

CENG 101 – Algorithms and Programming with Java-I Syllabus

FALL 2020

Course Description: This is an introductory course for the fundamentals of computers, introduction topics to computer engineering and programming with Java. This course includes items such as computer organization and peripherals, binary number system, logic gates and adders, flip-flop and registers, main and secondary storage devices. The course also covers the fundamentals of algorithmic problem solving techniques by using basic control and data structures. Other topics include fundamental data types, control structures including conditions and iteration, arrays, input and output.

Course Objectives: To understand computing and computer programming

- To understand fundamentals of a computer and programming topics,
- To develop basic computational thinking skills, i.e., algorithmic thinking
- To get familiar with fundamental concepts and terminology in computer programming
- To be able to use an integrated development environment to design and write code in the Java programming language.
- To define and correctly use data types, decision structures, arrays, conditionals and loops.
- To understand the use of predefined classes and objects.

Textbook: (main) Big Java: Late Objects, by Cay Horstman, John Wiley & Sons Inc., ISBN: 978-1-118-08788-6
(optional) Java Software Solutions: Foundations of Program Design, Lewis & Loftus, 8th Edition, Pearson.

Instructors:

Dr. Hakan Çağlar
Dr. Yüksel Arslan

Teaching Assistant:

R.A. Merve Işıl Peten

Grading:

- Midterm exam(including quizzes if done): **30%**
- Lab grade: **30%** (as explained in the final part)
- Final exam: **40%**

Website: (TBD) <http://moodle.ankarabilim.edu.tr/>

Important Note for Online/hybrid education:

- i. In case of online or hybrid education, course/lab scheduled periods are same,
- ii. Each student will be informed with the application and the exams,
- iii. Regulations will be the same as of the regulations of the university.
- iv. Implementation of the labs will be declared specifically.

Weekly Schedule

Week	Course Subject	Lab Topics
1	Introduction to Comp. Eng.: Fundamental concepts of Computer science, Boolean operations, gates, flip-flops, Main /Secondary memory	-
2	Bit patterns and representing Information, Binary numbers & representation, CPU and CPU Instructions, Assembly and Machine Lang.	-
3	Ch-1 : Introduction: Computer Programs, The Anatomy of a Computer The Java Programming Language, Becoming Familiar with Your Programming Environment, Analyzing Your First Program, Errors, Problem Solving: Algorithm Design	Lab. Work-1 • Topics are same with same week's subject
4	Computer Programs, The Anatomy of a Computer The Java Programming Language, Becoming Familiar with Your Programming Environment, Analyzing Your First Program, Errors, Problem Solving: Algorithm Design	Lab. Work-2 • Topics are same with same week's subject
5	Ch.2: Fundamental Data Types Variables, Arithmetic, Input and Output, Problem Solving: First Do It By Hand, Strings	Lab. Work-3 • Topics are same with same week's subject
6	Variables, Arithmetic, Input and Output, Problem Solving: First Do It By Hand, Strings	Lab. Work-4 • Topics are same with same week's subject
7	Ch.3: Decisions The if Statement, Comparing Numbers and Strings, Multiple Alternatives, Nested Branches, Problem Solving: Flowcharts, Problem Solving: Test Cases, Boolean Variables and Operators, Application: Input Validation	Lab exam1 (Date is TBD)
MIDTERM EXAM		
8	The if Statement, Comparing Numbers and Strings, Multiple Alternatives, Nested Branches, Problem Solving: Flowcharts, Problem Solving: Test Cases, Boolean Variables and Operators, Application: Input Validation	Lab. Work-5 Topics are same with same week's subject
9	Ch.4: Loops The while Loop, Problem Solving: Hand-Tracing, The for Loop, The do Loop, Processing Sentinel Values, Problem Solving: Storyboards, Common Loop Algorithms, Nested Loops, Random Numbers and Simulations	Lab. Work-6 Topics are same with same week's subject
10	The while Loop, Problem Solving: Hand-Tracing, The for Loop, The do Loop, Processing Sentinel Values, Problem Solving: Storyboards, Common Loop Algorithms, Nested Loops, Random Numbers and Simulations	Lab. Work-7 Topics are same with same week's subject
11	Ch.5: Methods Methods, Implementing Methods, Parameter Passing, Return Values, Methods Without Return Values, Reusable Methods, Stepwise Refinement, Variable Scope, Recursive Methods	Lab exam2 (Date is TBD)

12	Methods, Implementing Methods, Parameter Passing, Return Values, Methods Without Return Values, Reusable Methods, Stepwise Refinement, Variable Scope, Recursive Methods	Lab. Work-8 Topics are same with same week's subject
13	Ch.6: Arrays and Array Lists Arrays, The Enhanced for Loop, Common Array Algorithms, Using Arrays with Methods, Adapting Algorithms, Discovering Algorithms by Manipulating Physical Objects, Two-Dimensional Arrays, Array Lists	Lab. Work-9 Topics are same with same week's subject
14	Two Dimensional Arrays, Array Lists, Common Algorithms for processing Array & Array Lists	Lab exam3 (Date is TBD)
FINAL EXAM		

Note: 1. Syllabus is likely to change based upon the actual progress of the course!

2. Each lab or most of the Lab.Works will contain lab assignments, and the average of these assignments will be considered as 1 lab exam and taken into consideration as stated in the evaluation part.

Course schedule:

Section 1 : Monday 10:40 – 12:30, Cl.-1 Tuesday 12:40 – 13:30, Cl.-1	Section 2 : Monday 10:40 – 12:30, Cl.-1 Tuesday 12:40 – 13:30, Cl.-2
Sec-1 Lab: Thursday, 10:40 – 12:30, CENG Lab.	Sec-2 Lab: Thursday, 10:40 – 12:30, CENG Lab.

Laboratory Policy

- All students are required to attend 80% of the lab assignments.
- Students cannot participate to lab assignments in another section.
- An attendance sheet will be signed by each student in the lab by showing the ID card. Each student is required to bring his/her ID card. A student who did not sign the sheet will be regarded as not attended and will be graded 0 for the laboratory.
- In lab assignment, if there is no submission, you will be regarded as not attended.
- If you miss an assignment because of a valid reason, it is important to contact your teaching assistant immediately. You are required to present the relevant documentation in one week after the assignment date.
- Lab assignments will be evaluated automatically by VPL and VPL grade is final except cheating occurrences.
- If we detect any form of plagiarism, all plagiarized assignment owners receive 0 and we report it to the disciplinary board of the university.
- After writing your code, make sure that there is no compilation error. Submissions with compile errors will result in a grade of 0.
- Each student should be able to submit a working code and get a non-zero grade.
- Objections to lab grades will only be accepted if the student has a non-zero grade.

Evaluation of Lab grade:

Average all Lab exercises (approx. 8 for this semester) will be evaluated as one grade + 4 Lab exams form the grade, which is **(Lab Exam 1+ Lab Exam 2+ Lab Exam 3+ Ave. of Lab assignments) / 4 = Lab Grade**

**CENG 102 – Algorithms and Programming with Java-II Syllabus
SPRING 2021**

Department: Computer Engineering

Credits: Ankara Science University, (3+4) Credits 5, Credits, ECTS 8

Course Coordinator: Dr.Cevdet Dengi, Dr.Yüksel Arslan,

Semester: 2020-21 Spring

Course Hours: 3 hours of lecture & 4 hours of Lab. per week

Course Description: Material Covered the Algorithms and Programming with Java II course (Java II) is the continuation of the Algorithms and Programming with Java I course (Java I). We assume, students have successfully taken and passed the Java I course. The Java II course will continue to explore the Java language and fundamentals, and gives you an opportunity to put the basic computer literacy, design and programming skills to solve real problems of mathematics, modeling, and computation. Implementation of classes, inheritance, interfaces, methodology for object oriented design and development. Graphical user interfaces design, (buttons, text components, drawing exc.). Input/output files reading and writing and exception handling, recursion, searching and sorting algorithms. Java Collections Frameworks will be presented from the perspective of a library use. Student will get weekly 4 hours of Lab experiments and many small projects, and home works. The ultimate goal is to produce a commercial-quality program, which is well structured, documented, bug-free and easy to use. Students will be expected to display creativity and an ability to learn independently.

Course Objectives:

- To continue learning the Java language and understand more advanced features and semantics of the Java programming
- Proficient programming in the Java language and analyze, design, development, and debugging techniques appropriate for the Java
- To understand the concepts of classes, objects, and encapsulation
- To apply object-oriented design techniques for building complex programs in a systematic manner.
- To become familiar with common user-interface components and apply them to real world problems
- To understand several sorting and searching algorithms, and estimate and compare the performance of different algorithms

Textbook: (main) Big Java: Late Objects, by Cay Horstman, John Wiley & Sons Inc., ISBN: 978-1-118-08788-6

(optional) Java Software Solutions: Foundations of Program Design, Lewis & Loftus, 8th Edition, Pearson.

Instructors:

Teaching Assistant:

R.A. Ömer Çağrı Dala

R.A. Merve Işıl Peten

Grading:

- Midterm exam: **25%**
- Lab grade: **35%** (7 assignments and 5 lab exams)
- Final exam: **40%**

Website: (TBD) <http://moodle.ankarabilim.edu.tr/>

Weekly Schedule

Week	Course Subject	Lab Topics
1	Ch.8 Objects and Classes To understand the concepts of classes, objects, and encapsulation. The public interface of a class, implementing instance method, constructors. To be able to design, implement and test your own classes. Static variables and static methods.	Lab. topics are same with week's subject (Perhaps omitted!)
2	Ch.8 Objects and Classes Week 1 continuous	Lab. topics are same with week's subject Lab Assignments -1
3	Ch.9 Inheritance & Interface Inheritance and inheritance hierarchies, implementation of subclasses that inherit and override superclass methods, the concept of polymorphism. Common superclass Object and its methods and working with interface types	Lab. topics are same with week's subject
4	Ch.9 Inheritance & Interface Week 3 continuous	Lab. topics are same with week's subject Lab Assignments 2
5	Ch.12 Object Oriented Design Inheritance, aggregation, and dependency relationships between classes using UML class diagrams. Object oriented design techniques to building complex programs. Package usage to organize programs	Lab. topics are same with week's subject Lab Exam -1
6	Ch.10 Graphical User Interfaces Implementation of basic graphical user interfaces, buttons, text fields, and other components to a frame window, handle events that are generated by buttons. Programming that display simple drawings.	Lab. topics are same with week's subject Lab Assignments - 3
7	Ch.11 Advanced User Interfaces Layout managers to arrange user-interface components in a container. Common user-interface components, such as radio buttons, check boxes, and menus. events handling generated by user-interface components. Effective Java documentation.	Lab. topics are same with week's subject Lab Exam -2

8	MIDTERM EXAM	
9	Ch.7 Input/output and Exception Handling Read and Write text files, text input and output. Process command line arguments. Exception handling, throwing and catching exceptions, some examples and programming tips. Implementation programs that propagate checked exceptions and handling input errors.	Lab. topics are same with week's subject Lab Assignments 4
10	Ch.7 Input/Output and Exception Handling Week 9 continue.	Lab. topics are same with week's subject Lab Exam -3
11	Ch.13 Recursion The relationship between recursion and iteration, Use recursive helper methods. When the use of recursion affects the efficiency of an algorithm, efficiency of algorithm. Analyze problems much easier to solve by recursion. Recursive structures using mutual recursion	Lab. topics are same with week's subject Lab Assignments- 5
12	Ch.14 Sorting & Searching Several sorting and searching algorithms and their performance evaluations. Analyzing the performance of the selection sort algorithm, analyzing the merge sort algorithm. To estimate and compare the performance of algorithms. Estimating the running time of an algorithm. Sorting and Searching in the Java Library	Lab. topics are same with week's subject Lab Exam -4
13	Ch.14 Sorting & Searching Week 12 continuous	Lab. topics are same with week's subject Lab Assignments 6
14	Ch.15 The Java Collections Framework Overview of the collection framework and the collection classes supplied in the Java library. Linked lists, sets, maps implementation. To choose appropriate collections for solving programming problems. To study applications of stacks and queues	Lab. topics are same with week's subject Lab Assignments 7
15	Ch.15 The Java Collections Framework Week 14 continuous	Lab. topics are same with week's subject Lab Exam -5
16-17	FINAL EXAM	

Note: 1. Syllabus is likely to change based upon the actual progress of the course!

Course schedule:

Course hours: xxxx

Lab hours: xxxx

Type of Course: Laboratory Work - Lecture

Course Material: Multimedia - PC - Written

Teaching Methods: Lecture (if needed on line teaching)

Form IVb (English): Subjects by weeks

Weeks	Subjects
1. Week	To give information about the subject, purpose and content of Atatürk's Principles and History of Revolution. General concepts in the science of history.
2. Week	Internal and external causes of the collapse of the Ottoman Empire, 3. Selim and II. Mahmut Periods.
3. Week	The measures taken by the Ottoman Empire to prevent its bad course. Innovation movements
4. Week	Social, political and economic situation of the Ottoman Empire in the early 20th century, Trablusgarp and Balkan Wars
5. Week	World War I causes, process and consequences
6. Week	Implementation of the Mondros Armistice, occupation of Anatolia
7. Week	Mid- term exam
8. Week	Activities of Mustafa Kemal Atatürk and his transition to Anatolia
9. Week	Preparation period for national struggle and congresses, The occupation of Istanbul
10. Week	Opening of 'TBMM' in Ankara, laws and activities
11. Week	Sevres Peace Treaty, Developments in the Southern Front and Eastern Front
12. Week	Establishment of the Regular Army, Developments in the Western Front
13. Week	Sakarya War and Developments after the Sakarya war
14. Week	Great Offensive war, the signing of the Mudanya Armistice
15. Week	Lausanne Peace Treaty, Abolition of the Sultanate The proclamation of the republic
16. Week	Final Exam

Form Vb (İngilizce): Assessment Method

Semester Works	Number	Contribution
Attendance	14	%0
Laboratory	0	%0
Application	0	%0
Fieldwork	0	%0
Practice	0	%0
Homework Assessment	0	%0
Presentation	0	%0
Project	0	%0
Seminar	0	%0
Mid-term Exams	1	%40
Final Exam	1	%60
Total	16	%100
Contribution of semester Works to success points	15	%40
Contribution of final exam to success points	1	%60
Total	16	%100

Form Vİb (English): WORKLOAD AND ECTS CALCULATION

Activities	Number	Duration (hour)	Total Workload
Course Duration (x14)	14	2	28
Weekly Tutorial Hours			
Reading Tasks	4	1	4
Studies	4	1	4
Material Design and Implementation			
Report Preparing	2	1	2
Preparing a Presentation	2	1	2
Presentations			
Midterm Exam and Preperation for Midterm Exam	1	2	2
Final Exam (Study duration)	1	2	2
Total Workload			44
Total Workload/30 hours			
ECTS			2

Form IVb (English): Subjects by weeks

Weeks	Subjects
1. Week	Abolishment of Sultanate, Declaration of the Republic, Abolition of the Caliphate,
2. Week	Terakkiperver Cumhuriyet Party, Şeyh Said Rebellion, İzmir assassination, Serbest Cumhuriyet Party, Menemen Event.
3. Week	Revolutions and regulations in Law, Education and Culture.
4. Week	Revolutions and regulations in the Economic and Daily life.
5. Week	The 1923-1930 period the Republic of Turkey: Turkish-Greek relations, Mosul problem, Turkish-French relations.
6. Week	The 1923-1930 period the Republic of Turkey: Turkish-Italian relations, Turkish-Soviet relations, relations with Eastern states.
7. Week	The 1931-1939 period the Republic of Turkey: Turkey's entry into the League of Nations, the German-Turkish relations, the Balkan Pact, the Turkish-British relations.
8. Week	Mid- term exam
9. Week	The 1931-1939 period the Republic of Turkey: Montreux Straits Convention, Sadabad Pact, Hatay problem.
10. Week	Atatürk's Principles: Republicanism, Populism, Nationalism.
11. Week	Atatürk's principles: Statism, Secularism, Revolution.
12. Week	İsmet İnönü Period (1938-1950): II. World War.
13. Week	Demokrat Party Period (1950-1960).
14. Week	Domestic and foreign policy of the Republic of Turkey between the years 1960-1990.
15. Week	Turkey during and after the Cold War era.
16. Week	Final Exam

Form Vb (İngilizce): Assessment Method

Semester Works	Number	Contribution
Attendance	14	%0
Laboratory	0	%0
Application	0	%0
Fieldwork	0	%0
Practice	0	%0
Homework Assessment	0	%0
Presentation	0	%0
Project	0	%0
Seminar	0	%0
Mid-term Exams	1	%40
Final Exam	1	%60
Total	16	%100
Contribution of semester Works to success points	15	%40
Contribution of final exam to success points	1	%60
Total	16	%100

Form Vİb (English): WORKLOAD AND ECTS CALCULATION

Activities	Number	Duration (hour)	Total Workload
Course Duration (x14)	14	2	28
Weekly Tutorial Hours			
Reading Tasks	4	1	4
Studies	4	1	4
Material Design and Implementation			
Report Preparing	2	1	2
Preparing a Presentation	2	1	2
Presentations			
Midterm Exam and Preperation for Midterm Exam	1	2	2
Final Exam (Study duration)	1	2	2
Total Workload			44
Total Workload/30 hours			
ECTS			2

ANKARA SCIENCE UNIVERSITY
FACULTY OF ENGINEERING AND ARCHITECTURE

COURSE INFORMATION

Course Name	Code	Semester	Theory (hours/week)	Application (hours/week)	Laboratory (hours/week)	National Credit	ECTS
Physics II	PHY 102	Fall	3	0	2	4	6
Prerequisites							
Course Language	English						
Course Type	Compulsory						
Mode of	Face to face/Distance Learning/Hybrid						
Learning and teaching strategies	Lecturing, discussion and submission.						
Instructor (s)	Dr. Neslihan GÖKÇEK						
Course objective	Upon the successful completion of this course, students will establish the relationship between electricity, magnetism and engineering. This includes to provide students the concepts of electricity and magnetism with defining and solving problems.						
Course Content	Basic concepts of electricity and magnetism such as circuits, Gauss's Law, Faraday's Law, electromagnetic waves						
References	1. R. A. Serway & J. W. Jewett, Physics for Scientists and Engineers (7th Ed.), Brooks Cole (2007). 2. H. D. Young and R. A. Freedman, University Physics 12th-14th Ed. Pearson (2008, 2016). 3. Principles of Physics by Halliday, Resnick, and Walker (10th Edition), John Wiley (2014)						
Learning outcomes	1. Learn the basic concepts of mechanics, kinetics and dynamics 2. Apply the topics of mechanics to their own engineering science 3. Improve the ability of student's solution perspective for different kinds of new problems 4. Modelling a new problem related with the concepts of mechanics and interpret the results 5. Enabling interactive thinking with other fields of sciences such as electric and electronics engineering						

Form IVb (English): Subjects by weeks

Weeks	Subjects
1. Week	Electric fields
2. Week	Gauss's law
3. Week	Electric potential
4. Week	Capacitance and dielectrics
5. Week	Current and resistance
6. Week	Direct current circuits
7. Week	Midterm Exam
8. Week	Magnetic fields
9. Week	Sources of magnetic fields
10. Week	Faraday's law
11. Week	Inductance
12. Week	Alternating current circuits
13. Week	Recitation and Practice

Form Vb (İngilizce): Assessment Method

Semester Works	Number	Contribution
Attendance	14	%10
Laboratory	6	%20
Application	0	%0
Fieldwork	0	%0
Practice	0	%0
Homework Assessment	0	%0
Presentation	0	%0
Project	0	%0
Seminar	0	%0
Mid-term Exams	1	%30
Final Exam	1	%40
Total	21	%100
Contribution of semester Works to success points	20	%50
Contribution of final exam to success points	1	%40
Total	20	%100

Form VIb (English): WORKLOAD AND ECTS CALCULATION

Activities	Number	Duration (hour)	Total Workload
Course Duration (x14)	14	3	42
Laboratory	14	2	28
Application			
Specific practical training			
Field activities			
Study Hours Out of Class (Preliminary work, reinforcement, preparation for the exams)	18	5	90
Presentation / Seminar Preparation			
Project			
Homework assignment			
Midterms (Study duration)	1	8	8
Final Exam (Study duration)	1	12	12
Total Workload			180
Total Workload/30 hours			6.00
ECTS			6.00

Form VIIb (English): THE COURSE LEARNING OUTCOMES - PROGRAM OUTCOMES MATRIX

Program Outcomes	Course Outcomes				
	1	2	3	4	5
1	X	X	X	X	X
2		X	X	X	
3			X	X	
4				X	
5		X		X	
6					
7					
8					
9					
10					
11					

1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

ANKARA SCIENCE UNIVERSITY
FACULTY OF ENGINEERING AND ARCHITECTURE

COURSE INFORMATION

Course Name	Code	Semester	Theory (hours/week)	Application (hours/week)	Laboratory (hours/week)	National Credit	ECTS
Physics I	PHY 101	Fall	3	0	2	4	6
Prerequisites							
Course Language	English						
Course Type	Compulsory						
Mode of	Face to face/Distance Learning/Hybrid						
Learning and teaching strategies	Lecturing, discussion and submission.						
Instructor (s)	Dr. Neslihan GÖKÇEK						
Course objective	Upon the successful completion of this course, students will establish the relationship between mechanics and engineering. This includes to provide students the concepts of mechanics with defining and solving problems.						
Course Content	Basic information about the concepts of nature of matter, mechanics, kinetics and dynamics						
References	1. R. A. Serway & J. W. Jewett, Physics for Scientists and Engineers (7th Ed.), Brooks Cole (2007). 2. H. D. Young and R. A. Freedman, University Physics 12th-14th Ed. Pearson (2008, 2016). 3. Principles of Physics by Halliday, Resnick, and Walker (10th Edition), John Wiley (2014)						
Learning outcomes	1. Learn the basic concepts of mechanics, kinetics and dynamics 2. Apply the topics of mechanics to their own engineering science 3. Improve the ability of student's solution perspective for different kinds of new problems 4. Modelling a new problem related with the concepts of mechanics and interpret the results 5. The ability to analyze a problem graphically						

Form IVb (English): Subjects by weeks

Weeks	Subjects
1. Week	Physics and measurement
2. Week	Motion in one dimension
3. Week	Vectors
4. Week	Motion in two dimensions
5. Week	The laws of motion
6. Week	Circular motion and other applications of Newton's laws
7. Week	Midterm Exam
8. Week	Energy and energy transfer
9. Week	Potential energy
10. Week	Linear momentum and collisions
11. Week	Rotation of a rigid object and about a fixed axis
12. Week	Angular momentum
13. Week	Recitation and Practice

Form Vb (İngilizce): Assessment Method

Semester Works	Number	Contribution
Attendance	14	%10
Laboratory	6	%20
Application	0	%0
Fieldwork	0	%0
Practice	0	%0
Homework Assessment	0	%0
Presentation	0	%0
Project	0	%0
Seminar	0	%0
Mid-term Exams	1	%30
Final Exam	1	%40
Total	21	%100
Contribution of semester Works to success points	20	%50
Contribution of final exam to success points	1	%40
Total	21	%100

Form VIb (English): WORKLOAD AND ECTS CALCULATION

Activities	Number	Duration (hour)	Total Workload
Course Duration (x14)	14	3	42
Laboratory	14	2	28
Application			
Specific practical training			
Field activities			
Study Hours Out of Class (Preliminary work, reinforcement, preparation for the exams)	18	5	90
Presentation / Seminar Preparation			
Project			
Homework assignment			
Midterms (Study duration)	1	8	8
Final Exam (Study duration)	1	12	12
Total Workload			180
Total Workload/30 hours			6
ECTS			6

Form VIIb (English): THE COURSE LEARNING OUTCOMES - PROGRAM OUTCOMES MATRIX

Program Outcomes	Course Outcomes				
	1	2	3	4	5
1	X	X	X	X	X
2		X	X	X	
3			X	X	
4				X	X
5		X		X	
6					
7					
8					
9					
10					
11					

1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

	Burning, Ali; Turkish Language and Composition Information for Universities, Yargı Pub., Ankara, 2017.
Learning Outcomes	Knows the physical elements of speech. Knows the mental components of speech. Gains knowledge of emphasis, intonation, and speech disorders. Makes a prepared speech. Creates scientific texts on subjects related to his field and understands and evaluates scientific texts related to his field. Gains writing skill. Improves oral expression skills. Knows the concepts and concepts of reading, comprehension, listening.

Form IVb (English): Subjects by weeks

Weeks	Subjects
1. Week	Correspondence Types
2. Week	Thought Articles I
3. Week	Thought Writings II
4. Week	Artistic Writings I
5. Week	Artistic Writings II
6. Week	Accessing Information - Using the Library
7. Week	Access to Information - Electronic Resources
8. Week	Midterm
9. Week	Accessing Information - Resource Discovery Tools and Techniques
10. Week	Scientific Research and Writing Techniques-I
11. Week	Scientific Research and Writing Techniques-II
12. Week	Speech and Speech Types
13. Week	Presentation techniques
14. Week	Composition Information
15. Week	Paragraph and Paragraph Types of Expression
16. Week	Final Exam
17. Week	

Form Vb (İngilizce): Assessment Method

Semester Works	Number	Contribution
Attendance	0	%0
Laboratory	0	%0
Application	0	%0
Fieldwork	0	%0
Practice	0	%0
Homework Assessment	0	%0
Presentation	0	%0
Project	0	%0
Seminar	0	%0
Mid-term Exams	1	%40
Final Exam	1	%60
Total	0	%100
Contribution of semester Works to success points	0	%40
Contribution of final exam to success points	0	%60
Total	0	%100

Form VIb (English): WORKLOAD AND ECTS CALCULATION

Activities	Number	Duration (hour)	Total Workload
Course Duration (x14)	14	2	28
Laboratory			
Application			
Specific practical training			
Field activities			
Study Hours Out of Class (Preliminary work, reinforcement, preparation for the exams)	14	2	28
Presentation / Seminar Preparation			
Project			
Homework assignment			
Midterms (Study duration)	1	2	2
Final Exam (Study duration)	1	2	2
Total Workload			60
Total Workload/30 hours			2
ECTS			2

Form VIIb (English): THE COURSE LEARNING OUTCOMES - PROGRAM OUTCOMES MATRIX

Program Outcomes	Contribution Level*				
	1	2	3	4	5
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					X

1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

Learning Outcomes	Gains knowledge of the definition and functions of the language and the basic features of Turkish. Knows the relationship between language and thought. Gains knowledge of the place of Turkish language in the world. Gains the ability to express himself correctly and effectively. Creates scientific texts on subjects related to his field and understands and evaluates scientific texts related to his field. Gains writing skill. Explains and exemplifies the phonetic features, structural features and sentence features of Turkish. Will be able to understand and evaluate what he has read.
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Form IVb (English): Subjects by weeks

Weeks	Subjects
1. Week	Definition of Language, Features of Language, Language and Culture, Language and Communication, Language and Thought, Place of Turkish among World Languages, Classification of Languages: World languages in terms of origin, world languages in terms of structure.
2. Week	Development and Historical Periods of Turkish Language, Age of Turkish, Classification of Turkish Written Languages and Dialects, Theories Related to the Birth of Languages, Types of Language: dialect, accent, dialect, written language, spoken language ...
3. Week	The alphabet used in Turkish Spelling: Göktürk, Mani, Uighur alphabet ... Turkish Language Studies, Writing and Language Revolution, Atatürk and the Turkish language, phonetic features of Turkey Turkish, the Turkish Syllable Structure
4. Week	Vocal Harmony: big vowel harmony, little vowel harmony. Sound Phenomena: sound resemblance, sound change, sound derivation, sound drop, sound narrowing, collapse.
5. Week	Phonemes on Tracks: accent, intonation, pause. Basic Concepts of Morphology, Turkish Attachments: construction attachments, inflectional attachments
6. Week	Roots in Turkish, Word Making: analogy, derivation, karma, abbreviation... Types of Words: words in terms of meaning, words in terms of genre and task.
7. Week	Phrases: phrases, exclamation group, title group, number phrase, reduplications, compound verb phrase, noun-verb / adjective-verb / adverb-verb phrase, abbreviation phrases
8. Week	Midterm
9. Week	Elements of the sentence: predicate, subject, object, place clause, mark complement, non-sentence elements
10. Week	Types of Sentences: sentences according to their structure, sentences according to the type of the predicate, sentences according to the place of the predicate, sentences according to their meanings.
11. Week	The Word Presence of Turkish, The Expressive Power of Turkish. Differences Between Idioms, Proverbs, Idioms and Proverbs, Quotes, Dialect Items
12. Week	Interaction Between Languages and Turkish, Richness Areas of Languages, Historical Depth and Geographical Extent, Word Presence and Expression Power, Proverbs and Expressive Power, Diversity in Kinship Names, Relationship and Kindness Words.

13. Week	The Effect of World Languages on Turkish Language, The Effect of Foreign Languages in the Ancient Turkish Period, The Effect of Western Languages on Turkish.
14. Week	Usage of Turkish in Mass Media. Usage of Turkish in Social Media.
15. Week	Discourse Disorders, Vicious Words in Speech and Writing, Density of Foreign Words, Teaching in Foreign Language, Science Terms, Turkish in Business Life.
16. Week 17. Week	Final Exam

Form Vb (İngilizce): Assessment Method

Semester Works	Number	Contribution
Attendance	0	%0
Laboratory	0	%0
Application	0	%0
Fieldwork	0	%0
Practice	0	%0
Homework Assessment	0	%0
Presentation	0	%0
Project	0	%0
Seminar	0	%0
Mid-term Exams	1	%40
Final Exam	1	%60
Total	0	%100
Contribution of semester Works to success points	0	%40
Contribution of final exam to success points	0	%60
Total	0	%100

Form VIb (English): WORKLOAD AND ECTS CALCULATION

Activities	Number	Duration (hour)	Total Workload
Course Duration (x14)	14	2	28
Laboratory			
Application			
Specific practical training			
Field activities			
Study Hours Out of Class (Preliminary work, reinforcement, preparation for the exams)	14	2	28
Presentation / Seminar Preparation			
Project			
Homework assignment			
Midterms (Study duration)	1	2	2
Final Exam (Study duration)	1	2	2
Total Workload			60
Total Workload/30 hours			2
ECTS			2

Form VIIb (English): THE COURSE LEARNING OUTCOMES - PROGRAM OUTCOMES MATRIX

Program Outcomes	Contribution Level*				
	1	2	3	4	5
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					X

1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

Form (Türkçe): Haftalara göre konular

Haftalar	Konular
1. Hafta	Yazışma Türleri
2. Hafta	Düşünce Yazıları I
3. Hafta	Düşünce Yazıları II
4. Hafta	Sanatsal Yazılar I
5. Hafta	Sanatsal Yazılar II
6. Hafta	Bilgiye ulaşma- Kütüphane Kullanımı
7. Hafta	Bilgiye ulaşma- Elektronik Kaynaklar
8. Hafta	Ara sınav
9. Hafta	Bilgiye Ulaşma- Kaynak Keşif Araçları ve Teknikleri
10. Hafta	Bilimsel Araştırma ve Yazma Teknikleri-I
11. Hafta	Bilimsel Araştırma ve Yazma Teknikleri-II
12. Hafta	Güzel Konuşma ve Sözlü Anlatım Türleri
13. Hafta	Sunum Teknikleri
14. Hafta	Kompozisyon Bilgileri
15. Hafta	Paragraf ve Paragrafta Anlatım Biçimleri
16. Hafta	Final Sınavı

Form (Türkçe): Değerlendirme Yöntemi

Dönem Çalışmaları	Sayı	Katkı
Katılım	157	%0
Laboratuvar	0	%0
Uygulama	0	%0
Saha Çalışması	0	%0
Pratik	0	%0
Ödev Değerlendirilmesi	0	%0
Sunum	0	%0
Proje	0	%0
Seminer	0	%0
Ara Sınav	1	%40
Final	1	%60
Toplam	0	%100
Dönem çalışmalarının başarı puanlarına katkısı	0	%40
Final sınavının başarı puanlarına katkısı	0	%60
Toplam	0	%100

Form VIb (İngilizce): İŞ YÜKÜ VE AKTS HESAPLAMA

Aktiviteler	Sayı	Süre (saat)	Toplam İş Yüğü
Ders Süresi (x14)	14	2	28
Laboratuvar			
Uygulama			
Spesifik Pratik Eğitim			
Saha Faaliyetleri			
Sınıf Dışı Çalışma Saatleri (Ön çalışma, pekiştirme, sınavlara hazırlık)	14	2	28
Sunum / Seminer Hazırlama			
Proje			
Ev Ödevi			
Ara sınavlar (Çalışma süresi)	1	2	2
Final Sınavı (Çalışma süresi)	1	2	2
Toplam İş Yüğü			60
Toplam İş Yüğü			2
AKTS			2

Form VIIb (English): THE COURSE LEARNING OUTCOMES - PROGRAM OUTCOMES MATRIX

Program Outcomes	Contribution Level*				
	1	2	3	4	5
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					X

1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

Form (Türkçe): Haftalara göre konular

Haftalar	Konular
1. Hafta	Dilin Tanımı, Dilin Özellikleri, Dil ve Kültür, Dil ve İletişim, Dil ve Düşünce, Türkçenin Dünya Dilleri Arasındaki Yeri, Dillerin Sınıflandırılması: köken bakımından dünya dilleri, yapı bakımından dünya dilleri.
2. Hafta	Türk Dilinin Gelişimi ve Tarihsel Dönemleri, Türkçenin Yaşı, Türk Yazı Dillerinin ve Lehçelerinin Tasnifi, Dillerin Doğuşu İle İlgili Kuramlar, Dilin Türleri: lehçe, şive, ağız, yazı dili, konuşma dili...
3. Hafta	Türkçenin Yazımında Kullanılan Alfabeler: Göktürk, Mani, Uygur alfabesi..., Türk Dili Çalışmaları, Yazı ve Dil Devrimi, Atatürk ve Türk Dili, Türkiye Türkçesinin Fonetik Özellikleri, Türkçenin Hece Yapısı
4. Hafta	Ses Uyumları: büyük ünlü uyumu, küçük ünlü uyumu. Ses Olayları: ses benzeşmesi, ses değişmesi, ses türemesi, ses düşmesi, ses daralması, göçüşme.
5. Hafta	Parçalar Üstü Ses Birimleri: vurgu, tonlama, durak. Biçim Bilgisiyle İlgili Temel Kavramlar, Türkçenin Ekleri: yapım ekleri, çekim ekleri
6. Hafta	Türkçede Kökler, Sözcük Yapımı: örnekseme, türetme, karma, kısaltma... Sözcük Türleri: anlam bakımından sözcükler, tür ve görev bakımından sözcükler
7. Hafta	Sözcük Öbekleri: tamlamalar, ünlem grubu, unvan grubu, sayı öbeği, ikilemeler, birleşik eylem öbeği, isim-fiil/ sıfat-fiil/zarf-fiil öbeği, kısaltma öbekleri.
8. Hafta	Ara sınav
9. Hafta	Cümlelerin Öğeleri: yüklem, özne, nesne, yer tamlayıcısı, belirteç tümleci, cümle dışı öğeler.
10. Hafta	Cümle Türleri: yapısına göre tümceler, yüklem türüne göre tümceler, yüklem yerine göre tümceler, anlamlarına göre tümceler.
11. Hafta	Türkçenin Söz Varlığı, Türkçenin Anlatım Gücü. Deyimler, Atasözleri, Deyimler ve Atasözleri Arasındaki Farklar, Alıntı Sözler, Ağız Öğeleri.
12. Hafta	Diller Arası Etkileşim ve Türkçe, Dillerin Zenginlik Alanları, Tarihsel Derinlik ve Coğrafi Yaygınlık, Söz Varlığı ve Anlatım Gücü, Atasözleri ve Anlatım Gücü, Akralalık Adlarında Çeşitlilik, İlişki ve Nezaket Sözleri.
13. Hafta	Dünya Dillerinin Türk Diline Etkisi, Eski Türkçe Döneminde Yabancı Dillerin Etkisi, Batı Dillerinin Türkçeye Etkisi.
14. Hafta	Kitle İletişim Araçlarında Türkçenin Kullanımı, Sosyal Medyada Türkçenin Kullanımı.
15. Hafta	Söyleyiş Bozuklukları, Konuşma ve Yazıda Kısır Söz Varlığı, Yabancı Sözlerin Yoğunluğu, Yabancı Dille Öğretim, Bilim Terimleri, İş Yaşamında Türkçe.
16. Hafta	Final Sınavı
17. Hafta	

Form (Türkçe): Değerlendirme Yöntemi

Dönem Çalışmaları	Sayı	Katkı
Katılım	0	%0
Laboratuvar	0	%0
Uygulama	0	%0
Saha Çalışması	0	%0
Pratik	0	%0
Ödev Değerlendirilmesi	0	%0
Sunum	0	%0
Proje	0	%0
Seminer	0	%0
Ara Sınav	1	%40
Final	1	%60
Toplam	2	%100
Dönem çalışmalarının başarı puanlarına katkısı	1	%40
Final sınavının başarı puanlarına katkısı	1	%60
Toplam	2	%100

Form VIb (İngilizce): İŞ YÜKÜ VE AKTS HESAPLAMA

Aktiviteler	Sayı	Süre (saat)	Toplam İş Yüğü
Ders Süresi (x14)	14	2	28
Laboratuvar			
Uygulama			
Spesifik Pratik Eğitim			
Saha Faaliyetleri			
Sınıf Dışı Çalışma Saatleri (Ön çalışma, pekiştirme, sınavlara hazırlık)	14	2	28
Sunum / Seminer Hazırlama			
Proje			
Ev Ödevi			
Ara sınavlar (Çalışma süresi)	1	2	2
Final Sınavı (Çalışma süresi)	1	2	2
Toplam İş Yüğü			60
Toplam İş Yüğü			2
AKTS			2

Form VIIb (English): THE COURSE LEARNING OUTCOMES - PROGRAM OUTCOMES MATRIX

Program Outcomes	Contribution Level*				
	1	2	3	4	5
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					X

1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

	3. Risk management skills 4. Ability to recognize risk factors at workplace 5. Understand employer duties to ensure the safety and health 6. Understand employee duties to ensure their own safety and health
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Form IVb (English): Subjects by weeks

Weeks	Subjects
1. Week	Introduction to OHS
2. Week	General concepts of occupational health and safety, aim and importance
3. Week	Hazard and Risk
4. Week	Causes of work accident: Unsafe conditions and unsafe act
5. Week	Work accident and occupational disease statistics
6. Week	Work accidents and near misses
7. Week	Mid- term exam
8. Week	Occupational Diseases and Work-related diseases
9. Week	Historical Development of OHS in the World and Turkey
10. Week	No. 6331 OHS Law and related regulation
11. Week	No. 6331 OHS Law and related regulation
12. Week	Introduction to risk assessment in OHS
13. Week	Risk assessment in OHS
14. Week	Example risk assessment in OHS
15. Week	Basics of protection from work accidents and occupational diseases
16. Week	Final Exam

Form Vb (İngilizce): Assessment Method

Semester Works	Number	Contribution
Attendance	14	%0
Laboratory	0	%0
Application	0	%0
Fieldwork	0	%0
Practice	0	%0
Homework Assessment	2	%20
Presentation	0	%0
Project	0	%0
Seminar	0	%0
Mid-term Exams	1	%20
Final Exam	1	%60
Total	18	%100
Contribution of semester Works to success points	17	%40
Contribution of final exam to success points	1	%60
Total	18	%100

Form VIb (English): WORKLOAD AND ECTS CALCULATION

Activities	Number	Duration (hour)	Total Workload
Course Duration (x14)	1	1	14
Laboratory			
Application			
Specific practical training			
Field activities			
Study Hours Out of Class (Preliminary work, reinforcement, preparation for the exams)			
Presentation / Seminar Preparation			
Project			
Homework assignment	2	7	14
Midterms (Study duration)	1	1	1
Final Exam (Study duration)	1	1	1
Total Workload			30
Total Workload/30 hours			1
ECTS			1

Form VIIb (English): THE COURSE LEARNING OUTCOMES - PROGRAM OUTCOMES MATRIX

Program Outcomes	Contribution Level*				
	1	2	3	4	5
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					X

1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

Form IVb (English): Subjects by weeks

Weeks	Subjects
1. Week	Introduction to Health and safety management systems
2. Week	Health and safety management systems
3. Week	Physical hazards
4. Week	Physical hazards
5. Week	Chemical hazards
6. Week	Chemical hazards
7. Week	Mid- term exam
8. Week	Biological hazards
9. Week	Biological hazards
10. Week	Psychosocial hazards
11. Week	Psychosocial hazards
12. Week	Ergonomic hazards
13. Week	Ergonomic hazards
14. Week	Personal protective equipments
15. Week	Personal protective equipments
16. Week	Final Exam

Form Vb (İngilizce): Assessment Method

Semester Works	Number	Contribution
Attendance	14	%0
Laboratory	0	%0
Application	0	%0
Fieldwork	0	%0
Practice	0	%0
Homework Assessment	2	%20
Presentation	0	%0
Project	0	%0
Seminar	0	%0
Mid-term Exams	1	%20
Final Exam	1	%60
Total	18	%100
Contribution of semester Works to success points	17	%40
Contribution of final exam to success points	1	%60
Total	18	%100

Form VIb (English): WORKLOAD AND ECTS CALCULATION

Activities	Number	Duration (hour)	Total Workload
Course Duration (x14)	1	1	14
Laboratory			
Application			
Specific practical training			
Field activities			
Study Hours Out of Class (Preliminary work, reinforcement, preparation for the exams)			
Presentation / Seminar Preparation			
Project			
Homework assignment	2	7	14
Midterms (Study duration)	1	1	1
Final Exam (Study duration)	1	1	1
Total Workload			30
Total Workload/30 hours			1
ECTS			1

Form VIIb (English): THE COURSE LEARNING OUTCOMES - PROGRAM OUTCOMES MATRIX

Program Outcomes	Contribution Level*				
	1	2	3	4	5
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					X

1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

Subjects by weeks

Weeks	Subjects
1. week	11.1 Sequences 11.2 Series 11.3 The integral test The Limit of a Function,
2. week	11.4 The comparison tests 11.5 Alternating series
3. week	11.6 Absolute Convergence, the Ratio and Root Tests 11.8 Power Series
4. week	11.9 Representation of Functions as Power Series 11.10 Taylor and Maclaurin Series
5. week	12.1 3D Coordinate Systems 12.2 Vectors 12.3 The Dot Product 12.4 The Cross Product
6. week	12.5 Equations of Lines and Planes 12.6 Cylinders and Quadric Surfaces
7. week	13.1 Vector functions and space curves 13.2 Derivatives and integrals of vector functions 13.3 Arc Length
8. week	Midterm Exam (TBA)
9. week	13.4 Velocity and Acceleration 14.1 Functions of Several Variables
10. week	14.2 Limits and Continuity 14.3 Partial Derivatives
11. week	14.4 Tangent Planes and Linear Approximations 14.5 The chain rule 14.6 Directional Derivatives and the Gradient Vector
12. week	14.7 Maximum and Minimum Values 14.8 Lagrange Multipliers
13. week	15.1 Double integrals over rectangles 15.2 Double integrals over general regions 15.3 Double integrals in polar coordinates
14. week	15.6 Triple integrals 15.7 Triple integrals in cylindrical coordinates

15.week	15.8 Triple integrals in spherical coordinates 15.9 Change of variable in multiple integrals
16.week	Final Exam

Assessment Method

Semester Works	Number	Contribution
Attendance	14	0%
Laboratory	0	0%
Application	8	0%
Fieldwork	0	0%
Practice	0	0%
Homework Assessment	1	5%
Quiz	5	20%
Presentation	0	0%
Project	0	0%
Seminar	0	0%
Mid-term Exam(s)	1	30%
Final Exam	1	45%
Total	30	100%
Contribution of semester Works to success points	29	55%
Contribution of final exam to success points	1	45%
Total	30	100%

Workload and ECTS Calculation

Activities	Number	Duration (hour)	Total Workload
Course Duration (x14)	14	4	56
Laboratory	0	0	0
Application	0	0	0
Specific practical training	0	0	0
Field activities	0	0	0
Study Hours Out of Class (Preliminary work, reinforcement, preparation for the exams)	14	6	84
Presentation / Seminar Preparation	0	0	0
Project	0	0	0
Homework assignment	1	5	5
Quiz	5	3	15
Midterms (Study duration)	1	10	10
Final Exam (Study duration)	1	10	10
Total Workload	180		
Total Workload/30 hours	6		
ECTS	6		

Program Learning Outcomes - Course Learning Outcomes Matrix

Program Learning Outcomes	Course Learning Outcomes				
	LO1	LO2	LO3	LO4	LO5
1	5				
2		5			5
3					
4			5		
5					
6					
7				5	
8					
9					
10					
11					

1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

ANKARA SCIENCE UNIVERSITY
FACULTY OF ENGINEERING AND ARCHITECTURE
INDUSTRIAL ENGINEERING DEPARTMENT
COURSE INFORMATION

Course Name	Code	Semester	Theory (hours/week)	Application (hours/week)	Laboratory (hours/week)	National Credit	ECTS
Calculus I	MATH 101	Fall	4	0	0	4	6
Prerequisites	None						
Course Language	English						
Course Type	Compulsory						
Mode of Delivery	Face to face						
Learning and Teaching strategies	Lecturing, discussion, and submission						
Instructor(s)	Berrin Şentürk, PhD						
Course objective	The main goals of the course are to develop and strengthen the students' problem-solving skills and to teach them to read, write, and think in the language of mathematics. Students should be able to apply the tools of calculus to a variety of problem situations.						
Course content	The concepts of Limit and Continuity, The Derivative, Applications of the Derivative, The Integration, Techniques of Integration, Applications of the Integral.						
References	1. Calculus (Metric Version), 8th (or 7th) Edition, by James Stewart 2. Calculus, 14th Edition, by George B. Thomas (Supplementary Book)						
Learning Outcomes	Upon successful completion of this course, a student will be able to: 1. Recall definitions, statements of theorems, certain examples and counterexamples pertaining to functions of one variable. 2. Calculate limits and continuity for functions of one variable. 3. Calculate the derivatives of elementary and transcendental functions of one variable, tangent line, the chain rule, and implicit differentiation. 4. Compute the integrals of elementary and transcendental functions of one variable, method of substitution, integration by parts, powers and products of trigonometric functions, trigonometric substitution, and partial fractions. 5. Solve problems of related rates, minimum-maximum, linear approximations, graphing functions, length of a curve, planar area, and volume.						

Subjects by weeks

Weeks	Subjects
1. week	Appendix D: Trigonometry, The Limit of a Function, Calculating Limits using the Limit Laws

2. week	Limits at Infinity; Horizontal Asymptotes Continuity
3. week	Derivatives and Rates of Change The Derivative as a Function Differentiation Formulas
4. week	Derivatives of Trigonometric Functions The Chain Rule Implicit Differentiation
5. week	Related Rates Linear Approximations and Differentials Inverse Functions Exponential Functions and Their Derivatives
6. week	Logarithmic Functions Derivatives of Logarithmic Functions Inverse Trigonometric Functions, Hyperbolic Functions
7. week	Indeterminate Forms and l'Hospital's rule Maximum and Minimum Values The Mean Value Theorem
8. week	How Derivatives Affect the Shape of a Graph Summary of Curve Sketching Midterm Exam (TBA)
9. week	Optimization problems Antiderivatives Areas and Distances The Definite Integral
10. week	The Fundamental Theorem of Calculus Indefinite Integrals and the Net Change Theorem The Substitution Rule
11. week	Integration by Parts Trigonometric Integrals Trigonometric Substitution
12. week	Integration of Rational Functions by Partial Fractions Improper Integrals
13. week	Areas Between Curves Volumes Volumes by Cylindrical Shells
14. week	Average Value of a Function Arc length Area of a Surface of Revolution
Final	Final Exam (TBA)

Assessment Method

Semester Works	Number	Contribution
Attendance	14	0%
Laboratory	0	0%
Application	0	0%
Fieldwork	0	0%
Practice	8	0%
Homework Assessment	1	5%
Quiz	5	20%
Presentation	0	0%
Project	0	0%
Seminar	0	0%
Mid-term Exam(s)	1	30%
Final Exam	1	45%
Total	30	100%
Contribution of semester Works to success points	29	55%
Contribution of final exam to success points	1	45%
Total	30	100%

Workload and ECTS Calculation

Activities	Number	Duration (hour)	Total Workload
Course Duration (x14)	14	4	56
Laboratory	0	0	0
Application	0	0	0
Specific practical training	0	0	0
Field activities	0	0	0
Study Hours Out of Class (Preliminary work, reinforcement, preparation for the exams)	14	6	84
Presentation / Seminar Preparation	0	0	0
Project	0	0	0
Homework assignment	1	5	5
Quiz	5	3	15
Midterms (Study duration)	1	10	10
Final Exam (Study duration)	1	10	10
Total Workload	180		
Total Workload/30 hours	6		
ECTS	6		

Program Learning Outcomes - Course Learning Outcomes Matrix

Program Learning Outcomes	Course Learning Outcomes				
	LO1	LO2	LO3	LO4	LO5
1	5				
2		5			5
3					
4			5		
5					
6					
7				5	
8					
9					
10					
11					

1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest