CR-11
LC-1	1	5	5	4	5	4	3	4	5	4	5
LC-2	1	5	5	4	5	4	3	5	5	4	5
LC-3	1	5	5	5	4	5	3	4	5	4	5
LC-4	1	5	5	5	4	5	3	5	5	4	5
LC-5	1	5	5	5	4	4	3	5	5	4	5
LC-6	1	5	5	5	4	5	3	4	5	4	5

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Examining War Principles and Operational Principles with the Aspect of Naval Operation.	Lecture note, presentation
2	Examining War Principles and Operational Principles with the Aspect of Naval Operation.	Lecture note, presentation
3	The Historical Development of Turkish Naval (Until the Period of Anatolian Turkish Principalities)	Lecture note, presentation
4	The Historical Development of Turkish Naval (Until the Period of the Establisment and Rise of Ottoman Empire	Lecture note, presentation
5	The Historical Development of Turkish Naval (The period of the second Bayezid,Yavuz Sultan Selim)	Lecture note, presentation
6	The Historical Development of Turkish Naval (The Period of Suleyman the Magnificent) –The Period of Regression of Ottoman Empire)	Lecture note, presentation
7	The Importance of Balkan War in Terms of Military History	Lecture note, presentation
8	**MID TERM**	Lecture note, presentation
9	**MID TERM**	Lecture note, presentation
10	Balkan War Naval Operation, The First World War and Aftermath of the Wars	Lecture note, presentation
11	Historical Development and Turkish-Greek Relations	Lecture note, presentation
12	The History of the Aegean Sea and Islands, Problems and Politics on The Aegean Islands.	Lecture note, presentation
13	The Treaties which Determined the Status of the Aegean Islands	Lecture note, presentation
14	Important Naval Wars which Happened in the World.	Lecture note, presentation
15	Leyte Operation, Falkland Naval War	Lecture note, presentation
16	**FINAL EXAM**	Lecture note, presentation

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	3	39
General Laboratory Practice	--	--	--
Out-of-Class Activities of Study Hours	16	3	48
Assignments and Report Submission	1	20	20
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	1	13	13
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	122 Hours		
ECTS CREDIT OF THE COURSE	Total Workload /30 =122/ 30 = 4,06		4 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
Occupational Health and Safety I	SBB-411	4/I	1+1+0	1	2

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	Social Sciences Instructor
Aim of the course	:	The aim of the course is to provide cadets who will participate in a variety of ranks and departments in the Turkish Navy Forces to take necessary measures in military and management locations.
Learning Outcomes	:	Students who successfully complete in this course will be able to; 1- comprehend basic concepts and historical development of occupational health and safety. 2- comprehend the duties and responsibilities of occupational physician and occupational safety specialist in the workplace. 3- comprehend the concepts of risk, danger, primary, secondary and tertiary protection. 4- have knowledge about physical, chemical, biological and psycho-social risks. 5- evaluate occupational health and safety legislation in the workplace.
Content	:	Risk groups of employees. Occupational health, importance of occupational health outlook, occupational health basics, occupational disease, the definition of work-related diseases-causes and prevention, occupational diseases related to chemical, physical and biological risks of accidents at work, occupational health criteria and application areas, Health the right to security, safety culture concept.

Course	BİLİR, Nazmi. (2016) Occupational Health and Safety, Solar Bookstore ŞAHİNGÖZ A. Semra, ŞIK, Aydın (2015) Basic Education of Occupational Health and Safety by Last Legislation. Detail Publishing 
Other Sources	SÖZER, N. Ali, ODAMAN, Serkan, ERDENK, Erdem; Labor Legislation, 1st Edition, Legal Publishing, Istanbul, 2005. CENTEL, Tankut; Occupational Health and Safety Legislation; MESS Publishing.
Assignments and Projects	
Computer Usage	
Other Applications	

Evaluation System

Activities		**Base Grade**	**Number**	**Contribution to Review, %**	
Mid term		50	1	24%	
Semester Evaluation	Quizes	--	--	%	16%
	Assigments	--	--	%	
	Projects	--	--	%	
	Term Paper/ Project	--	--	%	
	Laboratory Applications	--	--	%	
	Other Applications	--	1	%	
Final Exam		50	1	60%	
Make-up Exam		50	-	100%	
Single Course / Extra Make-up Exam		50	-	100%	

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to follow and interpret legal legislation about occupational healths and security.					X
2	To be able to behave decently in occupational ethic rules.					X
3	To be able to take necessary measures for providing the security in an institution.				X	
4	To be able to take necessary measures in making risk analysis and to prevent risks.			X		
5	To be able to pay attention to actual events about occupational health and safety and follow developments.			X		
6	To be able to recognize the dangers.					X
7	To be able to make occupational plan and organization.				X	
8	To be able to organize occupational health and safety education.				X	
9	To be able to register and report.					X
10	To be able to have knowledge about keeping away from fire and organizing process of struggle with fire.			X		
11	To be able to have knowledge about chemical danger and make risk assessment.			X		

COURSE QUALIFICATIONS AND COURSE RELATIONS											
Level of Contribution		**1**		**2**		**3**		**4**		**5**	
		Very low		Low		Medium		High		Very high	
All Departments											
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**	**CR-9**	**CR-10**	**CR-11**
LC-1	3	5	5	3	3	2	3	3	5	5	4
LC-2	3	5	5	3	4	5	3	4	5	5	5
LC-3	3	2	3	2	5	3	4	5	5	5	5
LC-4	4	4	5	5	4	5	5	5	4	4	4
LC-5	4	5	5	4	4	3	3	3	5	4	5

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	The Historical Development of Occupational Health and Safety	--
2	The Practice Principles of Occupational Health and Safety	--
3	The Factors of Workplace, Assessment of Risks, Risk Management	--
4	Epidemiology Practices in Occupational Health and Safety	--
5	Sensitive Groups in Working Life	--
6	Services of Occupational Health and Safety, Developing Health in Working Locations.	--
7	Occupational Accidents	--
8	**MID-TERM**	--
9	**MID-TERM**	
10	General Principles in Occupational Healths	--
11	Occupational Illnesses, Occupational Cancers and Case Vignette.	--
12	Occupational Risks of Personnel	--
13	Personnel Protective Equipment Regulation, Regulation of Using Personnel Protective Equipment in Working Locations.	--
14	International and National Occupational and Health Safety Legislation.	--
15	International and National Occupational and Health Safety Legislation.	--
16	**FINAL EXAM**	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Out-of-Class Activities of Study Hours	15	2	30
Assignments and Report Submission	1	20	20
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	--	--	--
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	68 Hours		
ECTS CREDIT OF THE COURSE	Total Workload / 30 = 68/ 30 = 2,3		2 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
MARITIME LAW AND MARITIME CONTRACTS	SBB-412	4/I	3+0+0	3	4

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	International Relations Instructor
Aim of the course	:	The aim of this course is to provide cadets to understand knowledge which includes principles, concepts and rules which enter into maritime law, morever gain the ability to evaluate on concrete events and examples.
Learning Outcomes	:	Students who successfully complete this course will be able to, 1. interpret phases which maritime law goes through and developments it experiences. 2. explain concepts regarding maritime law. 3. sort historical developments of maritime law. 4. define parts and borders of states and countries. 5. analyse judical regime and status of marine space. 6. explain judical status of Turkish Straits and guidelines Montreux Convention. 7. evaluate rules which our country accepts and depends in terms of maritime law. 8. interpret marine authorization nearby seas of our country and available issues with regard to other topics
Content	:	In this course, by dealing with arising and developing of international Maritime Law, firstly international unwritten laws which are preconceived in 1958 and 1982 UN Maritime Law Conventions in this field, the rules of what states benefit from seas are illustrated. In this context, Maritime disputes which have with Turkey's neighbours are evaluated by examining inland waters, territorial waters, contiguous zone, continental shelf, exclusive economic zone and offshore areas.

<table>
<tr><td>Course</td><td>Quran, Selami. International Maritime Law. Beta, 2015
 
</td></tr>
<tr><td>Other Sources</td><td>1. Selami Kuran, International Maritime Law, Istanbul 2016.
2. Hüseyin Pazarcı, International Law, Ankara 2017.
3. Sertaç Hami Başeren, Eastern Mediterranean Maritime Jurisdiction, Istanbul 2010.</td></tr>
<tr><td>Assignments and Projects</td><td></td></tr>
<tr><td>Computer Usage</td><td></td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Evaluation System</td><td>
<table>
<tr><th colspan="2">Activities</th><th>Base Grade</th><th>Number</th><th colspan="2">Contribution to Review, %</th></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>--</td><td>--</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Assigments</td><td>--</td><td>2</td><td>%</td></tr>
<tr><td>Projects</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Other Applications</td><td>--</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to stick to democratic, secular and social law state principles and have consciousness of duty in the direction of Ataturk's principles and reforms.					X
2	To be able to use Turkish language effectively in oral and written environments.				X	
3	To be able to define, explain, criticise and evaluate concepts, theories, ideas and data in the field of international relations and maritime safety.				X	
4	To be able to have knowledge about other disciplines and fields which are basilar in the field of international relations and maritime safety.					X
5	To be able to evaluate critically, interpret data and develop solutions based on evidences and researches by comprehending developments with regard to international political, economical, social and cultural relationships.				X	
6	To be able to inform other people about the issues related to International Relations and Maritime security.			X		
7	To be able to produce solutions to problems encountered in practice and take responsibility within the group when necessary.					X
8	To be able to use the resources related to the field in international environment and to have a foreign language knowledge to communicate with colleagues; use the second foreign language at intermediate level				X	
9	To be able to develop responsible attitudes and behaviours by being aware of global, regional and national problems.				X	
10	To be able to comply with scientific and ethical values during the collection, evaluation, implementation and transfer of relevant developments in the field.			X		
11	To be able to comment on Maritime Private Law in relation to International Relations and Maritime Safety.				X	

COURSE QUALIFICATIONS AND COURSE RELATIONS											
Level of Contribution		**1**		**2**		**3**		**4**		**5**	
		Very low		Low		Medium		High		Very high	
All Departments											
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**	**CR-9**	**CR-10**	**CR-11**
LC-1	3	5	5	3	3	2	3	3	5	5	4
LC-2	3	5	5	3	4	5	3	4	5	5	5
LC-3	3	2	3	2	5	3	4	5	5	5	5
LC-4	4	4	5	5	4	5	5	5	4	4	4
LC-5	4	5	5	4	4	3	3	3	5	4	5

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Theoretical: General Principles of Maritime Public and Private Law	--
2	Sources of International Maritime Law	--
3	1982 United Nations Convention on the Law of the Sea	--
4	Offshore Seas, Inland Waters and Harbours	--
5	Territorial Waters	--
6	The Extent of Territorial Waters and the Concept of Adjacent Regions	--
7	Concept of Exclusive Economic Zone	--
8	**MID-TERM**	
9	**MID-TERM**	
10	Straits	--
11	The Legal Regime of The Turkish Straits	
12	Eastern Mediterranean Problems	--
13	Legal Status and Problems in the Aegean	--
14	Some Rules of International Law Related to Ships	--
15	Current Maritime Law Issues	--
16	**FINAL EXAM**	

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Out-of-Class Activities of Study Hours	--	--	25
Assignments and Report Submission	2	5	10
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	1	8	8
Final Exam	1	2	2
Individual Study for Final Exam	1	8	8
TOTAL WORKLOAD	79 Hours		
ECTS CREDIT OF THE COURSE	Total Workload / 30 = 79/30 = 2,6		3 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
OCCUPATIONAL HEALTH AND SAFETY II	SBB-421	4/II	1+1+0	1	2

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	Social Science Instructor
Aim of the course	:	The aim of the course is to provide cadets who will participate in a variety of ranks and departments in the Turkish Navy Forces to take necessary measures in military and management locations.
Learning Outcomes	:	Students who successfully complete this course will be able to ; 1- comprehend basic concepts and historical development of occupational health and safety. 2- comprehend the duties and responsibilities of occupational physician and occupational safety specialist in the workplace. 3- comprehend the concepts of risk, danger, primary, secondary and tertiary protection. 4- have knowledge about physical, chemical, biological and psychosocial risks 5- evaluate occupational health and safety legislation in the workplace
Content	:	Risk groups of employees. Occupational health, importance of occupational health outlook, occupational health basics, occupational disease, the definition of work-related diseases-causes and prevention, occupational diseases related to chemical, physical and biological risks of accidents at work, occupational health criteria and application areas, Health the right to security, safety culture concept

<table>
<tr><td>Course</td><td>BİLİR, Nazmi. (2016) Occupational Health and Safety, Solar Bookstore
ŞAHİNGÖZ A. Semra, ŞIK, Aydın (2015) Basic Education of Occupational Health and Safety by Last Legislation. Detail Publishing
 
</td></tr>
<tr><td>Other Sources</td><td>SÖZER, N. Ali, ODAMAN, Serkan, ERDENK, Erdem; Labor Legislation, 1st Edition, Legal Publishing, Istanbul, 2005.
CENTEL, Tankut; Occupational Health and Safety Legislation; MESS Publishing.</td></tr>
<tr><td>Assignments and Projects</td><td></td></tr>
<tr><td>Computer Usage</td><td></td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Evaluation System</td><td>
<table>
<tr><th colspan="2">Activities</th><th>Base Grade</th><th>Number</th><th colspan="2">Contribution to Review, %</th></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>--</td><td>--</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Assigments</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Projects</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Other Applications</td><td>--</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to follow and interpret legal legislation about occupational healths and security.					X
2	To be able to behave decently to occupational ethic rules.					X
3	To be able to take necessary measures for providing the security in an institution.					X
4	To be able to take necessary measures in making risk analysis and preventing risks.					X
5	To be able to pay attention to actual events about occupational health and safety and follow developments.				X	
6	To be able to recognize the dangers.				X	
7	To be able to do occupational plan and organization.					X
8	To be able to organize occupational health and safety education.				X	
9	To be able to register and report.					X
10	To be able to have knowledge about keeping away from fire and organize process of struggling with fire.				X	
11	To be able to have knowledge about chemical danger and make risk assessment.					X

COURSE QUALIFICATIONS AND COURSE RELATIONS

Level of Contribution	1	2	3	4	5
	Very low	Low	Medium	High	Very high

All Departments

	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR-10	CR-11
LC-1	3	5	5	3	3	2	3	3	5	5	4
LC-2	3	5	5	3	4	5	3	4	5	5	5
LC-3	3	2	3	2	5	3	4	5	5	5	5
LC-4	4	4	5	5	4	5	5	5	4	4	4
LC-5	4	5	5	4	4	3	3	3	5	4	5

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	General View of Occupational Health and Safety	--
2	General Importance of Occupational Health and Safety, Occupational Accidents and Expenses of Occupational Illnesses in terms of Employees.	--
3	Expenses of Occupational Accidents and Occupational Illnesses in terms of Employers and Expenses in terms of Country Economy, Reasons of Occupational Accidents and Occupational Illnesses.	--
4	Precautions which will be taken against Occupatioanl Accidents and Worker's Health Problems, Responsible Institutions from Occupatonal Health and Safety in Our Country.	--
5	Problems Faced in the Practise Related to Occupational Health and Safety in Our Country.	--
6	Legislation Regarding Occupational Health and Safety.	--
7	Employer's Looking After Employees' Debts	
8	**MIDTERM**	--
9	**MIDTERM**	--
10	Lawsuit Material Compensation Arising from Occupational Illness and Occupational Accident and Compensation for Loss of Support in the event that Employees Die	
11	Lawsuit for Mental Anguish Arising from Occupational Illness and Occupational Accident and Public Law Enforcement which will be carried out for Employees who don't take Occupational Safety Measures.	--
12	Organizational Structure of an Inspection of Occupational Safety in Turkey	--
13	Organizational Structure of an Inspection of Occupational Safety in Turkey	--
14	Carrying out an Inspection of Occupational Safety in Turkey	--
15	Carrying out an Inspection of Occupational Safety in Turkey	
16	**FINAL EXAM**	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Out-of-Class Activities of Study Hours	15	2	30
Assignments and Report Submission	1	20	20
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	--	--	--
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	68 Hours		
ECTS CREDIT OF THE COURSE	Total Workload / 30 = 68/ 30 = 2,3		2 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
STRATEGY AND SECURITY	SBB-422	4/II	2+0+0	2	3

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	International Relations Instructor
Aim of the course	:	The aim of this course is to enable students to have knowledge about strategy and concepts and theories related to national and international security.
Learning Outcomes	:	Students who successfully complete this course will be able to ; 1. define the basic concepts, approaches and solutions related to military strategy and security. 2. identify the sources of strategic thinking and establish the connection between strategy and policy. 3. show the organic connection between the war and political process. 4. determine the criteria to make a rating among the targets in the strategic orientation. 5. understand the conceptualization and theories of security.
Content	:	Basic concepts and theoretical approaches in the field of strategy and security will be examined. Security, national strategic offensive and defense, maritime strategy and maritime power are the topics to be covered.

<table>
<tr><td>Course</td><td colspan="6">Instructor Notes about Course</td></tr>
<tr><td>Other Sources</td><td colspan="6">1. Clausewitz, Carl von. "On War, translate." H. Fahri Çeliker, Istanbul, Subject Publications (1999).
2. Tzu, Sun. "The art of war." Strategic Studies. Routledge, 2008. 63-91.
3. Booth, Ken, ed. Critical security studies and world politics. Boulder: Lynne Rienner Publishers, 2005.
4. Sloan, Elinor C. Modern military strategy: an introduction. Routledge, 2012
5. Hughes, Christopher W., and Yew Meng Lai, eds. Security studies: a reader. Routledge, 2014.Collins, Alan. Contemporary security studies. Oxford university press, 2016.</td></tr>
<tr><td>Assignments and Projects</td><td colspan="6"></td></tr>
<tr><td>Computer Usage</td><td colspan="6"></td></tr>
<tr><td>Other Applications</td><td colspan="6"></td></tr>
<tr><td rowspan="11">Evaluation System</td><td colspan="2">Activities</td><td>Base Grade</td><td>Number</td><td colspan="2">Contribution to Review, %</td></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>50</td><td>-</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Assigments</td><td>50</td><td>-</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>-</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>50</td><td>-</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>-</td><td>-</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>-</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to have consciousness of service in line with the principles of democratic, secular and social law in accordance with Atatürk's principles and revolutions.					X
2	To be able to use Turkish effectively in oral and written environments.			X		
3	To be able to use a foreign language to communicate with colleagues.			X		
4	To be able to communicate in a clear language the instructions and directions given for the submission and management of subordinates.			X		
5	To be able to think analytically and suitably to team work, open to innovative ideas.				X	
6	To be able to gain awareness on public speaking and implement this achievement.			X		
7	To be able to access information, do resource research, use databases and other information sources.				X	
8	To be able to follow the theoretical and practical innovations in the fields of security and strategy at national and international level.					X
9	To be able to analyze the organic connection between the war and political process.					X
10	To be able to determine criteria to make a rating among goals in strategic orientation.					X
11	To be able to follow the conceptualization and theorization processes related to security schools.					X

COURSE QUALIFICATIONS AND COURSE RELATIONS											
Level of Contribution		1		2		3		4		5	
		Very low		Low		Medium		High		Very high	
All Departments											
	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR-10	CR-11
LC-1	1	5	5	4	5	4	3	4	5	4	5
LC-2	1	5	5	4	5	4	3	5	5	4	5
LC-3	1	5	5	5	4	5	3	4	5	4	5
LC-4	1	5	5	5	4	5	3	5	5	4	5
LC-5	1	5	5	5	4	4	3	5	5	4	5

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Concept of Strategy, Dimensions of Strategy	--
2	National Power, Military Geography Concepts	--
3	The Organic Link Between the Crisis-War-Political Line	--
4	National Strategy, Strategic Levels	--
5	Principles of Strategy	--
6	Operational Strategy, Logistics Strategy	--
7	Offensive and Defense Strategy	--
8	**MID TERM**	--
9	**MID TERM**	--
10	Direct and Indirect Strategy , Military Strategy	--
11	Strategic Assault and Strategic Defense	--
12	Peak Point, Force Multiplier	--
13	Maritime Strategy, Marine Power	--
14	Navy Strategy	--
15	The Presence of the Navy	--
16	**FINAL EXAM**	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Out-of-Class Activities of Study Hours	16	2	32
Assignments and Report Submission	--	--	--
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	1	15	15
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	75 Hours		
ECTS CREDIT OF THE COURSE	Total Workload 75/ 30 =2,5		3 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
DEMOCRACY AND CIVIL SOCIETY	SBB-423	4/II	2+0+0	2	3

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	Social sciences Instructor
Aim of the course	:	The aim of this course is to educate tomorrow's naval officers as young people who know and analyse Ataturkist thought system, compare with other different ideologies and reveal differences and superior aspects of these ideologies, solve the problems they face with ''Ataturkist thought'', have a consciousness of knowledgeable, patriotic and democratic.
Learning Outcomes	:	Students who successfully complete this course will be able to ; 1. comprehend the importance of democracy and civil society. 2. have knowledge about the definition, types, basic principles of democracy, historical development of democracy and civil society concepts. 3. interpret the concepts of independence, freedom and national sovereignty.
Content	:	Information about civil society and democracy, fundamental rights and freedoms on the axis of different thought schools, information about the role of civil society organizations and their roles in Ottoman and Republican period are the content of this course.

Course	Instructor Notes about Course				
Other Sources	1. Keane, John Civil Society and State, trans. Levent Köker et al., Detay Publications, Istanbul, 1993. 2. Haynes, Jeffrey. Democracy and civil society. John Wiley & Sons, 2013. 3. Pietrzyk, Dorota I. "Democracy or civil society ?." Politics 23.1 (2003): 38-45. 4. Molutsi, Patrick P., and John D. Holm. "Developing democracy in the case of Botswana". African Affairs89.356 (1990): 323-340.				
Assignments and Projects					
Computer Usage					
Other Applications					
Evaluation System	**Activities**		**Base Grade**	**Number**	**Contribution to Review, %**
	Mid term		50	1	24%
	Semester Evaluation	Quizes	--	--	%
		Assigments	--	--	%
		Projects	--	--	%
		Term Paper/ Project	--	--	%
		Laboratory Applications	--	--	%
		Other Applications	--	1	%
					16%
	Final Exam		50	1	60%
	Make-up Exam		50	-	100%
	Single Course / Extra Make-up Exam		50	-	100%

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to be conscious of the principles of democratic, secular and social law in line with Atatürk's principles and revolutions					X
2	To be able to understand the characteristics and objectives of the Turkish Revolution				X	
3	To be able to comprehend the historical meaning and importance of Turkish Revolution			X		
4	To be able to adopt these principles by recognizing the importance and indispensability of the basic principles of constitutional value, such as democracy, secularism, social state and the rule of law.					X
5	To be able to recognize different definitions and types of democracy					X
6	To be able to question what is not democracy through political science					X
7	To be able to learn different definitions of civil society and democracy					X
8	To be able to comprehend the functions of non-governmental organizations					X
9	To be able to learn the transformation of civil society organizations in historical line					X
10	To be able to understand the relationship between democracy and civil society					X
11	To be able to learn development of democracy and civil society in West and Turkey					X

COURSE QUALIFICATIONS AND COURSE RELATIONS											
Level of Contribution		1		2		3		4		5	
		Very low		Low		Medium		High		Very high	
All Departments											
	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR-10	CR-11
LC-1	3	5	5	3	3	2	3	3	5	5	4
LC-2	3	5	5	3	4	5	3	4	5	5	5
LC-3	3	2	3	2	5	3	4	5	5	5	5
LC-4	4	4	5	5	4	5	5	5	4	4	4
LC-5	4	5	5	4	4	3	3	3	5	4	5

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Democracy and Civil Society Concepts	--
2	What is Not Democracy ?	--
3	The Meaning and Characteristics of Democracy	--
4	Political Participation in Democracies	--
5	Meaning and Qualifications of Civil Society	--
6	Problems of Democracy and Nationalism	--
7	Liberalism and Democracy	--
8	**MID TERM**	
9	**MID TERM**	
10	Relationship between Democracy and Civil Society	
11	Development of Democracy in Western Europe	--
12	Development of Civil Society in Western Europe	--
13	Development of Democracy in Turkey	--
14	Development of Civil Society in Turkey	--
15	Overview of Democracy and Civil Society	--
16	**FINAL EXAM**	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Out-of-Class Activities of Study Hours	16	2	32
Assignments and Report Submission	--	--	--
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	1	15	15
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	75 Hours		
ECTS CREDIT OF THE COURSE	Total Workload 75/ 30 =2,5		3 Credits

	TURKISH NAVAL ACADEMY **DEPARTMENT OF SOCIAL SCIENCES AND HUMANITIES COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
MARITIME MANAGEMENT AND ECONOMICS	SBB-424	4/II	2+0+0	2	3

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	Business Instructor
Aim of the course	:	The aim of this course is to teach the basic principles of maritime business and economics in line with the technical knowledge and analysis capabilities of the maritime or similar professionals working in the maritime sectors.
Learning Outcomes	:	Students who successfully complete this course will be able to ; 1- apply business, economics, law, logistics, transportation and maritime information to maritime business management problems 2- identify, research and solve maritime business management problems 3- within the scope of maritime enterprises, customers, users, stakeholders within the international, national and social framework; have the skill of realization of maritime management solutions by taking into consideration the priorities in efficiency, efficiency, quality, safety, security and environment. 4- collect data related to maritime transportation, develop strategies and plans, use modern business management techniques 5- have universal, social, international, national and individual vision
Content	:	Transportation, shipbuilding, general structure of freight markets, business conditions, transfer of routine operational activities, operating areas, business processes of companies working in these markets under national / international regulations.

<table>
<tr><td>Course</td><td colspan="6">Instructor’s Notes about Course</td></tr>
<tr><td>Other Sources</td><td colspan="6">- Maritime Economics, Martin Stopford, 3rd Edition, London, Routledge, 2009.
- International Ocean Shipping: Current Concepts and Principles, B. J. Abrahamsson, Boulder, Col., Westview Press, 1980
- Economics of Maritime Transport, James McConville, London, Witherby Publishers, 1999
- Shipping, Tor Wergeland and Niko Wijnolst, Delft, Delft University Press, 1997
- Quantative Methods in Maritime Economics, John Evans and Peter Marlow, 2nd Edition, London, Fairplay Publications, 1990</td></tr>
<tr><td>Assignments and Projects</td><td colspan="6"></td></tr>
<tr><td>Computer Usage</td><td colspan="6"></td></tr>
<tr><td>Other Applications</td><td colspan="6"></td></tr>
<tr><td rowspan="10">Evaluation System</td><td colspan="2">Activities</td><td>Base Grade</td><td>Number</td><td colspan="2">Contribution to Review, %</td></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">24%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>--</td><td>--</td><td>%</td><td rowspan="6">16%</td></tr>
<tr><td>Assigments</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Projects</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>--</td><td>--</td><td>%</td></tr>
<tr><td>Other Applications</td><td>--</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	To be able to be conscious of the principles of democratic, secular and social law in line with Atatürk's principles and revolutions.					X
2	To be able to use Turkish effectively in oral and written environments.					X
3	To be able to determine the goals and targets for the institution, manage the activities for the development of employees.					X
4	To be able to work independently by using information and skills they acquire in the field of business and management sciences.			X		
5	To be able to evaluate the knowledge and skills acquired in the field of business and management sciences with a critical approach, determine the learning needs and direct their learning.			X		
6	To be able to inform the relevant individuals and institutions in the field of business and management sciences with social responsibility awareness; share their thoughts and suggestions for solutions in written and oral form.				X	
7	To be able to access the information, search for resources, use databases and other information sources.			X		
8	To be able to examine the concepts and ideas in business and management sciences with scientific methods, interpret and evaluate data.				X	
9	To be able to work individually or as a member of a team.					X
10	To be able to have professional and ethical responsibility.					X
11	To be able to understand the importance of lifelong learning, follow the developments in the scientific field to improve themselves.				X	

COURSE QUALIFICATIONS AND COURSE RELATIONS

Level of Contribution	1	2	3	4	5
	Very low	Low	Medium	High	Very high

All Departments

	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR-10	CR-11
LC-1	3	5	5	3	3	2	3	3	5	5	4
LC-2	3	5	5	3	4	5	3	4	5	5	5
LC-3	3	2	3	2	5	3	4	5	5	5	5
LC-4	4	4	5	5	4	5	5	5	4	4	4
LC-5	4	5	5	4	4	3	3	3	5	4	5

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Economic Organization of Maritime Markets	--
2	Global Development of Maritime Trade and the Shipping Market Cycle	--
3	Evaluation of Shipping Investments	--
4	Demand and Supply of Sea Transportation	
5	Maritime Markets (Bulk Cargo and Unlisted Shipping Economy / General Cargo and Scheduled Shipping Economy)	--
6	Economic Analysis of Vessel Design and Ships; Costs of Ships; Expedition Costing	--
7	Regulatory Infrastructure of Maritime Economy, Costs, Income and Financial Performance	--
8	**MID-TERM**	--
9	**MID-TERM**	--
10	Financing of Ships and Shipping Companies	
11	Economics of Shipbuilding and Dismantling	--
12	Marine Market Forecasting and Market Research	--
13	Forecasting Methods and Problems	--
14	Ports, Canal and Waterways	--
15	Optimum Speed of Ships	--
16	**FINAL EXAM**	--

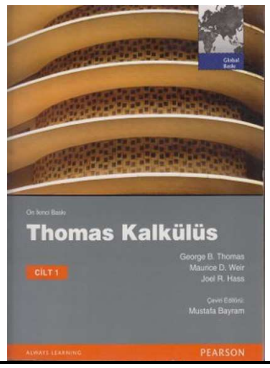
ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	13	2	26
General Laboratory Practice	--	--	--
Out-of-Class Activities of Study Hours	15	2	30
Assignments and Report Submission	1	20	20
Term project	--	--	--
Project Presentation	--	--	--
Quiz	--	--	--
Midterm Exam	1	1	1
Individual Study for Midterm Exam	--	--	--
Final Exam	1	1	1
Individual Study for Final Exam	--	--	--
TOTAL WORKLOAD	78 Hours		
ECTS CREDIT OF THE COURSE	Total Workload / 30 = 78/ 30 =2,6		3 Credits

	TURKISH NAVAL ACADEMY **DEPARMENT OF BASIC SCIENCES** **COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
Mathematics-I	FEB-111	1/ 1.YY	5+0+0	5	5

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	Not
Instructor	:	Mathematics Teaching Staff
Aim of the course	:	The aim of this course is to give basic mathematics lessons which will be taught in the upper classes in the first year, second semester and 2nd year.
Learning Outcomes	:	Students who successfully complete this course will be able to; 1) Form the mathematical principles of function, limit, derivative and integral concepts. 2) Establishing a relationship between variables can improve grip. 3) Derivatives and integrals can be used in the area and volume calculation. 4) Do the physical applications of derivative and integral. 5) Expressing the data scientifically with symbols and thinking disciplined and scientific.
Content	:	In this context, the students will be able to learn the concepts of function, limit, derivative and integral. In addition, by expressing the data with scientific symbols, they will lead to disciplined and scientific thinking.

<table>
<tr><td>Course Book</td><td>Calculus I

George B. THOMAS / Maurice D. WEIR / Joel HASS
 
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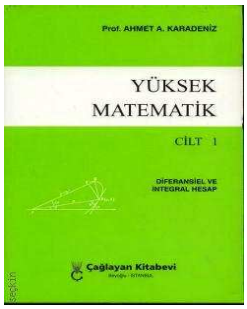
<tr><td>Other Sources</td><td>Yüksek Matematik Cilt 1
Prof. Ahmet A. KARADENİZ
 
</td></tr>
<tr><td>Assignments and Projects</td><td></td></tr>
<tr><td>Computer Usage</td><td>Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Evaluation System</td><td>
<table>
<tr><th colspan="2">Activities</th><th>Base Grade</th><th>Number</th><th colspan="2">Contribution to Review, %</th></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">30%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">10%</td></tr>
<tr><td>Assigments</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Define, model and solve science and math problems			X		
2	Analyze the data, make experiments and design, has the ability to interpret the results.			X		
3	Has the field knowledge to follow the latest developments in science and mathematics.			X		
4	Has the ability of logical and scientific thinking.				x	
5	Evaluates and analyzes the theoretical and practical knowledge gained in science and mathematics with a critical approach through scientific methods; develop solutions based on research for the solution of problems encountered.					X
6	Carries out any work in the field independently and takes responsibility as a team member when necessary					X
7	To be able to relate science and mathematics to different disciplines and to establish Science and Mathematical models of problems in different disciplines					x
8	Expresses his / her knowledge and experiences and suggestions for solutions in the field in written and oral form within the framework of ethical rules.					x

COURSE QUALIFICATIONS AND COURSE RELATIONS								
Level of Contribution	**1**		**2**		**3**		**4**	**5**
	Very low		Low		Medium		High	Very high
All Departments								
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**
LC-1	3	3		1	5	3		
LC-2	3	1		3	5		3	
LC-3	3	1		3	5	3	3	
LC-4	3	3			5	3	3	
LC-5	3	3		5	5			1

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Single Variable Functions and Limit • Functions • The limit of a function • Special limits and uncertainties • Continuity in functions	--
2	Derivative • Change Rate and Derivative Concept • Derivation rules • The physical and geometric meaning of the derivative • The concept of differential • Higher order derivatives	--
3	Derivative • Role and Mean Value Theorems • Derivative of closed functions • Derivative of inverse functions • Derivatives of Trigonometric and Inverse Trigonometric Functions	--
4	Derivative • Derivatives of Exponential, Logarithmic, Hyperbolic and Inverse Hyperbolic Functions • Limits of uncertainty and L vehospital rules • Drawing a function graph	--
5	Derivative • Drawing a function graph • Maximum-Minimum calculation • Other applications of derivative • Inverse Derivative	--
6	Integral • Riemann Total • Definite integral calculation • Indefinite Integrals • Basic integral formulas • Integration with variable transformation-Simple variable change	--
7	Integral • Partial integration • Integral of Rational Functions • Integral of trigonometric functions	--
8	Integral • Integral of Rational Functions • Integral of trigonometric functions • Trigonometric Variable Change	--
9	Integral / MIDTERM EXAM • Trigonometric Variable Change • Midterm	--
10	MIDTERM / Applications of Integral • Midterm • Trigonometric Variable Change • Area Calculations with Integral	--
11	Applications of Integral • Area Calculations with Integral • Volume calculation • Spring length calculation	--

12	Applications of Integral • Spring length calculation • Surface areas	--
13	Applications of Integral • Surface areas • Center of gravity	--
14	Polar Coordinate • Polar coordinates • Graphic drawing • Area account	--
15	Polar Coordinate • Area account • Spring length calculation	--
16	Parametric Equations • Parametric equations and other coordinates. schist. relationships with • Spring length • Area account	--

ECTS / TABLE OF WORKLOAD

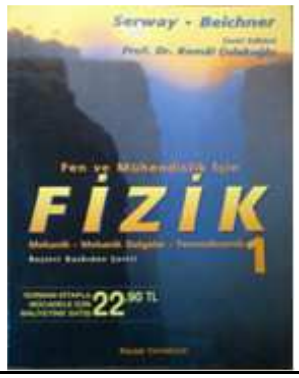
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	15	5	75
General Laboratory Practice	-	-	-
Guided Problem Solving	15	3	45
Assignments and Report Submission	3	2	6
Term project	-	-	-
Project Presentation	-	-	-
Quiz	2	1	2
Midterm Exam	1	2	2
Individual Study for Midterm Exam	1	8	8
Final Exam	1	3	3
Individual Study for Final Exam	1	12	12
TOTAL WORKLOAD	153 Hours		
ECTS CREDIT OF THE COURSE	Total Workload/ 30 = 153 / 30 = 5,1		5 Credits

NOTE: 30 hour study is counted as 1 ECTS.

TURKISH NAVAL ACADEMY
DEPARTMENT OF BASIC SCIENCES
COURSE DETAILS

Course Name	Code	Class / Semester	Duration (T+P+L)	Credit	ECTS
PHYSICS-I	FEB-112	1/1	3+0+2	4	4

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	Physics Instructor
Aim of the course	:	The aim of this course is to teach the basic concepts of mechanics and dynamics and to gain the necessary background for students to learn higher level subjects.
Learning Outcomes	:	Students who successfully complete this course will be able to; 1.Distinguish the basic principles of single and multi-dimensional motion. 2. Distinguish the basic concepts of particle dynamics. 3. Apply the basic concepts of particle dynamics to problems 4. Distinguish business and energy concepts. 5. Apply business and energy concepts to problems. 6. Distinguish the basic concepts of linear and angular momentum. 7. Distinguish basic concepts of rotational kinematics.
Content	:	Measurement, Vectors, One Dimensional Motion, Two Dimensional Motion, Laws of Motion, Circular Motion and Other Applications of Newton's Law of Motion, Work and Kinetic Energy, Potential Energy and Conservation of Energy, Linear Momentum and Collisions, Rotation of Solid Bodies Around a Fixed Axis, Rolling Motion and Angular Momentum are subjects.

<table>
<tr><td>Course Book</td><td>Fen ve Mühendislik için Fizik 1, Translation: Prof. Dr. Kemal Çolakoğlu; Editors: R.A. Serway, R.C. Beichner,J.W. Jevett, Palme Yayıncılık, Ankara.
 
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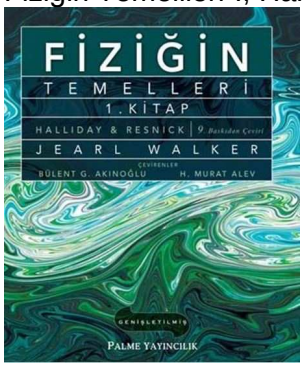
<tr><td>Other Sources</td><td>Fiziğin Temellleri-I, Halliday, Resnick, Palme Yayıncılık
 
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<tr><td>Assignments and Projects</td><td>Solution of end-of-course problems</td></tr>
<tr><td>Evaluation System</td><td>
<table>
<tr><th colspan="2">Activities</th><th>Base Grade</th><th>Piece</th><th colspan="2">Contribution to Review, %</th></tr>
<tr><td colspan="2">Midterm</td><td>50</td><td>1</td><td colspan="2">30%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizzes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">10%</td></tr>
<tr><td>Assigments</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Project / Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Application</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Makeup Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Makeup Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

Page No.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Have theoretical and practical knowledge about mechanical subjects					x
2	Use theoretical and practical knowledge about mechanical topics.					x
3	To be able to examine the concepts and laws in the field of physics with scientific methods, to analyze the problem, to analyze the solutions and to interpret the results.				x	
4	May take responsibility as a team member or individually.				x	
5	Plan and manage activities by taking a leading role in teamwork.				x	
6	To be able to inform the environment about the basic subjects of physics.					x
7	Use the equipment in the physics laboratory, make experiments.					x
8	To be able to follow current topics related to physics by using various teaching environments.				x	
9	Know and apply problem solving strategies in physics.					x
10	Understand the basic concepts of physics in English.				x	

COURSE QUALIFICATIONS AND COURSE RELATIONS										
Contribution Level	1		2		3	4			5	
	Very low		Low		Middle	High			Very high	
PHYSICS-1										
	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR-10
LC-1	5	5	5			4		4	5	
LC-2	5	5	5			4			4	
LC-3	3			4	4				5	
LC-4			5							
LC-5				4	4				5	
LC-6	5	5	5							
LC-7	5	5	5							

WEEKLY TOPICS			
Week	**TOPICS**		
	Theoritical	**Practical**	**Laboratory**
1	Measurement, Vectors	--	2
2	Motion in One Dimension	--	2
3	Motion in Two Dimensions, The Laws of Motion	--	2
4	The Laws of Motion	--	2
5	Cİrcular Motion and Other Applications of Newton's Laws	--	2
6	Work and Energy	--	2
7	Work and Energy	--	2
8	Linear Momentum and Collisions	--	2
9	Linear Momentum and Collisions	--	2
10	The Center of Mass	--	2
11	Rotation of a Rigid Object About a Fixed Axis	--	2
12	Rotation of a Rigid Object About a Fixed Axis	--	2
13	Rolling Motion and Angular Momentum	--	2
14	Rolling Motion and Angular Momentum	--	2
15	Rolling Motion and Angular Momentum	--	2
16	Overview	--	--

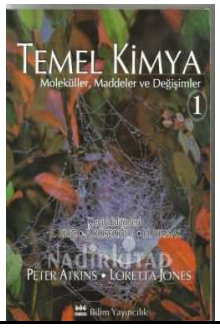
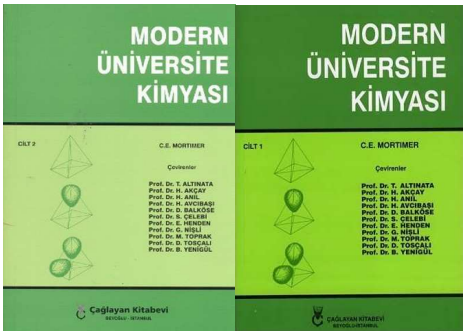
ECTS / TABLE OF WORKLOAD				
ACTIVITIES		**NUMBER**	**DURATION (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course		15	3	45
General Laboratory Practice		15	2	30
Problem solving with guidance	**Class Work**	15	1	15
	Working individually or in groups	15	1	15
Assignments and Report Submission		8	1	8
Term project		--	--	--
Project Presentation		--	--	--
Other Studies		1	1	1
Midterm Exam		1	2	2
Individual Study for Midterm Exam		1	6	6
Final Exam		1	2	2
Individual Study for Final Exam		1	10	10
TOTAL WORKLOAD		134 Hours		
ECTS CREDIT OF THE COURSE		TOTAL WORKLOAD / 30 = 134 / 30 = 4,46		4 Credits

TURKISH NAVAL ACADEMY
DEPARTMENT OF BASIC SCIENCES
COURSE DETAILS

Course Name	Code	Class / Semester	Duration (T+P)	Credit	ECTS
Chemistry	FEB-113	1/1	2+0+0	2	2

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	High School-I, High School-II, High School-III Chemistry
Instructor	:	Chemistry Instructor
Aim of the course	:	• To teach the basic concepts and laws of chemistry. • To enable students to comprehend the ways of research, to have a positive and scientific view. • To help the students to think deeply and deeply about the chemical events. • Chemistry-II course on chemistry related topics and thermodynamics, material knowledge, electronics and other courses.
Learning Outcomes	:	Students who successfully complete this course; 1. Comprehend chemical laws and make calculations. 2. Describe the solvent and solute. 3. Apply similar concept of solver in daily life. 4. Know the importance of energy. 5. Know the difference between thermo energy and nuclear energy. 6. Knows radiation units and radiation protection methods. 7. Know the structure of the atom, can find the place in the periodic table. 8. Question whether atomic particles are basic particles. 9. Derive equilibrium expression through the expression of speed in reversible reactions. 10. Uses gas laws and kinetic theory in explaining the behavior of gases.
Content	:	**Structure of atom:** Atomic spectra, quantum numbers, atomic orbitals, electronic structure and periodic system, flame trials **Gases :** Properties of gases, gas laws, molecular movement, real gases, liquefying of gases, **Liquids and Solids :** Intermolecular forces, liquid state, solid state, crystal lattice, alloys, hydrate water, boiling in vacuum

		Solutions : Solution properties, factors affecting the solubility, solution concentrations. **Thermochemistry :** Energy, heat and enthalpy, heat measurement, enthalpy of chemical change, aggregation of reaction temperatures. **Chemical Kinetics :** Reaction rates, concentrations and reaction rates, single step reactions, factors affecting the reaction rate. **Chemical Equilibrium :** Reversible reactions and chemical equilibrium, equilibrium constants, Le Chatelier principle. **Salt Solutions :** Common ion effect, solubility product, precipitation and solubility product, buffer solutions. **Nuclear Chemistry :** Atomic nuclei, radioactive radiation, nuclear bond energy, radioactive decay law, age determination, fission fusion reactions, nuclear reactors, radioactive units.

Course Book	Temel Kimya(CİLT I), Bilim Publicutions, Peter ATKINS/ Loretta JONES, Translation : Prof.Dr.Esma KILIÇ-Prof.Dr.Fitnat KÖSEOĞLU-Prof.Dr.Hamza YILMAZ. 
Other Sources	Modern Üniversite Kimyası (CİLT I), Çağlayan Publicutions, C.E.MORTIMER, Translation : Prof.Dr.T.ALTINATA-Prof.Dr.H.AKÇAY-Prof.Dr.H.ANIL 
Assignments and Projects	
Computer Usage	
Other Applications	

	Activities		Base Grade	Piece	Contribution to Review, %	
Evaluation System	Midterm		50	1	30%	
	Semester Evaluation	Quizzes	50	1	%	10%
		Assigments	50	1	%	
		Projects	50	1	%	
		Term Project / Project	50	1	%	
		Laboratory Application	50	1	%	
		Other Applications	50	1	%	
	Final Exam		50	1	60%	
	Makeup Exam		50	-	100%	
	Single Course / Extra Makeup Exam		50	-	100%	

Page No.	Program Qualifications	Course Contribution Level				
		1	**2**	**3**	**4**	**5**
1	Have theoretical and practical knowledge about basic chemistry subjects					x
2	Use theoretical and practical knowledge about basic chemistry topics.					x
3	To be able to examine the concepts and laws in the field of chemistry with scientific methods, to analyze the problem, to analyze the solutions and to interpret the results.				x	
4	May take responsibility as a team member or individually.				x	
5	Plan and manage activities by taking a leading role in teamwork.				x	
6	To be able to inform the environment about the basic subjects of chemistry.					x
7	Use the equipment in the chemistry laboratory, make experiments.					x
8	To be able to follow current topics related to chemistry by using various teaching environments.				x	
9	Know and apply problem solving strategies in chemistry.					x
10	Understand the basic concepts of chemistry in English.				x	

COURSE QUALIFICATIONS AND COURSE RELATIONS										
Contribution Level	**1**		**2**			**3**	**4**		**5**	
	Very low		Low			Middle	High		Very high	
DEPARTMENT OF CHEMISTRY										
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**	**CR-9**	**CR-10**
LC-1	**5**	**5**				**5**				
LC-2						**4**		**4**		
LC-3									**5**	
LC-4				**4**						
LC-5			**4**							
LC-6								**4**	**4**	
LC-7			**4**							**3**
LC-8									**5**	
LC-9			**4**				**5**			
LC-10						**5**		**4**		

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Atomic Structure: Quantum Numbers, Electronic Structure	--
2	Gases: Gas Laws	--
3	Gases: Gas Laws	--
4	Gases: Real Gases, Liquefaction in Gases	--
5	Liquids and Solids: General Properties, Steam Pressures, Alloys	--
6	Solutions: Properties of Solutions, Concentrations	--
7	Thermochemistry: Energy, Heat, Enthalpy	--
8	Thermochemistry: Hess's Law	--
9	MIDTERM EXAM WEEK	
10	Chemical Kinetics: Reaction Rate General Concepts	--
11	Chemical Kinetics: Factors Affecting Reaction Rate	--
12	Chemical Equilibrium: Balance, Equilibrium Constant, Calculations	--
13	Acids and Bases: Strong Acids and Bases, Concept of Ph, Acidity-Base Equilibrium	--
14	Salt Solutions: Hydrolysis, Buffer Solution, Solubility Equations	--
15	Nuclear Chemistry: Radioactive Decays, Half Life, Fission, Fusion	--
16	Nuclear Chemistry: Nuclear Reactors, Radioactive Units	--

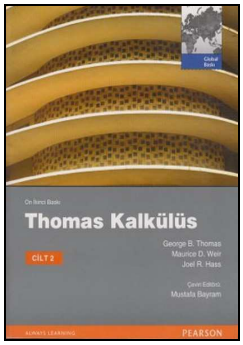
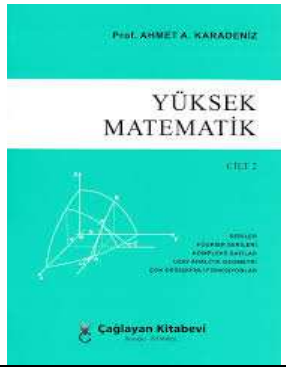
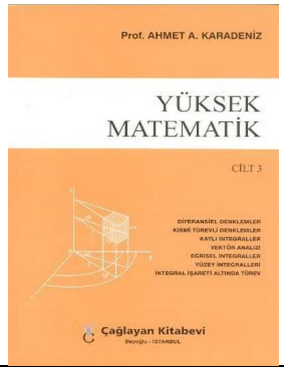
ECTS / TABLE OF WORKLOAD

ACTIVITIES		NUMBER	DURATION (HOUR)	ESTIMATED WORKLOAD (HOUR)
Theoritical Course	**Theoritical Presentation**	15	2	30
Study Hours Out of Class		15	1	15
Assignments and Report Submission		1	2	2
Term project		--	--	--
Project Presentation		--	--	--
Other Studies		1	4	4
Midterm Exam		1	2	2
Individual Study for Midterm Exam		1	5	5
Final Exam		1	2	2
Individual Study for Final Exam		1	8	8
TOTAL WORKLOAD		68 Hours		
ECTS CREDIT OF THE COURSE		TOTAL WORKLOAD / 30 = 68 / 30 = 2,26		2 Credits

	TURKISH NAVAL ACADEMY **DEPARMENT OF BASIC SCIENCES** **COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
Mathematics-II	FEB-121	1/ 2. YY	5+0+0	5	5

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	Mathematics-1
Instructor	:	Mathematics Teaching Staff
Aim of the course	:	The Mathematics-2 course is a prerequisite for the professional sciences courses and engineering majors program at the Naval Academy.
Learning Outcomes	:	Students who successfully complete this course will be able to; 1) Know the concept of convergence and convergence in series and series, can open functions to series. 2) Solve problems in planes and vectors in space. 3) To be able to recognize limit, derivative and tangent and plane equations in multivariable functions and know Taylor formula. 4) Can take two and triple integrals with the help of multi-storey integrals, can make applications related to space and volume. 5) Know the concept of vector valued functions, curvilinear integrals, vector fields, use Green's theorem, calculate the surface area and take the surface integral.
Content	:	In this context, students, series, planets and vectors in space, Multivariate Functions and Multilevel Integrals to develop the principles of mathematics in students, to increase knowledge and mathematical symbols to improve the ability to transfer the necessary infrastructure is to provide.

<table>
<tr><td>Course Book</td><td>Calculus II
Thomas / Finney
  </td></tr>
<tr><td>Other Sources</td><td>Yüksek Matematik Cilt 2 – Cilt 3
Prof.Ahmet A. KARADENİZ
 
  </td></tr>
<tr><td>Assignments and Projects</td><td></td></tr>
<tr><td>Computer Usage</td><td>Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Evaluation System</td><td>
<table>
<tr><th colspan="2">Activities</th><th>Base Grade</th><th>Number</th><th colspan="2">Contribution to Review, %</th></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">30%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">10%</td></tr>
<tr><td>Assigments</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">%60</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Define, model and solve science and math problems.			X		
2	Analyze the data, make experiments and design, has the ability to interpret the results.			X		
3	To be able to follow the latest developments in science and mathematics.			X		
4	Has the ability of logical and scientific thinking.				X	
5	Evaluates and analyzes the theoretical and practical knowledge gained in science and mathematics with a critical approach through scientific methods; develop solutions based on research for the solution of problems encountered.					X
6	Carries out any work in the field independently and takes responsibility as a team member when necessary.					X
7	To be able to relate science and mathematics to different disciplines and to establish Science and Mathematical models of problems in different disciplines					X
8	Expresses his / her knowledge and experiences and suggestions for solutions in the field in written and oral form within the framework of ethical rules.					X

COURSE QUALIFICATIONS AND COURSE RELATIONS								
Level of Contribution		1		2	3		4	5
		Very low		Low	Medium		High	Very high
All Departments								
	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8
LC-1	5	3		1	3	4	2	
LC-2	3	2			3	5	3	
LC-3	5	3		1	4	5	3	
LC-4	5	3		3	4	5	3	
LC-5	5	3		3	4	5	3	

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Series • Sequence Concept, Limit and Convergence of Sequences • Serial Concept, Convergence of Infinite Series, Convergence Tests • Convergence of Series of Positive Terms • Convergence of Alternate Series	--
2	Series • Power Series and Convergence • Expansion of Functions to Power Series and Operations • Taylor-MacLaurin Series Expansions	--
3	Planes and Vectors in Space • Coordinate Systems • Vectors • Vector Operations • Plane Equations in Space	--
4	Planes and Vectors in Space • Correct Equations in Space • Situations of planes and planes relative to each other • Multivariate Functions • Limit and continuity in multivariable functions	--
5	Multivariable Functions • Continuity in multivariable functions • Partial derivatives • Higher order partial derivatives • Chain rule • Derivatives of closed functions	--
6	Multivariable Functions • Directional derivatives • Gradient vectors • Tangent planes • Extreme values and saddle points	--
7	Multivariable Functions • Extreme values and saddle points • Maximum and minimum problems in closed areas • ÇDF Taylor series expansion • Taylor polynomials formula	--
8	Midterm	--
9	Multilayer Integrals • Double integrals • Applications of double integrals • Variable transformation in multiple integrals • Double integrals in polar form	--
10	Multilayer Integrals • Triple integrals • Triple integrals and volume • Mass and moments in three dimensions	--
11	Multilayer Integrals • Triple integrals in cylindrical coordinates • Triple integrals in spherical coordinates • Applications	--

12	Vector Valued Functions • Vectors and vector valued functions • Derivative and integral	--
13	Vector Valued Functions • Curvilinear integrals • Vector fields	--
14	Vector Valued Functions • Road independence, potential function and conservation areas • Green's theorem • Surface area and surface integrals	--
15	Vector Valued Functions • Divergence and Stokes theorems	--

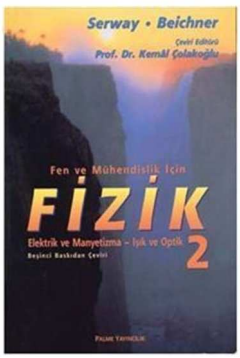
ECTS / TABLE OF WORKLOAD

ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	14	5	70
General Laboratory Practice	--	--	--
Guided Problem Solving	14	3	42
Assignments and Report Submission	3	2	6
Term project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Midterm Exam	1	2	2
Individual Study for Midterm Exam	1	8	8
Final Exam	1	3	3
Individual Study for Final Exam	1	12	12
TOTAL WORKLOAD	145 Hours		
ECTS CREDIT OF THE COURSE	Total Workload / 30 = 145 / 30 = 4,83		5 Credits

TURKISH NAVAL ACADEMY
DEPARTMENT OF BASIC SCIENCES
COURSE DETAILS

Course Name	Code	Class / Semester	Duration (T+P+L)	Credit	ECTS
PHYSICS-II	FEB-122	1/2	3+0+2	4	4

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	Physics-I
Instructor	:	Physics Instructor
Aim of the course	:	To teach the basic concepts about electromagnetism and to gain the necessary infrastructure for the higher level subjects that the students will learn in the following years.
Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Distinguish between electric charge and electric field. 2. Distinguish and apply basic concepts of capacitance and dielectrics. 3. Distinguish the concept of current and apply it to electrical circuits. 4. Distinguish the magnetic properties of matter. 5. He / she can examine electromagnetic waves by synthesizing electricity and magnetism concepts.
Content	:	Electric Fields, Gauss's Law, Electric Potential, Capacitance and Dielectrics, Current and Resistor, Direct Current Circuits, Magnetic Fields, Magnetic Field Sources, Faraday's Law, Inductance, Alternating Current Circuits.

<table>
<tr><td>Course Book</td><td>Fen ve Mühendislik için Fizik 2, Translation: Prof. Dr. Kemal Çolakoğlu; Editors: R.A. Serway, R.C. Beichner,J.W. Jevett, Palme Yayıncılık, Ankara.
 
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 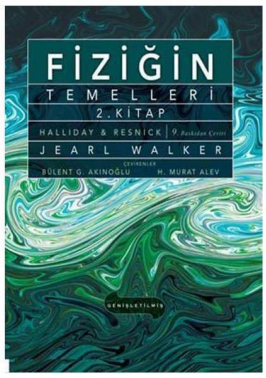
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<tr><td>Assignments and Projects</td><td colspan="5">Solution of end-of-course problems</td></tr>
<tr><td rowspan="10">Evaluation System</td><td colspan="2">Activities</td><td>Base Grade</td><td>Piece</td><td colspan="2">Contribution to Review, %</td></tr>
<tr><td colspan="2">Midterm</td><td>50</td><td>1</td><td colspan="2">30%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizzes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">10%</td></tr>
<tr><td>Assigments</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Project / Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Application</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Makeup Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Makeup Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>

Page No.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Have theoretical and practical knowledge about electricity and magnetism subjects					x
2	Use theoretical and practical knowledge about electricity and magnetism topics.					x
3	To be able to examine the concepts and laws in the field of physics with scientific methods, to analyze the problem, to analyze the solutions and to interpret the results.				x	
4	May take responsibility as a team member or individually.				x	
5	Plan and manage activities by taking a leading role in teamwork.				x	
6	To be able to inform the environment about the basic subjects of physics.					x
7	Use the equipment in the physics laboratory, make experiments.					x
8	To be able to follow current topics related to physics by using various teaching environments.				x	
9	Know and apply problem solving strategies in physics.					x
10	Understand the basic concepts of physics in English.				x	

COURSE QUALIFICATIONS AND COURSE RELATIONS										
Contribution Level		1		2		3	4		5	
		Very low		Low		Middle	High		Very high	
PHYSICS-2										
	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR-10
LC-1	5	5	5			4	5	4		
LC-2	5	5	5			5	5	4		
LC-3	5	5		5	4		5			
LC-4	5	5						4		
LC-5	5	5					4	4	5	

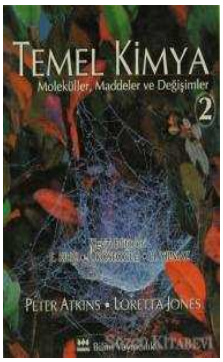
WEEKLY TOPICS			
Week	**TOPICS**		
	Theoritical	**Practical**	**Laboratory**
1	Electric Fields	--	2
2	Gauss's Law	--	2
3	Electric Potential	--	2
4	Capaticance and Dielectrics	--	2
5	Capaticance and Dielectrics	--	2
6	Current and Resistance	--	2
7	Direct Current Circuits	--	2
8	Kirchoff's Rules	--	--
9	Magnetic Fields	--	2
10	Sources of the Magnetic Field, The Biot-Savart Law	--	2
11	Ampere's Law	--	2
12	Faraday's Law	--	2
13	Faraday's Law	--	2
14	Inductance, Alternating-Current Circuits	--	2
15	Inductance, Alternating-Current Circuits	--	2

ECTS / TABLE OF WORKLOAD				
ACTIVITIES		**NUMBER**	**DURATION (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course		14	3	42
General Laboratory Practice		14	2	28
Problem solving with guidance	**Class Work**	14	1	14
	Working individually or in groups	14	1	14
Assignments and Report Submission		8	1	8
Term project		--	--	--
Project Presentation		--	--	--
Other Studies		1	1	1
Midterm Exam		1	2	2
Individual Study for Midterm Exam		1	6	6
Final Exam		1	2	2
Individual Study for Final Exam		1	10	10
TOTAL WORKLOAD		127 Hours		
ECTS CREDIT OF THE COURSE		TOTAL WORKLOAD / 30 = 127 / 30 = 4,23		4 Credits

TURKISH NAVAL ACADEMY
DEPARMENT OF BASIC SCIENCES
COURSE DETAILS

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
Maritime Chemistry	FEB-123	1/2	2+0+0	2	2

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	Chemistry
Instructor	:	Chemistry Instructor
Aim of the course	:	To teach the basic concepts related to maritime chemistry and to gain the background of the skills that students should have in the problem areas in the following years.
Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Define the electrochemical concepts. 2. Explain the working principles of batteries and give examples of the batteries used in Turkish Navy. 3. Explain the types of corrosion encountered in ships and methods of corrosion protection. 4. Define the paints used in ships and explain the reasons. 5. Explain the physical and chemical properties of water used in Turkish Navy 6. Explain the methods of obtaining drinking water from sea water. 7. Explain the structure of petroleum, classify fuel and lubricating oils used in Turkish Navy. 8. Can classify explosive and chemical warfare agents. 9. Explain the effects of the atmosphere in the Naval environment on the human.
Content	:	1. Electrochemistry, 2. Corrosion, 3. Marine Paints, 4. Use of Water in Navy, 5. Petroleum and Lubricating Oils used in Navy, 6. Explosives and Chemical Warfare 7. The Effect of Environment on Humans.

Course Book	Chemistry-II Textbook, Turkish Naval Academy Printing House, 2000 Prepared by Teacher Senior Colonel İhsan DOĞRU. 
Other Sources	Atkins, Peter ve Jones, Loretta, Temel Kimya II, Çev.: Kılıç, E., Köseoğlu, F. ve Yılmaz, H., Bilim Yayıncılık, Ankara 1999. 
Homeworks and Projects	At the end of the course, short assignments of study questions are given to control student achievements.
Use of Computer	Students can do their homework by using computer. (Not required)
Other Applications	Experiments are carried out in the chemistry laboratory in order to reinforce the subjects.

			Base Grade	Number	Contribution to Review, %	
Evaluation System	Ara Sınav		50	1	30%	
	Semester Evaluation	Quizes	50	2	%	10%
		Assigments	50	2	%	
		Projects	50	-	%	
		Term Paper/ Project	50	-	%	
		Laboratory Applications	50	1	%	
		Other Applications	50	-	%	
	Final Exam		50	1	60%	
	Make-up Exam		50	-	100%	
	Single Course / Extra Make-up Exam		50	-	100%	

Nu.	Program Qualifications	Course Contribution Level				
		1	**2**	**3**	**4**	**5**
1	To have theoretical and practical knowledge about maritime chemistry.					x
2	To be able to use theoretical and practical knowledge about maritime chemistry.					x
3	To be able to examine the concepts and laws in the field of chemistry with scientific methods, to present the problem, to analyze, to produce solutions and to interpret the results.				x	
4	To be able to take responsibility as individual or a team member in applications.				x	
5	To be able to plan and manage activities by taking a leading role in teamwork.				x	
6	To be able to inform the environment about the basic issues in the field of chemistry.					x
7	To be able to use the equipment in the chemistry laboratory and do the experiments.				x	
8	To be able to follow current topics related to chemistry by using various teaching environments.				x	
9	To be able to know and apply problem solving strategies in chemistry.					x
10	To be able to understand the basic concepts of chemistry in English.				x	

COURSE QUALIFICATIONS AND COURSE RELATIONS										
Level of Contribution	**1**		**2**		**3**	**4**		**5**		
	Very low		Low		Medium	High		Very high		
DEPARTMENT OF CHEMISTRY										
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**	**CR-9**	**CR-10**
LC-1			**4**			**5**				
LC-2				**5**					**5**	
LC-3	**5**	**5**				**5**				
LC-4				**4**						
LC-5							**4**	**4**		
LC-6	**4**	**4**								
LC-7						**5**				
LC-8				**4**			**4**			
LC-9		**4**							**5**	
LC-10							**4**			

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Electronic and Ionic Conductivity	--
2	Electrolysis	--
3	Galvanic Cells, Cell Potential	--
4	Applied Batteries	--
5	Corrosion Definition, Classification	--
6	Types of Corrosion on Board	--
7	Corrosion Control	--
8	Marine Paints	--
9	MIDTERM	--
10	Physical and Chemical Properties of Water	--
11	Ways of Getting Drinking water from sea water	--
12	Petroleum Structure, Properties and Classification	--
13	Explosion Definition, Explosives Properties and Classification	--
14	Explosion, Chemical Warfare	--
15	Production of Gunpowder, Cotton and Smokeless Gunpowder	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATION (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	14	2	28
Study Hours Out of Class	14	1	14
Assignments and Submission	2	1	2
Semester Project	--	--	--
Project Presentation	--	--	--
Other Studies	1	4	4
Midterm	1	2	2
Individual Study for Midterm Exam	1	5	5
Final Exam	1	2	2
Individual Study for Final Exam	1	8	8
TOTAL WORKLOAD	65 Hours		
ECTS CREDIT OF THE COURSE	Total Workload / 30 = 65 / 30 = 2,16		2 Credit

	TURKISH NAVAL ACADEMY **DEPARMENT OF BASIC SCIENCES** **COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
DIFFERENTIAL EQUATIONS	FEB-211	2/ 1.YY	3+0+0	3	3

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	Not
Instructor	:	Mathematics Teaching Staff
Aim of the course	:	The aim of the course of Differential Equations; The aim of this course is to provide students with general mathematical culture which will be the basis of professional sciences courses and engineering discipline programs taught in upper classes about Laplace Transformations, Ordinary Differential Equations, Fourier Series, Partial Differential Equations..
Learning Outcomes	:	Students who successfully complete this course will be able to; 1) Calculate Laplace Transforms of Functions 2) Find solutions and applications of Ordinary Differential Equations. 3) Solve systems of equations by using Fourier Series. 4) Find the solution of Partial Differential Equations and do their applications.
Content	:	In this context, students will learn the concepts of Laplace Transformations, Ordinary Differential Equations, Fourier Series, Partial Differential Equations and will be able to apply engineering applications. In addition, by expressing the data scientifically, it will lead to disciplined and scientific thinking.

<table>
<tr><td>Course Book</td><td>Diferansiyel Denklemlerin Temelleri
Nagle Saff SNİDER
(Çev. Prof. Dr. Ogün DOĞRU)
  </td></tr>
<tr><td>Other Sources</td><td>Çözümlü Diferansiyel Denklemler
Yrd. Doç. Dr. Melek HAMZAOĞLU
  </td></tr>
<tr><td>Assignments and Projects</td><td></td></tr>
<tr><td>Computer Usage</td><td>Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Evaluation System</td><td>
<table>
<tr><th colspan="2">Activities</th><th>Base Grade</th><th>Number</th><th colspan="2">Contribution to Review, %</th></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">30%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">10%</td></tr>
<tr><td>Assigments</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">%60</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
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</table>
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</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Define, model and solve science and math problems.			X		
2	Analyze the data, make experiments and design, has the ability to interpret the results.			X		
3	To be able to follow the latest developments in science and mathematics.			X		
4	Has the ability of logical and scientific thinking.				X	
5	Evaluates and analyzes the theoretical and practical knowledge gained in science and mathematics with a critical approach through scientific methods; develop solutions based on research for the solution of problems encountered.					X
6	Carries out any work in the field independently and takes responsibility as a team member when necessary.					X
7	To be able to relate science and mathematics to different disciplines and to establish Science and Mathematical models of problems in different disciplines					X
8	Expresses his / her knowledge and experiences and suggestions for solutions in the field in written and oral form within the framework of ethical rules.					X

COURSE QUALIFICATIONS AND COURSE RELATIONS								
Level of Contribution		**1**		**2**	**3**		**4**	**5**
		Very low		Low	Medium		High	Very high
All Departments								
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**
LC-1	3	3		1	2	5	4	
LC-2	3	4		1	2	5	4	
LC-3	3	3		1	2	5	4	
LC-4	3	4		1	2	5	4	

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	DIFFERENTIAL EQUATIONS • Definition, degree and order of differential equations • Differential equation types, creation, solutions • General, special, singular solutions and geometrical meaning	--
2	DIFFERENTIAL EQUATIONS • Variable differential equations • Homogeneous differential equations • Linear differential equations	--
3	DIFFERENTIAL EQUATIONS • Applications of linear differential equations • Bernoulli differential equations • Exact differential equations	--
4	DIFFERENTIAL DIFFERENTIAL EQUATIONS • Lagrance and Clairaut differential equations • Equations with no variables	--
5	DIFFERENTIAL DIFFERENTIAL EQUATIONS • n. Ordering linear differential equations • Homogeneous linear equations with constant coefficients • Solution of second-order linear equations with constant coefficients by indeterminate coefficients	--
6	DIFFERENTIAL DIFFERENTIAL EQUATIONS • Solution of second-order linear equations with constant coefficients by indeterminate coefficients • Solution of second-order linear equations with constant coefficients by changing the parameters	--
7	DIFFERENTIAL DIFFERENTIAL EQUATIONS • Linear differential equations with variable coefficients • Systems of linear equations • Solution of differential equations by Laplace transforms	--
8	MIDTERM	--
9	LAPLACE TRANSFORMATIONS • Laplace transformations • Laplace transforms properties	--
10	LAPLACE TRANSFORMATIONS • Laplace transform of derived functions, integrals • Periodic functions • Gamma function	--
11	REVERSE LAPLACE TRANSFORMATIONS • Inverted laplace conversions • Properties of inverse laplace transformations	--
12	REVERSE LAPLACE TRANSFORMATIONS Methods for finding inverse laplace transforms	--
13	REVERSE LAPLACE TRANSFORMATIONS • Separation method for simple fractions • Heaviside expansion and convolution theorem	--
14	FOURİER SERIES • Solution of systems of differential equations by Laplace transforms • Fourier series	--
15	FOURİER SERIES • Single, double and periodic functions • Fourier series of single and double functions	--

16	PARTIAL DIFFERENTIAL EQUATIONS • Partial differential equations	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	15	3	45
General Laboratory Practice	--	--	--
Guided Problem Solving	15	2	30
Assignments and Report Submission	2	3	6
Term project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Midterm Exam	1	2	2
Individual Study for Midterm Exam	1	6	6
Final Exam	1	2	2
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	103		
ECTS CREDIT OF THE COURSE	Total Workload / 30 = 103 / 30 = 3,43		3 Credits

	**TURKISH NAVAL ACADEMY** **DEPARMENT OF BASIC SCIENCES** **COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
LINEAR ALGEBRA	FEB-221	2/2. YY	3+0+0	3	3

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	Mathematics-1, Mathematics-2
Instructor	:	Mathematics Teaching Staff
Aim of the course	:	The aim of the course is to teach the students the basic knowledge of engineering problems (linear equations) and to gain the ability to apply these methods.
Learning Outcomes	:	Students who successfully complete this course, 1) Can make collection and scalar multiplication on vectors. 2) Knows the properties of matrices, can work on matrices and matrix can take the opposite 3) Knows the properties of determinant and can perform operations related to matrices with the help of determinant. 4) Solve systems of linear equations by means of matrices. 5) Define vector spaces by defining vector spaces. 6) Knows the concepts of rank, linear independence and base. 7) Know the definition of linear transformation and understand whether a given function is a linear transformation. 8) Find and use eigenvalues and eigenvectors with linear transformations. 9) Knows and uses the concept of inner product space and orthogonality
Content	:	In this context, students will learn the concepts of linear equations, vectors, matrices, linear transformations and will be able to do engineering applications. In addition, by expressing the data scientifically, it will lead to disciplined and scientific thinking.

<table>
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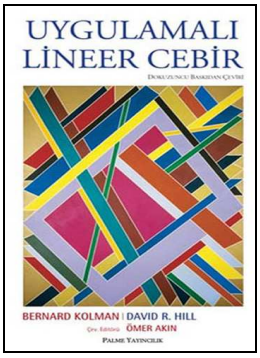
Bernard KOLMAN - David R.HILL
Çev. Ömer AKIN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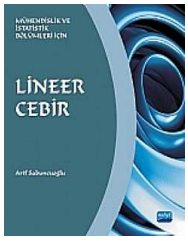
Arif Sabuncuoğlu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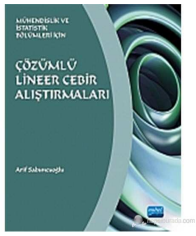
Arif Sabuncuoğlu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<tr><td>Assignments and Projects</td><td colspan="5"></td></tr>
<tr><td>Computer Usage</td><td colspan="5">Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td>Other Applications</td><td colspan="5"></td></tr>
<tr><td rowspan="11">Evaluation System</td><td colspan="2">Activities</td><td>Base Grade</td><td>Number</td><td colspan="2">Contribution to Review, %</td></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">30%</td></tr>
<tr><td rowspan="7">Semester Evaluation</td><td>Quizes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">10%</td></tr>
<tr><td>Assigments</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">%60</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
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Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Define, model and solve science and math problems.			X		
2	Analyze the data, make experiments and design, has the ability to interpret the results.			X		
3	To be able to follow the latest developments in science and mathematics.			X		
4	Has the ability of logical and scientific thinking.				X	
5	Evaluates and analyzes the theoretical and practical knowledge gained in science and mathematics with a critical approach through scientific methods; develop solutions based on research for the solution of problems encountered.					X
6	Carries out any work in the field independently and takes responsibility as a team member when necessary.					X
7	To be able to relate science and mathematics to different disciplines and to establish Science and Mathematical models of problems in different disciplines					X
8	Expresses his / her knowledge and experiences and suggestions for solutions in the field in written and oral form within the framework of ethical rules.					X

COURSE QUALIFICATIONS AND COURSE RELATIONS								
Level of Contribution		**1**		**2**	**3**		**4**	**5**
		Very low		Low	Medium		High	Very high
All Departments								
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**
LC-1	3	3	1	2	3	3	3	
LC-2	3	3	1	2	3	3	3	
LC-3	3	3	1	2	3	3	3	
LC-4	4	3	1	2	3	3	3	
LC-5	3	4	1	2	2	2	2	
LC-6	2	2	1	1	2	2	2	
LC-7	2	2	1	2	2	2	2	
LC-8	3	3	1	2	2	3	2	
LC-9	2	2	1	2	2	2	2	

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Introduction to vectors • Vectors in R^n space • The sum of the vectors, the scalar multiplication and the scalar multiplication	--
2	Matrix Algebra • Matrices • Sum of matrices, multiplication by scalar • Matrix transposition • Matrices and systems of linear equations	--
3	Matrix Algebra • Step mats, Elementary row operations • Matrix inverse, Similar matrices	--
4	determinants • Properties of determinants • Minors and cofactors, Adjoint matrix	--
5	determinants • Cramer method • Matrix inverse with the help of determinant	--
6	Linear Equation Systems Solutions • Gauss elimination method • Gauss-Jordan method	--
7	Vector Spaces and Subspaces • Vector space concept • Subspaces	--
8	Vector Spaces and Subspaces • Rank • Row and column space of a matrix • Linear combinations	--
9	Vector Spaces and Subspaces / Midterm Exam • Linear dependence and independence • Base and size	--
10	Midterm / Linear Transformations • Definition of linear transformation • Operations in linear transformations	--
11	Linear Transformations • Core and value zone • Determinant of linear transformation	--
12	Eigenvalues and Eigenvectors • Finding eigenvalues and eigenvectors	--
13	Eigenvalues and Eigenvectors • Diagonalization • Cayley-Hamilton theorem	--
14	Inner Product Spaces and Orthogonality • Inner product spaces • Cauchy-Schwartz inequality • Orthogonality	--
15	Inner Product Spaces and Orthogonality • Gram-Schmidt orthogonalization process • Applications	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	14	3	42
General Laboratory Practice	--	--	--
Guided Problem Solving	14	2	28
Assignments and Report Submission	2	3	6
Term project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Midterm Exam	1	2	2
Individual Study for Midterm Exam	1	6	6
Final Exam	1	2	2
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	98 Hours		
ECTS CREDIT OF THE COURSE	Total Workload/ 30 = 98/30 = 3,26		3 Credits

	TURKISH NAVAL ACADEMY **DEPARMENT OF BASIC SCIENCES** **COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
PROBABILITY AND STATISTICS	FEB-222	2/ 2.YY	3+0+0	3	3

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	Mathematics-1, Mathematics-2
Instructor	:	Mathematics Teaching Staff
Aim of the course	:	The aim of probability and statistics course; The aim of this course is to provide the students with the basic concepts and principles related to the performance and analysis of engineering applications in the department of War-III and War-IV.
Learning Outcomes	:	Students who can successfully complete this course; 1) Associate basic concepts of statistics and probability concepts. 2) To be able to interpret statistical data sets by using numerical and graphical methods. 3) Acquire theoretical and practical knowledge about probabilistic problems. 4) To be able to make scientific prediction by using descriptive and inference. 5) Understands random variables and their distributions. 6) To be able to use random variable and continuous random variables and distributions. 7) Distinguish basic sampling distributions. 8) Be able to predict the relationship between universe and sample within the scope of the basic paradigm in Scientific Research Methods. 9) To learn to test the results obtained from the analysis with statistical hypothesis testing. 10) Can test hypotheses (statistical) parametric and non-parametric.
Content	:	In this context, students will be able to learn basic concepts and principles related to the performance and analysis of engineering applications.

<table>
<tr><td>Course Book</td><td>John E. FREUND’dan Matematiksel İstatistik

Irwin MILLER / Marylees MILLER (Çev. Ümit ŞENSES)
 
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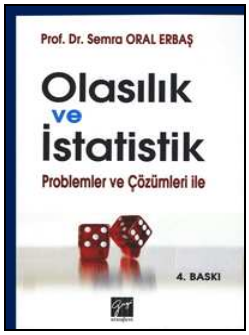
<tr><td>Other Sources</td><td>Olasılık ve İstatistik
Prof. Semra Oral ERBAŞ
 
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<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">30%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">10%</td></tr>
<tr><td>Assigments</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">%60</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>
</td></tr>
</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Define, model and solve science and math problems.			X		
2	Analyze the data, make experiments and design, has the ability to interpret the results.			X		
3	To be able to follow the latest developments in science and mathematics.			X		
4	Has the ability of logical and scientific thinking.				X	
5	Evaluates and analyzes the theoretical and practical knowledge gained in science and mathematics with a critical approach through scientific methods; develop solutions based on research for the solution of problems encountered.					X
6	Carries out any work in the field independently and takes responsibility as a team member when necessary.					X
7	To be able to relate science and mathematics to different disciplines and to establish Science and Mathematical models of problems in different disciplines					X
8	Expresses his / her knowledge and experiences and suggestions for solutions in the field in written and oral form within the framework of ethical rules.					X

COURSE QUALIFICATIONS AND COURSE RELATIONS								
Level of Contribution		**1**	**2**	**3**		**4**	**5**	
		Very low	Low	Medium		High	Very high	
All Departments								
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**
LC-1	3	2	1	3	2	5	4	
LC-2	3	3	1	4	2	4	3	
LC-3	2	4	1	5	2	4	2	
LC-4	3	3	1	4	1	4	3	
LC-5	3	2	1	3	2	4	3	
LC-6	4	3	2	2	3	4	3	
LC-7	2	3	2	2	3	5	4	

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Introduction to Statistics • Basic Concepts, Statistics, Population, Parameter, Sample Statistics • Variable and Variable Types, Measurement Levels • Editing Data and Graphics	--
2	Measures of Central Tendency and Distribution • Arithmetic Mean, Mod, Median and Cartridges, Harmonic Mean, Geometric Mean • Variability and Asymmetry Measures Change Range, Standard Deviation • Variance, Coefficient of Variation, Mean Absolute Deviation, Bowley and Pearson Asymmetry Measurements	--
3	Permutations, Combinations, Probability • Basic Rules of Counting, Permutation, Probability Theorems • Permutation, Probability Theorems • Dependent, Independent Events	--
4	Conditional Probability, Bayes Theorem • Bayes Theorem • Bayes' Rule • Conditional Probability	--
5	Random Variables and Types • Discrete, Continuous Chance Variables, Probability Function • Probability Density Function, Expected Value • Variance Concept Calculations, Moments	--
6	Discrete Probability Distributions • Uniform Distribution, Bernoulli Distribution • Binomial distribution • Poisson distribution	--
7	Some Discrete Probability Distributions • The Approach of Binomial Distribution to Poisson Distribution. • Hypetometric Distribution, Geometric Distribution, Negative Binomial (Pascal) Distribution • Probability Functions, Expected Value and Variances	--
8	MIDTERM	--
9	Continuous Probability Distributions • Exponential Distribution, Uniform Distribution, Gamma Distribution, Normal Distribution • Probability Density Functions • Expected Value and Variances	--
10	Approach to the Normal Distribution of Binomial and Poisson Distribution • Approach to the Normal Distribution of Binomial Distribution • Approach to the Normal Distribution of the Distribution of Poisson Distribution • Approach to the Normal Distribution of the Distribution of Poisson Distribution	--
11	Sampling and Sampling Distributions • Sampling Distribution of Sample Average, Sampling Distribution of Sample Ratio • Sampling Distribution of Sample Variance, Central Limit Theorem. • Student –T distribution, Chi - Square Distribution and F Distribution	--

12	Point Estimation, Range Estimation, Confidence Interval • Classic Estimation Method, Forecast Interval-Confidence Interval • Universe Average with a Sample, Rate • Confidence Interval for Variance	--
13	One and Two Sample Prediction Problems • Estimation of the Difference Between the Two-Samples and the Meanings of the Two Universes • Estimation of Variance Rates of Two Universes with Two Samples • Estimation of Variance Rates of Two Universes with Two Samples	--
14	Hypothesis Testing • Test for a variance with a sample • Test for the difference between the mean of two universes with a sample • Test on the difference between averages with two samples • Test of the difference between the proportions of the province and two samples	--
15	Non-parameter tests • Conformity testing • Independence and homogeneity tests • Various ratio tests	--

ECTS / TABLE OF WORKLOAD

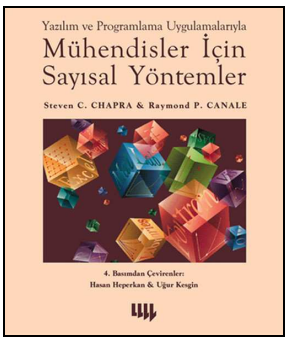
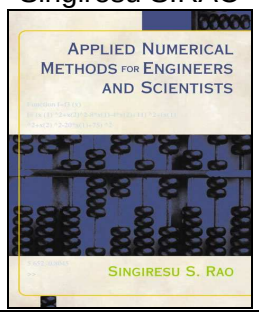
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	14	3	42
General Laboratory Practice	--	--	--
Guided Problem Solving	14	2	28
Assignments and Report Submission	2	3	6
Term project	--	--	--
Project Presentation	--	--	--
Quiz	2	1	2
Midterm Exam	1	2	2
Individual Study for Midterm Exam	1	6	6
Final Exam	1	2	2
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	98 Hours		
ECTS CREDIT OF THE COURSE	Total Workload / 30 = 98 / 30 = 3,26		3 Credits

	**TURKISH NAVAL ACADEMY** **DEPARMENT OF BASIC SCIENCES** **COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
NUMERICAL METHODS	FEB-311	3/ 1.YY	2+0+0	2	3

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	Not
Instructor	:	Mathematics Teaching Staff
Aim of the course	:	The aim of this course is to teach the numerical methods used in solving engineering problems and to gain the ability of problem solving with computer.
Learning Outcomes	:	Students who can successfully complete this course; 1) Know the concept of error analysis and apply it in numerical calculations. 2) Find the roots of functions by using numerical methods. 3) Be able to solve linear equation systems by using numerical methods and be able to think about the structure of the system of linear equations. 4) To be able to derive the curve formula by using the set of given points and find the intermediate values with this function. 5) know the interpolation techniques and find a curve equation which passes through these points by using the given data points. 6) Know the concept of numerical integration and get the value of the integral using different numerical integration methods. 7) To be able to calculate numerical solutions of differential equations by using numerical derivative formulas with high accuracy. 8) solve ordinary differential equations and boundary value problems with different numerical methods. 9) Know the finite difference method, using this method, laplace equation, heat transfer equation, elliptic equations should be able to solve, apply to engineering problems.

Content	:	In this context, students will be able to learn the concepts of error analysis, finding function roots, linear equations systems, deriving the curve formula, interpolation techniques, numerical integration, ordinary differential equations and engineering applications. In addition, by expressing the data with scientific symbols, they will lead to disciplined and scientific thinking.

Course Book	Mühendisler için Sayısal Yöntemler Steven CHAPRA 
Other Sources	Applied Numerical Methods for Engineers and Scientists Singiresu S.RAO 
Assignments and Projects	
Computer Usage	Students can do their homework by using computer (not obligatory).
Other Applications	

Evaluation System	**Activities**		**Base Grade**	**Number**	**Contribution to Review, %**	
	Mid term		50	1	30%	
	Semester Evaluation	Quizes	50	1	%	10%
		Assigments	50	1	%	
		Projects	50	1	%	
		Term Paper/ Project	50	1	%	
		Laboratory Applications	50	1	%	
		Other Applications	50	1	%	
	Final Exam		50	1	%60	

	Make-up Exam	50	-	100%
	Single Course / Extra Make-up Exam	50	-	100%

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Define, model and solve science and math problems.			X		
2	Analyze the data, make experiments and design, has the ability to interpret the results.			X		
3	To be able to follow the latest developments in science and mathematics.			X		
4	Has the ability of logical and scientific thinking.				X	
5	Evaluates and analyzes the theoretical and practical knowledge gained in science and mathematics with a critical approach through scientific methods; develop solutions based on research for the solution of problems encountered.					X
6	Carries out any work in the field independently and takes responsibility as a team member when necessary.					X
7	To be able to relate science and mathematics to different disciplines and to establish Science and Mathematical models of problems in different disciplines					X
8	Expresses his / her knowledge and experiences and suggestions for solutions in the field in written and oral form within the framework of ethical rules.					X

COURSE QUALIFICATIONS AND COURSE RELATIONS								
Level of Contribution		**1**	**2**	**3**		**4**		**5**
		Very low	Low	Medium		High		Very high
All Departments								
	CR-1	**CR-2**	**CR-3**	**CR-4**	**CR-5**	**CR-6**	**CR-7**	**CR-8**
LC-1	5	3	3	4	4	5	3	
LC-2	3	3	3	4	3	5	3	
LC-3	4	5	3	5	4	5	3	
LC-4	5	4	3	5	4	5	5	
LC-5	4	4	3	5	4	5	3	
LC-6	4	3	3	4	3	5	3	
LC-7	3	4	3	5	4	5	3	
LC-8	3	5	3	5	4	5	5	
LC-9	4	5	3	5	4	5	5	

WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	ERROR ANALYSIS • Introduction to numerical methods, Approach and rounding errors • Cutting errors and Taylor series	--
2	ROOT FINDING METHODS • Primitive methods, Intermediate half-time • Displacement method, Application	--
3	ROOT FINDING METHODS • Fixed-point iteration, Newton-Raphson • Secant method	--
4	LINEAR EQUATIONS • Gauss-Jordan, LU decomposition, Matrix Inverse • Error Analysis and System condition	--
5	LINEAR EQUATIONS • Cholesky decomposition • Gauss-Seidel	--
6	CURVE FITTING • Least squares method, linear regression • Polynomial regression	--
7	MIDTERM	--
8	THE INTERPOLATION Newton's divided difference interpolation polynomials • Lagrance interpolation polynomials, cubic strip interpolation	--
9	NUMERICAL INTEGRATION • Newton Cotes Integral Formulas (Trapeze Method) • Newton Cotes Formulas (Simpson Methods)	--
10	NUMERICAL INTEGRATION • Romberg Integral • Gaussian frame	--
11	NUMERICAL DERIVATIVE • High accuracy differential formulas • Richardson extrapolation	--
12	ORDINARY DIFFERENTIAL EQUATIONS • Euler Method • Improvements to the Euler method	--
13	ORDINARY DIFFERENTIAL EQUATIONS • Runge-Kutta methods • Limit value and eigenvalue problems	--
14	PARTIAL DIFFERENTIAL EQUATIONS • Finite difference: Elliptic Equations • Laplace Equation	--
15	PARTIAL DIFFERENTIAL EQUATIONS • Finite difference: Parabolic equations, Heat conduction equation • Crank-Nicholson method	--
16	PARTIAL DIFFERENTIAL EQUATIONS • Finite difference: Parabolic equations, Heat conduction equation • Crank-Nicholson method	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	15	2	30
General Laboratory Practice	--	--	--
Guided Problem Solving	15	2	30
Assignments and Report Submission	3	5	15
Term project	--	--	--
Project Presentation	--	--	--
Quiz	2	2	4
Midterm Exam	1	2	2
Individual Study for Midterm Exam	1	6	6
Final Exam	1	2	2
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	99		
ECTS CREDIT OF THE COURSE	Total Workload /30 = 99 / 30 = 3,3		3 Credits

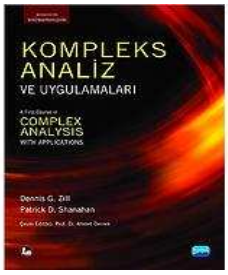
	TURKISH NAVAL ACADEMY **DEPARMENT OF BASIC SCIENCES** **COURSE CATALOGUE**	

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
COMPLEX ANALYSIS	FM-311	3 / 1.YY	2+0+0	2	3

Language of the course	:	Turkish
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	Differential Equations
Instructor	:	Mathematics Teaching Staff
Aim of the course	:	To give the necessary information about the complex functions theory needed by the related branches and to create the required infrastructure.
Learning Outcomes	:	Students who can successfully complete this course; 1) To be able to do algebraic operations with complex numbers, to be able to write complex numbers in trigonometric and exponential form, to find the roots of complex numbers. 2) To be able to analyze single and multivalent functions, elementary complex variable functions, calculate the limits and derivatives of complex functions, apply Cauchy-Riemann equations in analytic functions. 3) To be able to recognize the integrals and properties of curvilinear, to compute the integral of the Cauchy-Goursat theorem, to comprehend the advantages of Cauchy Integral theorem 4) To be able to open a function to the Laurent and Taylor series, and to determine the types of unique points of complex functions. 5) To be able to determine polar points, to be able to comprehend the advantages of residual theorem and to calculate curvilinear integral problems with the help of residual theorem. 6) To be able to distinguish the real integrals by selecting the appropriate environment in the complex plane.
Content	:	In this context, students will be able to learn and apply the concepts of complex functions and complex integrals. In addition, by expressing the data with scientific symbols, they will lead them to think disciplinary and scientific.

<table>
<tr><td>Course Book</td><td>Kompleks Analiz ve Uygulamaları

Dennis G. ZILL

  </td></tr>
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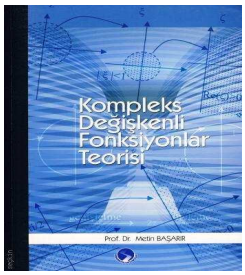
Metin BAŞARIR

  </td></tr>
<tr><td>Assignments and Projects</td><td></td></tr>
<tr><td>Computer Usage</td><td>Students can do their homework by using computer (not obligatory).</td></tr>
<tr><td>Other Applications</td><td></td></tr>
<tr><td>Evaluation System</td><td colspan="7"><table>
<tr><th colspan="2">Activities</th><th>Base Grade</th><th>Number</th><th colspan="2">Contribution to Review, %</th></tr>
<tr><td colspan="2">Mid term</td><td>50</td><td>1</td><td colspan="2">28%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>50</td><td>1</td><td>%</td><td rowspan="6">12%</td></tr>
<tr><td>Assigments</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">%60</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table></td></tr>
</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Define, model and solve science and math problems.			X		
2	Analyze the data, make experiments and design, has the ability to interpret the results.			X		
3	To be able to follow the latest developments in science and mathematics.			X		
4	Has the ability of logical and scientific thinking.				X	
5	Evaluates and analyzes the theoretical and practical knowledge gained in science and mathematics with a critical approach through scientific methods; develop solutions based on research for the solution of problems encountered.					X
6	Carries out any work in the field independently and takes responsibility as a team member when necessary.					X
7	To be able to relate science and mathematics to different disciplines and to establish Science and Mathematical models of problems in different disciplines					X
8	Expresses his / her knowledge and experiences and suggestions for solutions in the field in written and oral form within the framework of ethical rules.					X

COURSE QUALIFICATIONS AND COURSE RELATIONS

Level of Contribution	1	2	3	4	5
	Very low	Low	Medium	High	Very high

All Departments

	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8
LC-1	5	3	1	2	2	3	3	
LC-2	3	3	1	3	5	4	4	
LC-3	5	3	1	4	5	5	3	
LC-4	3	2		3	3	4	3	
LC-5	5	3	1	3	4	5	3	
LC-6	3	3		4	3	3	3	

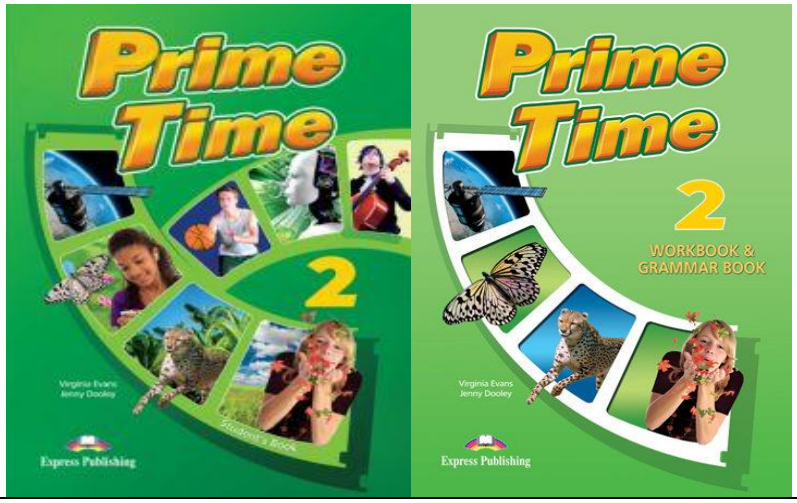
WEEKLY TOPICS		
Week	**TOPICS**	
	Theoritical	**Laboratory**
1	Complex Numbers • Complex numbers and properties • Polar display	--
2	Complex Numbers • Exponential notation • Forces and roots	--
3	Complex Variable Functions • Complex functions • Elementary functions	--
4	Complex Variable Functions • Limit • Derivatives	--
5	Complex Variable Functions • Cauchy Riemann equations	--
6	Complex Variable Functions • Analytical functions • Harmonic functions	--
7	Complex Integrals • Curvilinear integrals • Simple and closed curves	--
8	Complex Integrals • Cauchy-Gaursat theorem applications	--
9	Complex Integral / Midterm • Cauchy integral theorem • Cauchy integral theorem applications	--
10	Midterm Exam / Series • Taylor series expansion	--
11	Series • Laurent series expansion	--
12	Series • Classification of singular points	--
13	Residue Theorem and Applications • Residual theorem • Residue calculation	--
14	Residue Theorem and Applications • Integral calculation with the help of residues	--
15	Calculation of some true integrals with the help of residues • Real integrals including sine and cosine • Generalized integrals	--
16	Calculation of some true integrals with the help of residues • Real integrals including sine and cosine • Generalized integrals	--

ECTS / TABLE OF WORKLOAD			
ACTIVITIES	**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course	15	2	30
General Laboratory Practice	--	--	--
Guided Problem Solving	15	1	15
Assignments and Report Submission	2	4	8
Term project	--	--	--
Project Presentation	--	--	--
Quiz	2	2	4
Midterm Exam	1	3	3
Individual Study for Midterm Exam	1	5	5
Final Exam	1	5	5
Individual Study for Final Exam	1	10	10
TOTAL WORKLOAD	80		
ECTS CREDIT OF THE COURSE	Total Workload / 30 = 80 / 30 = 2,6		3 Credits

TURKISH NAVAL ACADEMY
DEPARTMENT OF FOREIGN LANGUAGES
COURSE CATALOGUE

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
BASIC ENGLISH I	YAD-111	I/I	2+4	4	4

Language of the course	:	ENGLISH
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	
Instructor	:	
Aim of the course	:	The aim of this course is to enable students to reach A2 + B1 level within the framework of the European Common Language Reference Framework (CEFR).
Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Understand familiar words and very basic patterns about themselves, their families and their immediate surroundings when spoken slowly and clearly. 2. Understand familiar names in written texts such as catalogs, announcements or posters, the words, and very simple sentences. 3. Understand the patterns that are directly related to them and frequently used words. 4. Read short and simple texts. Understand general information in simple daily texts such as advertisements, manuals, menus and timelines and short, personal letters.
Content	:	**Topics:** Countries and nations, Greetings, Describing the psychical appearance of the people, Shop types, Household chores, Daily jobs, Family members, School rules, Animals, Food, Festival and special occasions, Education and technology, Holiday, Disasters, **Activities:** Matching by listening, sentence completion, answering questions about the text, distinguishing the sentences about the text as true / false, completing the missing sentences, answering the questions about the text as they listen.

<table>
<tr><td>Coursebook</td><td colspan="5">Prime Time 2 Authors: Virginia Evans, Jenny Dooley
Expressing Publishing.
 
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<tr><td colspan="2">Mid term</td><td>60</td><td>1</td><td colspan="2">28%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>60</td><td>1</td><td>%</td><td rowspan="6">12%</td></tr>
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<tr><td>Term Paper/ Project</td><td>60</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Applications</td><td>60</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>60</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>60</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>60</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>60</td><td>-</td><td colspan="2">100%</td></tr>
</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Students will be able to introduce themselves and use basic greeting expressions.					x
2	Students will be able to talk about hometowns of themselves and other people and introduce the city briefly.					x
3	Students will be able to give simple information about family and colleagues and briefly explain their characters with their appearance.					x
4	Students will be able to talk about clothes basicly and ask the sellers about them.				x	
5	Students will be able to talk about most popular foods and order package meals.				x	
6	Students will be able to talk about daily activities and arrange meetings with friends and colleagues.					x
7	Students will be able to talk about general health issues and general medical symptoms.				x	
8	Students will be able to talk about weather conditions and provide insights into things to do according to weather forecasts.					x
9	Students will be able to explain the location of the house and give simple directions.					x
10	Students will be able to talk about his hobbies and interests and make plans to have fun with firends and colleagues.					x

COURSE QUALIFICATIONS AND COURSE RELATIONS

Level of Contribution	1	2	3	4	5
	Very low	Low	Medium	High	Very high

Basic English I

	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR- 10
LC-1	5	5	5	4		4			5	**5**
LC-2	5	5	5	4	4	5	4	4	5	**5**
LC-3	5	5		5	5		5	5	5	
LC-4			5			5				**5**

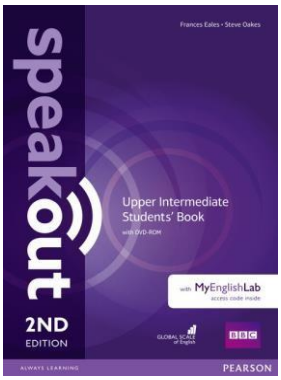
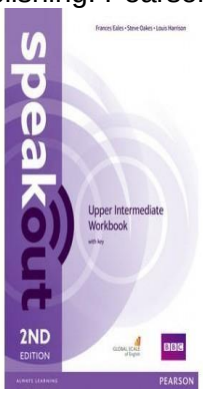
WEEKLY TOPICS			
Week	**TOPICS**		
		Theoritical	**Laboratory**
1	Prime Time 2 (Pre-intermediate) : Unit 1 “Home and Away”	2	4
2	Prime Time 2 (Pre-intermediate): Unit 1 “Home and Away”	2	4
3	Prime Time 2 (Pre-intermediate): Unit 1 “Home and Away”	2	4
4	Prime Time 2 (Pre-intermediate): Unit 1 “Home and Away”	2	4
5	Prime Time 2 (Pre-intermediate): Unit 2 “Food and Drinks”	2	4
6	Prime Time 2 (Pre-intermediate): Unit 2 “Food and Drinks”	2	4
7	Prime Time 2 (Pre-intermediate): Unit 2 “Food and Drinks”	2	4
8	**MID TERM**		
9	Prime Time 2 (Pre-intermediate): Unit 2 “Food and Drinks”	2	4
10	Prime Time 2 (Pre-intermediate) : Unit 3 “Great People and Legends”	2	4
11	Prime Time 2 (Pre-intermediate) : Unit 3 “Great People and Legends”	2	4
12	Prime Time 2 (Pre-intermediate) : Unit 3 “Great People and Legends”	2	4
13	Prime Time 2 (Pre-intermediate) : Unit 3 “Great People and Legends”	2	4
14	General Review	2	4
15	Quizzez, Games	2	4

ECTS / TABLE OF WORKLOAD				
ACTIVITIES		**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course		14	2	28
General Laboratory Practice		14	4	52
Guided Problem Solving	**Class Work**	--	--	--
	Individual or Group Working	14	2	28
Assignments and Report Submission		5	2	10
Term project		--	--	--
Project Presentation		--	--	--
Other Studies		2	1	2
Midterm Exam		1	1,5	1,5
Individual Study for Midterm Exam		1	3	3
Final Exam		1	2	2
Individual Study for Final Exam		1	4	4
TOTAL WORKLOAD		130,5 Hours		
ECTS CREDIT OF THE COURSE		Total Workload/ 30 = 130,5 / 30 = 4,35		4 Credits

TURKISH NAVAL ACADEMY
DEPARTMENT OF FOREIGN LANGUAGES
COURSES CATALOGUE

COURSE NAME	Code	Class / Semester	Duration (T+P)	Credit	ECTS
ADVANCED ENGLISH I	YAD-112	I/I	2+4	4	4

Language of the Course	:	ENGLISH
Level of the Course	:	Bachelors Degree
Prerequisite of the Course	:	-
Instructor of the Course	:	-
Aim of the Course	:	The aim of this course is to provide advanced English students to the B2 + level within the framework of the European Common Language Reference Framework (CEFR).
Course Learning Outcomes	:	1) To be able to understand long speech and presentations, to understand complex discussions, to understand television news and current events. 2) Understanding contemporary literary prose. Students will be able to read articles and reports on current issues that authors adopt from a particular attitude or opinion. 3) Students will be able to use the target language communicating with people who speak as native speakers and they can communicate with a fluency and naturalness. The pupil can explain his / her opinion effectively in discussions about the familiar topics. 4) Students can give clear and detailed information about the subjects of interest. Explain the positive and negative aspects of various options and express opinions on a subject. 5) Students will be able to write comprehensible, detailed texts on a wide range of subjects of interest. Write a composition that supports or opposes a point of view.

Course Content	:	**Topics:** To give the word knowledge about internet and communication types, to make predictions, to express their preference, emotions and physical perceptions of vocabulary, answer letters, types of work, skills, earn money, home types, parts of the house, tools, furniture, vocabulary related to home rental, modern lifestyles, fashion, TV programs, holiday varieties, historical figures and achievements, historical events, vocabulary information about peace and war, to approve and answer, astonishment specify, education, school sections, school types, **Activities**: Matching by listening, sentence completion, main points when listening, taking notes about ideas, giving advice and advice, writing about the advantages and disadvantages of a subject, story of personal experiences, finding the main idea in the text, detailed reading, answering questions about the text, distinguish the sentences about the text as true / false, complete the missing sentences, answer the questions about the text as they listen.
Coursebook		**Speakout 2nd edition - Upper Intermediate** - Authors: Frances EALES-Steve OAKES Publishing: Pearson Education Limited  
Assignments and Projects		Advanced storybook summary, exercises in the textbook, unit questions on Speakout Extra and extra study papers.

			Base Grade	Number	Contribution to Review, %	
Success Evaluation Systems	Activities					
	Quizes		50	1	28%	
	Semester Evaluation	Quizes	50	1	%	12%
		Assignments	50	1	%	
		Projects	50	1	%	
		Term Paper / Project	50	1	%	
		Laboratory Application	50	1	%	
		Other Applications	50	1	%	
	Final Exam		50	1	50%	
	Resit / Make-up Exam		50	-	100%	
	Single Course / Extra Make-up Exam		50	-	100%	

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Students will be able to develop new ideas by understanding and commenting on the content of complex texts in concrete and abstract subjects.					x
2	Students will be able to understand the debates in their field and produce new solutions.					x
3	Students who speak a foreign language in their daily life, easily and naturally talk and agree to both sides.					x
4	Students can express their ideas clearly and in detail in a wide range of subjects.					x
5	Students will be able to express their personal feelings on a current topic, and list the advantages and disadvantages of different options associated with writing a detailed text.					x

COURSE QUALIFICATIONS and COURSE RELATIONS

Level of Contribution	1	2	3	4	5
	Very Low	Low	Medium	High	Very High

Advanced English 1

	CR-1	CR -2	CR -3	CR-4	CR-5
LC-1	5	5	5	5	
LC -2	5	5	5		
LC -3	5			5	5
LC -4			5		

Week	WEEKLY TOPICS		
	TOPICS	Theoritical	Laboratory
1	SPEAKOUT UNIT 1 :NEW THINGS	2	4
2	SPEAKOUT UNIT 1 :NEW THINGS	2	4
3	SPEAKOUT UNIT 1 :NEW THINGS	2	4
4	SPEAKOUT UNIT 2 : ISSUES	2	4
5	SPEAKOUT UNIT 2 : ISSUES	2	4
6	SPEAKOUT UNIT 2 : ISSUES	2	4
7	GENERAL REVIEW	2	4
8	**MIDTERM**		
9	SPEAKOUT UNIT 3 : STORIES	2	4
10	SPEAKOUT UNIT 3 : STORIES	2	4
11	SPEAKOUT UNIT 3 : STORIES	2	4
12	SPEAKOUT UNIT 4 : DOWNTIME	2	4
13	SPEAKOUT UNIT 4 : DOWNTIME	2	4
14	SPEAKOUT UNIT 4 : DOWNTIME	2	4
15	GENERAL REVIEW	2	4

ECTS / TABLE OF WORKLOAD				
ACTIVITIES		**NUMBER**	**DURATION (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Lecture		14	2	28
General Laboratory Practice		14	4	52
Guided Problem Solving	**Class Work**	--	--	--
	Individual or Group Working	14	2	28
Assignments and Report Submission		5	2	10
Term project		--	--	--
Project Presentation		--	--	--
Other Studies		2	1	2
Midterm		1	1,5	1,5
Individual Study for Midterm Exam		1	3	3
Final Exam		1	2	2
Individual Study for Final Exam		1	4	4
TOTAL WORKLOAD		130,5 Hours		
ECTS CREDIT OF THE COURSE		Total Workload / 30 = 130,5 / 30 = 4,35		4 Credits

TURKISH NAVAL ACADEMY
DEPARTMENT OF FOREIGN LANGUAGES
COURSE CATALOGUE

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
BASIC ENGLISH II	YAD-121	I/II	2+2	3	3

Language of the course	:	ENGLISH
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	
Instructor	:	
Aim of the course	:	The aim of this course is to enable students to reach B1 level within the framework of the European Common Language Reference Framework (CEFR).
Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Understand the patterns that are directly related to them and frequently used words. 2. Read short and simple texts and understand general information in simple daily texts such as timelines. 3. Give information about family members and other people, living conditions and education background in a simple language. 4. Write e-mails with short and simple sentences.
Content	:	**Topics:** City, Locations, Food and drinks, Touristic places, Types of holiday, Parts of a city, Problems in holidays, World problems, Natural disasters, Types of injury, Art, Music, Musical instruments, Cultural interests **Activities:** Matching by listening, sentence completion, answering questions about the text, distinguishing the sentences about the text as true / false, completing the missing sentences, answering the questions about the text as they listen.

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 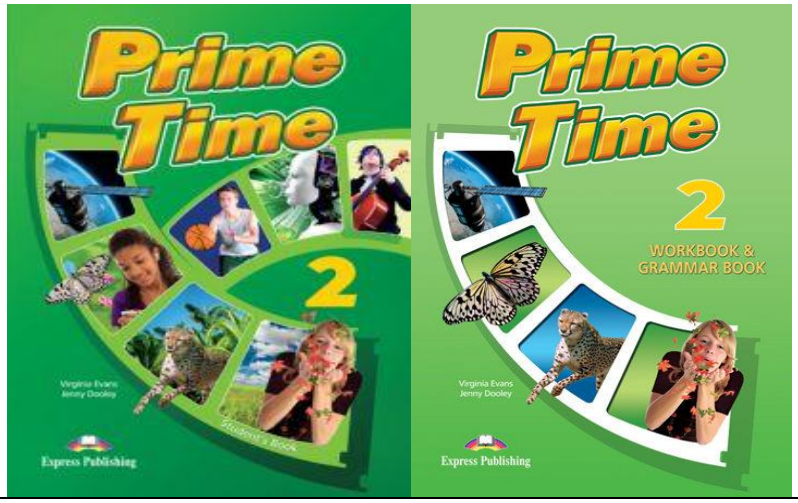
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<tr><td colspan="2">Mid term</td><td>60</td><td>1</td><td colspan="2">28%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizes</td><td>60</td><td>1</td><td>%</td><td rowspan="6">12%</td></tr>
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<tr><td>Projects</td><td>60</td><td>1</td><td>%</td></tr>
<tr><td>Term Paper/ Project</td><td>60</td><td>1</td><td>%</td></tr>
<tr><td>Laboratory Application</td><td>60</td><td>1</td><td>%</td></tr>
<tr><td>Other Applications</td><td>60</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final Exam</td><td>60</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>60</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>60</td><td>-</td><td colspan="2">100%</td></tr>
</table>

Nu	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Students will be able to understand basic expressions and commonly used sentence types.					x
2	Students will be able to explain the past life and give important information about important points.					x
3	Students will be able to talk about their favorite movies and choose which movies to watch with their friends.					x
4	Students will be able to understand open, slow and standard level speech and understand the main idea in clear, short and simple texts.				x	
5	Students will be able to understand the short, simple texts of high frequency words.				x	
6	Students will be able to write short and simple texts and messages and use the basic level sentence patterns in writing.					x
7	Students will be able to write e-mails (informal, advice, etc.).					x
8	Students will be able to talk about future plans.					x
9	Students will be able to request information, offer suggestions and express their preferences.					x
10	Students will be able to describe a process and express an experience in writing.					x

COURSE QUALIFICATIONS AND COURSE RELATIONS										
Level of Contribution		1		2		3		4		5
		Very low		Low		Medium		High		Very high
Basic English II										
	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR- 10
LC-1	5	5	5	4		4			5	**5**
LC-2	5	5	5			4			4	
LC-3	3	5		4	4		4	4	5	
LC-4			5				5			**4**

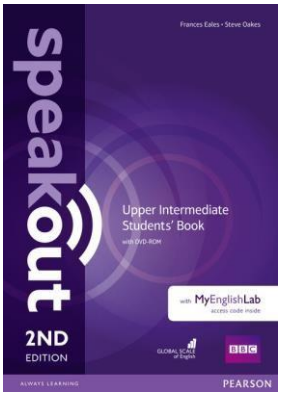
WEEKLY TOPICS			
Week	**TOPICS**		
		Theoritical	**Laboratory**
1	Prime Time 2: Unit 4 “On Holiday”	2	2
2	Prime Time 2 : Unit 4 “On Holiday”	2	2
3	Prime Time 2: Unit 4 “On Holiday”	2	2
4	Prime Time 2: Unit 4 “On Holiday”	2	2
5	Prime Time 2: Unit 5 “Helping Hands”	2	2
6	Prime Time 2 : Unit 5 “Helping Hands”	2	2
7	Prime Time 2 : Unit 5 “Helping Hands”	2	2
8	**MIDTERM**		
9	Prime Time 2 : Unit 5 “Helping Hands	2	2
10	Prime Time 2 : Unit 5 “Helping Hands”	2	2
11	Prime Time 2 : Unit 6 “Art and Culture”	2	2
12	Prime Time 2: Unit 6 “Art and Culture”	2	2
13	Prime Time 2: Unit 6 “Art and Culture”	2	2
14	Prime Time 2: Unit 6 “Art and Culture”	2	2
15	Quizzes, General Review	2	2

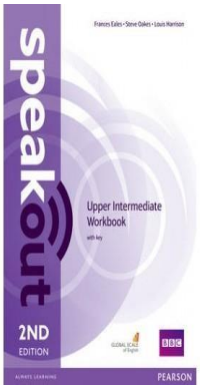
ECTS / TABLE OF WORKLOAD				
ACTIVITIES		**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoritical Course		14	2	28
General Laboratory Practice		14	2	28
Guided Problem Solving	**Class Work**	--	--	--
	Individual or Group Working	14	2	28
Assignments and Report Submission		4	1	4
Term project		--	--	--
Project Presentation		--	--	--
Other Studies		2	1	2
Midterm Exam		1	1,5	1,5
Individual Study for Midterm Exam		1	3	3
Final Exam		1	2	2
Individual Study for Final Exam		1	3	4
TOTAL WORKLOAD		100,5 Hours		
ECTS CREDIT OF THE COURSE		Total Workload/ 30 = 100,5 / 30 = 3,35		3 Credits

TURKISH NAVAL ACADEMY
DEPARTMENT OF FOREIGN LANGUAGES
COURSES CATALOGUE

COURSE NAME	Code	Class / Semester	Duration (T+P)	Credit	ECTS
ADVANCED ENGLISH I	YAD-122	I/II	2+2	3	3

Language of the Course	:	ENGLISH
Level of the Course	:	Bachelors Degree
Prerequisite of the Course	:	-
Instructor of the Course	:	-
Aim of the Course	:	The aim of this course is to provide advanced English students to the B1 level within the framework of the European Common Language Reference Framework (CEFR).
Course Learning Outcomes	:	1) Students will be able to understand long speech and presentations, to understand complex debates, to understand television news and current events. 2) Students will be able to understand contemporary literary prose. Students will be able to read articles and reports on current issues that authors adopt from a particular attitude or opinion. 3) Students will be able to communicate with a fluency and naturalness that will enable agreement with people who speak the mother tongue as their target language. They can explain his / her opinion effectively in discussions about the familiar topics. 4) Students can give clear and detailed information about the subjects of interest. Explain the positive and negative aspects of various options and express opinions on a subject. 5) Students will be able to write comprehensible, detailed texts on a wide range of subjects of interest. They can write a composition that supports or opposes a point of view.
Course Content	:	**Topics:** To give the word knowledge about internet and communication types, to make predictions, to express their preference, emotions and physical perceptions of vocabulary, answer letters, types of work, skills, earn money, home types, parts of the house, tools, furniture, vocabulary related to home rental, modern lifestyles, fashion, TV programs, holiday varieties, historical figures and achievements, historical events, vocabulary information about peace and war, to approve and answer, astonishment specify, education, school sections, school types, **Activities**:

<table>
<tr><td></td><td colspan="6">Matching by listening, sentence completion, main points when listening, taking notes about ideas, giving advice and advice, writing about the advantages and disadvantages of a subject, story of personal experiences, finding the main idea in the text, detailed reading, answering questions about the text, distinguish the sentences about the text as true / false, complete the missing sentences, answer the questions about the text as they listen.</td></tr>
<tr><td>Corsebook</td><td colspan="6">Speakout 2nd edition - Upper Intermediate - Authors: Frances EALES-Steve OAKES Publishing: Pearson Education Limited
 


</td></tr>
<tr><td>Assignments and Projects</td><td colspan="6">Advanced storybook summary, exercises in the textbook, unit questions on Speakout Extra and extra study papers.</td></tr>
<tr><td rowspan="11">Success Evaluation Systems</td><td colspan="2">Activities</td><td>Base Grade</td><td>Count</td><td colspan="2">Contribution to Review, %</td></tr>
<tr><td colspan="2">Quizes</td><td>50</td><td>1</td><td colspan="2">28%</td></tr>
<tr><td rowspan="7">Semester Assessment</td><td>Quizes</td><td>50</td><td>1</td><td>%</td><td>Quizes</td></tr>
<tr><td>Assignments</td><td>50</td><td>1</td><td>%</td><td>Assignments</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td><td>Projects</td></tr>
<tr><td>Term Paper / Project</td><td>50</td><td>1</td><td>%</td><td>Term Paper / Project</td></tr>
<tr><td>Laboratory Application</td><td>50</td><td>1</td><td>%</td><td>Laboratory Application</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td><td>Other Applications</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">50%</td></tr>
<tr><td colspan="2">Resit / Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Students can communicate with native speakers fluently and naturally. They can express his / her opinion effectively in discussions about current issues.					x
2	Students will be able to express opinions by revealing the positive and negative aspects of a subject.					x
3	Students will be able to write comprehensible, detailed texts on various subjects. Write a composition that supports or opposes a point of view.					x
4	Students can understand long conversations, even in different accents. They can easily understand various videos and images.					x
5	They can read literary texts of long and complex and high degree of difficulty by distinguishing the differences of style. Students will be able to understand and interpret the articles and long technical information in any area of expertise even if they are not related to the field of interest.					x
6	Students will be able to understand and interpret various proverbs and idioms.					x
7	Students will be able to understand and interpret any text on topics such as human body and health problems.					x
8	Students will be able to express their views on environmental problems and social issues effectively and effectively.					x
9	Students will be able to read and understand texts on fashion, economy, health, technology, travel and international issues.					x
10	Students can make inferences by reading articles on various subjects.					x

COURSE QUALIFICATIONS and COURSE RELATIONS

Level of Contribution	1	2	3	4	5
	Very Low	Low	Medium	High	Very High

Advanced English 1

	CR -1	CR -2	CR -3	CR -4	CR -5	CR -6	CR -7	CR -8	CR -9	CR - 10
LC -1	5	5	5	5		5			5	5
LC -2	5	5	5			5			5	
LC -3	5			5	5		5	5	5	
LC -4			5							5

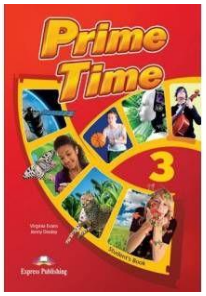
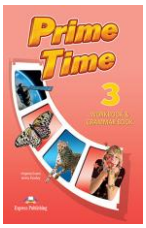
WEEKLY TOPICS			
Week	**TOPICS**		
		Theory	**Laboratory**
1	SPEAKOUT UNIT 5 : IDEAS	2	2
2	SPEAKOUT UNIT 5 : IDEAS	2	2
3	SPEAKOUT UNIT 5 : IDEAS	2	2
4	SPEAKOUT UNIT 5 : IDEAS	2	2
5	SPEAKOUT UNIT 6 : AGE	2	2
6	SPEAKOUT UNIT 6 : AGE	2	2
7	SPEAKOUT UNIT 6 : AGE	2	2
8	**MIDTERM**		
9	SPEAKOUT UNIT 6 : AGE	2	2
10	SPEAKOUT UNIT 6 : AGE	2	2
11	SPEAKOUT UNIT 7 : MEDIA	2	2
12	SPEAKOUT UNIT 7 : MEDIA	2	2
13	SPEAKOUT UNIT 7 : MEDIA	2	2
14	SPEAKOUT UNIT 7 : MEDIA	2	2
15	GENERAL REVIEW	2	2

ECTS / TABLE OF WORKLOAD				
ACTIVITIES		**NUMBER**	**DURATION (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Lecture		14	2	28
General Laboratory Practice		14	2	28
Guided Problem Solving	**Class Work**	--	--	--
	Individual or Group Working	14	2	28
Assignments and Report Submission		4	1	4
Term project		--	--	--
Project Presentation		--	--	--
Other Studies		2	1	2
Midterm		1	1,5	1,5
Individual Study for Midterm Exam		1	3	3
Final Exam		1	2	2
Individual Study for Final Exam		1	3	4
TOTAL WORKLOAD		100,5 Hours		
ECTS CREDIT OF THE COURSE		Total Workload / 30 = 100,5 / 30 = 3,35		3 Credits

TURKISH NAVAL ACADEMY
DEPARTMENT OF FOREIGN LANGUAGES
COURSE CATALOGUE

Course Name	Code	Class/Semester	Duration (T+P)	Credit	ECTS
BASIC ENGLISH III	YAD-211	II/I	1+2	2	2

Language of the course	:	ENGLISH
Level of the course	:	Bachelor's Degree
Prerequisite of the course	:	-
Instructor	:	Instructor of English
Aim of the course	:	The aim of this course is to enable students to reach B1 level within the framework of the European Common Language Reference Framework (CEFR).
Learning Outcomes	:	Students who successfully complete this course will be able to; 1. Understand the main patterns of the topics about jobs, free time, and school activities. 2. Find a solution if they encounter a problem in an English-spoken country. 3. Write basic articles based on their interests. 4. Explain their experiences, interests, dreams, hopes and ambitions. 5. Express their ideas and talk about their plans giving concrete reasons.
Content	:	**Topics:** Transportation, food and drinks, jobs, sports and hobbies, cultural topics, historical and touristic places, use of social media, weather conditions, accommodation. **Activities:** Matching through listening, filling the gaps, answering questions about the text, distinguishing the sentences about the text as true / false, completing the missing sentences, answering the questions about the text as they listen.

<table>
<tr><td>Course book</td><td colspan="5">Prime Time 3
Authors: Virginia Evans, Jenny Dooley.
Publication: Express Publishing
 
  </td></tr>
<tr><td>Assignments and Projects</td><td colspan="5">Book reports, exercises in the course book, unit questions on Moodle and extra worksheets.</td></tr>
<tr><td rowspan="10">Evaluation System</td><td colspan="2">Activities</td><td>Pass Mark</td><td>Number</td><td colspan="2">Contribution to Review %</td></tr>
<tr><td colspan="2">Mid term</td><td>60</td><td>1</td><td colspan="2">28%</td></tr>
<tr><td rowspan="6">Semester Evaluation</td><td>Quizzes</td><td>60</td><td>1</td><td>%</td><td rowspan="6">12%</td></tr>
<tr><td>Assignments</td><td>60</td><td>1</td><td>%</td></tr>
<tr><td>Projects</td><td>60</td><td>1</td><td>%</td></tr>
<tr><td>Term Project</td><td>60</td><td>1</td><td>%</td></tr>
<tr><td>Practice</td><td>60</td><td>1</td><td>%</td></tr>
<tr><td>Other</td><td>60</td><td>1</td><td>%</td></tr>
<tr><td colspan="2">Final</td><td>60</td><td>1</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Make-up Exam</td><td>60</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>60</td><td>-</td><td colspan="2">100%</td></tr>
</table>

Nu	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Students will be able to give information about their current education and talk about their future education plans.				x	
2	Students will be able to talk about their favorite music genres and trends.					x
3	Students will be able to express their thoughts about TV shows.					x
4	Students will be able to talk about being healthy.				x	
5	Students will be able to suggest solutions and ideas about natural disasters and environmental problems.				x	
6	Students will be able to communicate via social media.					x
7	Students will be able to order food, attend a dinner conversation.					x
8	Students will be able to respond in a kind manner.					x

COURSE QUALIFICATIONS AND COURSE RELATIONS								
Level of Contribution		1	2	3	4	5		
		Very low	Low	Medium	High	Very High		
Basic English III								
	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8
LC-1	5	5				5		
LC-2							5	5
LC-3	5	5	5	4	4			
LC-4	4			5				

WEEKLY TOPICS			
Week	**TOPICS**		
		Theoretical	**Laboratory**
1	Prime Time 2: Module 4 On Holiday	1	2
2	Prime Time 2: Module 4 On Holiday	1	2
3	Prime Time 2: Module 4 On Holiday	1	2
4	Prime Time 2: Module 4 On Holiday	1	2
5	Prime Time 2: Module 5 Helping Hands	1	2
6	Prime Time 2: Module 5 Helping Hands	1	2
7	Prime Time 2: Module 6 Art & Culture	1	2
8	**MIDTERM**		
9	Prime Time 2: Module 6 Art & Culture	1	2
10	Prime Time 2: Module 6 Art & Culture	1	2
10	Prime Time 3: Module 1 Work and Play	1	2
12	Prime Time 3: Module 1 Work and Play	1	2
13	Prime Time 3: Module 1 Work and Play	1	2
14	Prime Time 3: Module 2 Culture and Stories	1	2
15	REVISION	1	2

ECTS / TABLE OF WORKLOAD				
ACTIVITIES		**NUMBER**	**DURATIOM (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Theoretical Course		14	1	14
General Laboratory Practice		14	1	14
Guided Problem Solving	**Class Work**	--	--	--
	Individual or Group Working	14	1	14
Assignments and Report Submission		8	1	8
Term project		--	--	--
Project Presentation		--	--	--
Other Studies		--	--	--
Midterm Exam		1	1,5	1,5
Individual Study for Midterm Exam		1	2	2
Final Exam		1	2	2
Individual Study for Final Exam		1	3	3
TOTAL WORKLOAD		56,5 Hours		
ECTS CREDIT OF THE COURSE		Total Workload / 30 = 58,5 / 30 = 1,95		2 Credits

TURKISH NAVAL ACADEMY
DEPARTMENT OF FOREIGN LANGUAGES
COURSES CATALOGUE

COURSE NAME	Code	Class / Semester	Duration (T+P)	Credit	ECTS
ADVANCED ENGLISH III	YAD-212	I/II	1+2	3	3

Language of the Course	:	ENGLISH
Level of the Course	:	Bachelors Degree
Prerequisite of the Course	:	-
Instructor of the Course	:	-
Aim of the Course	:	The aim of this course is to provide advanced English students to the B1 level within the framework of the European Common Language Reference Framework (CEFR).
Course Learning Outcomes	:	1) Students will be able to understand long speech and presentations, to understand complex debates, to understand television news and current events. 2) Students will be able to understand contemporary literary prose. Students will be able to read articles and reports on current issues that authors adopt from a particular attitude or opinion. 3) Students will be able to communicate with a fluency and naturalness that will enable agreement with people who speak the mother tongue as their target language. They can explain his / her opinion effectively in discussions about the familiar topics. 4) Students can give clear and detailed information about the subjects of interest. Explain the positive and negative aspects of various options and express opinions on a subject. 5) Students will be able to write comprehensible, detailed texts on a wide range of subjects of interest. They can write a composition that supports or opposes a point of view.
Course Content	:	**Topics:** To give the word knowledge about internet and communication types, to make predictions, to express their preference, emotions and physical perceptions of vocabulary, answer letters, types of work, skills, earn money, home types, parts of the house, tools, furniture, vocabulary related to home rental, modern lifestyles, fashion, TV programs, holiday varieties, historical figures and achievements, historical events, vocabulary information about peace and war, to approve and answer, astonishment specify, education, school sections, school types, **Activities**:

<table>
<tr><td></td><td colspan="6">Matching by listening, sentence completion, main points when listening, taking notes about ideas, giving advice and advice, writing about the advantages and disadvantages of a subject, story of personal experiences, finding the main idea in the text, detailed reading, answering questions about the text, distinguish the sentences about the text as true / false, complete the missing sentences, answer the questions about the text as they listen.</td></tr>
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 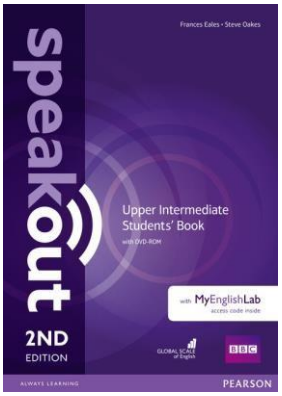

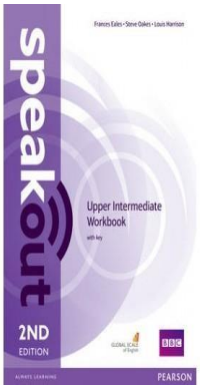
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<tr><td>Assignments and Projects</td><td colspan="6">Advanced storybook summary, exercises in the textbook, unit questions on Speakout Extra and extra study papers.</td></tr>
<tr><td rowspan="11">Success Evaluation Systems</td><td colspan="2">Activities</td><td>Base Grade</td><td>Count</td><td colspan="2">Contribution to Review %</td></tr>
<tr><td colspan="2">Quizes</td><td>50</td><td>1</td><td colspan="2">28%</td></tr>
<tr><td rowspan="7">Semester Assessment</td><td>Quizes</td><td>50</td><td>1</td><td>%</td><td>Quizes</td></tr>
<tr><td>Assignments</td><td>50</td><td>1</td><td>%</td><td>Assignments</td></tr>
<tr><td>Projects</td><td>50</td><td>1</td><td>%</td><td>Projects</td></tr>
<tr><td>Term Paper / Project</td><td>50</td><td>1</td><td>%</td><td>Term Paper / Project</td></tr>
<tr><td>Laboratory Application</td><td>50</td><td>1</td><td>%</td><td>Laboratory Application</td></tr>
<tr><td>Other Applications</td><td>50</td><td>1</td><td>%</td><td>Other Applications</td></tr>
<tr><td colspan="2">Final Exam</td><td>50</td><td>1</td><td colspan="2">50%</td></tr>
<tr><td colspan="2">Resit / Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
<tr><td colspan="2">Single Course / Extra Make-up Exam</td><td>50</td><td>-</td><td colspan="2">100%</td></tr>
</table>

Nu.	Program Qualifications	Course Contribution Level				
		1	2	3	4	5
1	Students can communicate with native speakers fluently and naturally. They can express his / her opinion effectively in discussions about current issues.					x
2	Students will be able to express opinions by revealing the positive and negative aspects of a subject.					x
3	Students will be able to write comprehensible, detailed texts on various subjects. Write a composition that supports or opposes a point of view.					x
4	Students can understand long conversations, even in different accents. They can easily understand various videos and images.					x
5	They can read literary texts of long and complex and high degree of difficulty by distinguishing the differences of style. Students will be able to understand and interpret the articles and long technical information in any area of expertise even if they are not related to the field of interest.					x
6	Students will be able to understand and interpret various proverbs and idioms.					x
7	Students will be able to understand and interpret any text on topics such as human body and health problems.					x
8	Students will be able to express their views on environmental problems and social issues effectively and effectively.					x
9	Students will be able to read and understand texts on fashion, economy, health, technology, travel and international issues.					x
10	Students can make inferences by reading articles on various subjects.					x

COURSE QUALIFICATIONS and COURSE RELATIONS

Level of Contribution	1	2	3	4	5
	Very Low	Low	Medium	High	Very High

Advanced English 3

	CR -1	CR -2	CR -3	CR -4	CR -5	CR -6	CR -7	CR -8	CR -9	CR - 10
LC -1	5	5	5	5		5			5	5
LC -2	5	5	5			5			5	
LC -3	5			5	5		5	5	5	
LC -4			5							5

WEEKLY TOPICS			
Week	**TOPICS**		
		Theory	**Laboratory**
1	Speak Out Upper Intermediate Unit 1: NEW THINGS	1	2
2	Speak Out Upper Intermediate Unit 1: NEW THINGS	1	2
3	Speak Out Upper Intermediate Unit 1: NEW THINGS	1	2
4	Speak Out Upper Intermediate Unit 2: ISSUES	1	2
5	Speak Out Upper Intermediate Unit 2: ISSUES	1	2
6	Speak Out Upper Intermediate Unit 2: ISSUES	1	2
7	General Review	1	2
8	MIDTERM		
9	Speak Out Upper Intermediate Unit 3: STORIES	1	2
10	Speak Out Upper Intermediate Unit 3: STORIES	1	2
11	Speak Out Upper Intermediate Unit 3: STORIES	1	2
12	Speak Out Upper Intermediate Unit 4: DOWNTIME	1	2
13	Speak Out Upper Intermediate Unit 4: DOWNTIME	1	2
14	Speak Out Upper Intermediate Unit 4: DOWNTIME	1	2
15	General Review	1	2

ECTS / TABLE OF WORKLOAD				
ACTIVITIES		**NUMBER**	**DURATION (HOUR)**	**ESTIMATED WORKLOAD (HOUR)**
Lecture		14	1	14
General Laboratory Practice		14	2	28
Guided Problem Solving	**Class Work**	--	--	--
	Individual or Group Working	14	2	28
Assignments and Report Submission		4	1	4
Term project		--	--	--
Project Presentation		--	--	--
Other Studies		2	1	2
Midterm		1	1,5	1,5
Individual Study for Midterm Exam		1	3	3
Final Exam		1	2	2
Individual Study for Final Exam		1	3	4
TOTAL WORKLOAD		100,5 Hours		
ECTS CREDIT OF THE COURSE		Total Workload / 30 = 100,5 / 30 = 3,35		3 Credits