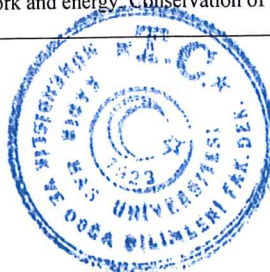


**COMPUTER ENGINEERING FOR STUDENTS WHO START THEIR EDUCATION IN DEPARTMENT  
BEFORE 2020-2021 ACADEMIC YEAR FALL SEMESTER**

Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Introduction to Modern Biology	BIO 105	Fall	04+00+00	Compulsory	4	6
Course Objectives:	To teach the basic concepts of biology, asking scientific questions, the scientific method, the general experimental design and scientific reporting. To make the students perceive life, fundamental features of organisms and basic biological mechanisms. To teach the basic molecular aspects of biology, which are critical to understand cell biology, bioinformatics and genetics. To make students understand how populations evolve and why evolution is the core theme of biology.					
Course Contents:	A general introduction to biology, biological experimenting, reporting, molecules of life, organization of the cell, cell membrane, chromosomes and cell division, genetics, molecular genetics, recombinant DNA technology, genetic diseases, biotechnology and evolution.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
English-I	EL 101	Fall	03+00+00	Compulsory	3	4
Course Objectives:	<p><b>Reading:</b> By the end of the course, students will be able to read extracts from authentic texts on a variety of topics and in a variety of genres and build on the following skills: - Skimming: Finding the main ideas quickly, - Skimming: Making predictions, - Scanning: Finding specific information quickly, - Identifying supporting details, - Recognizing organization and purpose in written texts, - Recognizing relationships within a written text, - Understanding coherence and cohesion, - Recognizing cohesion, - Recognizing summary statements and conclusions, - Distinguishing essential/ non-essential information in written texts</p> <p><b>Writing:</b> By the end of the course, students will be able to produce an organized essay as well as: - Organize a written response to a text, - Understand essay introductions and their relationship to the body of the essay, - Write clear thesis statements, - Support major points with supporting details, - Write body paragraphs using connecting ideas to show relationships</p> <p><b>Vocabulary:</b> The course will develop and expand student's knowledge of commonly used academic vocabulary as well as vocabulary related to the themes covered by the course.</p>					
Course Contents:	Unit 2: Megacities (Urban Planning), Unit 3: In the Public Eye (Art & Design), Unit 4: Staying Alive (Public Health)					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Engineering Guide and Ethics	GE 103	Fall	03+00+00	Compulsory	3	5
Course Objectives:	To be a guide for students in their undergraduate study. To give the student an understanding of the engineering profession and the main engineering problems on the global and social dimensions within the society health, environment, security context. To collaborate in small groups to analyze a case and identify the problem, to synthesize a solution, to formulate arguments for a debate and to develop communication skills. Developing skills in moral reasoning, having an understanding of ethical and legal implications of the engineering profession. Consciousness in academic ethics. Consciousness in lifelong learning.					
Course Contents:	This is a course delivered in blended form. All course materials about theoretical subjects are delivered via the Blackboard portal in online form. Quizzes will also be carried online. There are two hours of lecture every week where practical studies, discussions, and workshops will be carried out. Topics covered: The academic system and courses. The engineering profession; engineering questions; modeling processes; electrical-electronics/computer/industrial engineering; implications of engineering on society, environment, health, and security; necessary soft skills for engineers: teamwork, communication, writing, presentation, lifelong learning; professionalism: client-employee relations; ethics, ethical reasoning and problem solving; legal implications of engineering; moral responsibility and whistle-blowing; academic ethics; codes of ethics; case studies.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Calculus I	MA 101	Fall	03+02+00	Compulsory	4	7
Course Objectives:	1. To give a broad knowledge and basic understanding of sequences and series. 2. To teach the concepts of functions, limits, continuity, and differentiation. 3. To help the students to demonstrate the ability to use the derivative concept in applications. 4. To demonstrate the ability to apply knowledge of mathematics to engineering problems.					
Course Contents:	Classification of real numbers, complex numbers. Sequences and series. Tests for convergence and divergence of series, power series. Functions, domain and range. Functions of a single variable. Classification of functions. Limits, continuity and related theorems. Derivatives, differentials. Rolle's Theorem, Mean Value Theorem. Indeterminate forms, L'Hospital's Rule. Taylor and Mac-Laurin series. Local and absolute maxima and minima of functions. Curve sketching.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Physics I	PH 121	Fall	03+00+00	Compulsory	3	5
Course Objectives:	The main objective of this course is to introduce basics of the classical mechanics and to introduce the theories and applications in a clear, understandable way. The students are also motivated through practice examples and homeworks.					
Course Contents:	Measurements, Vectors, Motion in one dimension, Motion in two dimension, Newton's laws of motion, Application of Newton's law, Newton's law of universal gravitation, Work and energy, Conservation of energy, Momentum and motion of the system, Static equilibrium on a rigid body, Rotation I, Rotation II					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Physics Laboratory I	PH 131	Fall	00+00+02	Compulsory	1	2
Course Objectives:	The main objective of this course is to introduce basics of the classical mechanics and to introduce the theories and applications in a clear, understandable way.					
Course Contents:	Measurements, Vectors, Motion in one dimension, Motion in two dimension, Newton's laws of motion, Application of Newton's law, Newton's law of universal gravitation, Work and energy, Conservation of energy, Momentum and motion of the system, Static equilibrium on a rigid body, Rotation.					

Nafia Nur Başürün  
MDBF Sekreteri

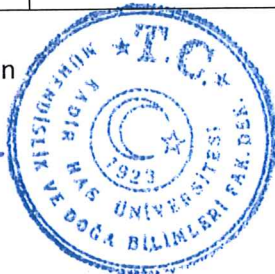
Mehmet Emre Özdoğan  
MDBF Sekreteri





Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Turkish Language I	TD 101	Fall	02+00+00	Compulsory	2	1
Course Objectives:	Gaining an historical perspective about Turkish Language. Improving critical reading and writing in Turkish. Analysing argumentative essays Joining a process of production of knowledge through communication Writing a book review Gaining knowledge about academic ethics					
Course Contents:	Content of the course depends on argumentative essays and analysis of them. Reading material also includes articles about the history of Turkish Language, short paragraphs and argumentative essays as well as an essay-type book written by a Turkish writer.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Computer Programming I	CE 140	Spring	02+00+02	Compulsory	3	5
Course Objectives:	This is a good course for those with little or no programming experience. Students develop skills to program and use computational techniques to solve problems. Topics include the notion of computation, simple algorithms and data structures, using an editor, program design, implementation with Python, testing and debugging, and algorithmic complexity.					
Course Contents:	Software, hardware, problem solving (algorithms and pseudocode), Python programming language, input and output operations, variables, arithmetic and data types, conditional statements, loops, scoping, collections, introduction to functions and recursion.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
English II	EL 102	Spring	03+00+00	Compulsory	3	4
Course Objectives:	SPEAKING & LISTENING By the end of the course, students will be able to participate in seminar discussions and give formal presentations on a variety of topics and build on the following skills: - Speak English fluently, - Speak clearly and concisely, - Deliver an individual presentation, - Formulate an appropriate communication strategy for a given situation, - Give and receive feedback in order to improve communication, - Listen for understanding, - Work effectively in groups, - Express ideas effectively individually and in groups, - Participate in a debate - VOCABULARY The course will develop and expand student's knowledge of commonly used academic vocabulary as well as vocabulary related to the themes covered by the course.					
Course Contents:	Unit 2: Learning Online, Unit 3: Changing Roles in the Family, Unit 4: A Healthy Lifestyle, Unit 5: The Influence of the Media, Unit 7: The World of Work, Unit 8: Protecting the Environment					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Calculus II	MA 102	Spring	03+02+00	Compulsory	4	7
Course Objectives:	1. To give a broad knowledge and basic understanding of integral calculus, 2. To teach the techniques of integration, 3. To help the students to demonstrate the ability to use the integration concept in applications, 4. To teach the fundamentals of the vector calculus and use them in applications, 5. To teach the concepts of limit, continuity, and partial derivative for multivariable functions.					
Course Contents:	Indefinite integrals: Rules of integration, basic integration formulas, integration by substitution. Techniques of integration: Integration by parts, some recurrence relations, integration of rational functions, integrals that can be transformed to those of rational functions. Definite integral: Riemann sums, Mean Value Theorem for integrals, Fundamental Theorem of the integral calculus. Applications of Integrals: Areas of plane regions in Cartesian, parametric and polar coordinates, finding the lengths of plane curves given by Cartesian equation, parametric equations and polar equation, volumes of solids of revolution, areas of surfaces of revolution. Improper integrals: Kinds of improper integrals, tests of convergence and divergence. Numerical integration: Method of Trapezoids, method of parabolas (Simpson). Vectors and their applications: Vectors, dot product, cross product and triple scalar product of vectors. Lines and planes in space and some related topics. Multivariable functions: A brief account of the theory of functions of several variables. Limit and continuity, partial derivative, total differential and exact differential forms. Homogeneous functions, Euler's theorem.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Linear Algebra	MA 103	Fall	03+00+00	Compulsory	3	6
Course Objectives:	To develop the theory of matrices, systems of linear equations, vectors and vector spaces, with emphasis on concepts and techniques used in physics and engineering.					
Course Contents:	Systems of linear equations, the matrix equation, linear independence, matrix algebra, echelon form of a matrix, Gauss-Jordan elimination, inverse of a matrix, vector spaces and subspaces, basis for a vector space, determinants, dimension and rank of vector spaces, eigenvalues and eigenvectors, diagonalization, orthogonality.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Physics II	PH 122	Spring	03+00+00	Compulsory	3	5
Course Objectives:	The main objective of this course is to introduce basics of the electric and magnetism and to introduce the theories and applications in a clear, understandable way. The students are also motivated through practice examples and homeworks.					
Course Contents:	Coulomb's Law and the Electric Field, Gauss's Law, Electrical Potential, Capacitance, Electric Energy, and Properties of Insulators, Current and Resistance, Energy and Currents in DC Circuits, The Magnetic Field, Sources of Magnetic Field Faraday's Law, Inductance, Magnetic Field in Matters Electromagnetic Oscillations and AC Circuits					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Physics Laboratory II	PH 132	Spring	00+00+02	Compulsory	1	2
Course Objectives:	The main objective of this course is to introduce basics of the electric and magnetism and to introduce the theories and applications in a clear, understandable way.					
Course Contents:	Coulomb's Law, Electric Field and Potential, Dielectric Constant, Charging and Discharging of a Capacitor, Ohm's Law, Temperature Dependence of Resistance, Kirchhoff's Law, Biot-Savart's Law, Magnetic Moment and Induction					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Turkish Language II	TD 102	Spring	02+00+00	Compulsory	2	1
Course Objectives:	To give an idea about different literary genres such as novel, short story and poem and to concentrate on some Turkish examples. The course aims to provide knowledge about literary terms as well as historical perspective concerning these genres.					
Course Contents:	This course covers the following subjects: The rise of the Turkish novel, the relation of Turkish novel with traditional genres, some key terms in narratology such as narrator, narrative modes and characterization etc., close reading techniques, Turkish novel from 50's to 2000's, short story and poem in Turkish.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS

Nafia Nur Başürün  
MDBF Sekreteri



Mehmet Emre Özdoğan  
MDBF Sekreteri



Principles of Atatürk and History of Turkish Republic I	AT 101	Fall	02+00+00	Compulsory	2	1
Course Objectives:	Öğrencilere, ülkenin Sevr koşulları çıkmazından, bağımsız Türk Devleti noktasına nasıl ve ne şekilde geldiğini; evrensel bir çağdaşlaşma anlayışı olan Atatürkçü Düşünce Sistemi'nin tüm yönlerini, farklılıklarını ortaya koyarak aktarılması amaçlanmaktadır.					
Course Contents:	Osmanlı'nın çökme nedenleriyle birlikte, Tanzimat Döneminden başlayan süreç ile Bağımsızlık mücadelesinden Lozan'a kadar geçen dönem tüm ayrıntıları ile verilmektedir.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Discrete Computational Structures	CE 201	Fall	03+00+00	Compulsory	3	5
Course Objectives:	The main objective of this course is to provide the students with a knowledge on theoretical foundations of problem solving and experience in working with discrete computational structures common in computer science and computational problems.					
Course Contents:	Introduction to the main concepts of discrete computational structures. Overview of formal tools for mathematical reasoning and proof construction. A thorough discussion of mathematical induction as a proof technique and how it relates to problem solving, algorithm design and program verification. An introduction to combinatorial analysis and its application on discrete structures including sets, permutations, graphs, and trees.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Computer Programming II	CE 241	Fall	02+00+02	Compulsory	3	6
Course Objectives:	Develop computer code with functions, analyze algorithms or computer code for correctness, use parameter passing methods, use pointers and strings effectively, know the relationship between pointers and arrays, analyze user-defined types (classes), develop computer code with classes.					
Course Contents:	Functions, recursive functions, void functions, arguments by value, default arguments to a function, function overloading, arrays, 2-D arrays, pointers, arguments by reference, accessing arrays with pointers, passing arrays to functions, strings, accessing strings with pointers, classes, dynamic memory management, operator overloading.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Fundamentals of Electronics	CE 261	Fall	03+00+00	Compulsory	3	5
Course Objectives:	To teach the student fundamental circuit theory and the analysis and design of simple electronic circuits employing semiconductor components.					
Course Contents:	Basic passive and active circuit components, analysis and design of simple circuits.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Digital Design	EE 205	Fall	03+00+00	Compulsory	3	5
Course Objectives:	This course aims to introduce the Boolean algebra and, basic analysis and synthesis techniques for logic circuits. Both combinational and sequential circuits are covered. However, the emphasis is on combinational circuits.					
Course Contents:	Boolean Algebra; logic networks and their simplification; logic design techniques with gates and MSI chips; combinational circuits; basic sequential circuits.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
English-III	EL 201	Fall	03+00+00	Compulsory	3	4
Course Objectives:	<p>READING</p> <p>By the end of the course, students will have developed their ability to cope with authentic academic texts at the B2 level on a variety of academic topics. In addition to the skills they have developed in English Two, they will be able to: Read for general understanding, Differentiate between main ideas and supporting details, Paragraph reorganization: Looking at the logic of the text, Read for specific details and purpose, Read and mind mapping, Read and summarize the SQ3R system, Paraphrase and summarize information in a text. The course will continue to develop students abilities to: Guess the meaning of unknown words from the context, Infer meaning from context, Compare texts and reading for detail.</p> <p>WRITING</p> <p>During this course students will get a practice of the skills they have learned in English One and English Two. By the end of the course, students will be able to: Elaborate on information from outside sources, Summarize academic texts, Paraphrase and quote sentences to form a summary writing, Write responses to academic texts. The course will continue to reinforce the importance of avoiding plagiarism.</p>					
Course Contents:	Unit One: Reading for Academic Purposes Unit Two: Sustainable energy Unit Three: The business of Science Unit Four: Society Today					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Principles of Atatürk and History of Turkish Republic II	AT 102	Spring	02+00+00	Compulsory	2	1
Course Objectives:	Bu ders, öğrencilerin, Türkiye'nin yakın tarihi hakkında bilgilendirilmesi amaçlanmaktadır. Bu bağlamda, öğrencileri, Türkiye Cumhuriyeti'nin kuruluş sürecine hakim olarak dönemin politik ve ekonomik gelişmeleri hakkında bilgi vermeyi amaçlamaktadır.					
Course Contents:	Cumhuriyet'in ilanından başlayarak çeşitli alanlarda gerçekleştirilen reformlar anlatılmaktadır.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Electrical and Logic Circuits Laboratory	CE 236	Spring	00+00+02	Compulsory	1	4
Course Objectives:	To teach the students the construction and operation of simple electrical and logic circuits.					
Course Contents:	Construction and operation of basic electrical and logic circuits at laboratory.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Data Structures and Algorithms	CE 242	Spring	03+00+02	Compulsory	4	6
Course Objectives:	The main objective of this course is to provide the students with a knowledge on foundations of problem solving and experience in the design and implementation of discrete data structures commonly employed in computer science and computational problems.					

Nafia Nur Başürün  
MDBF Sekreteri

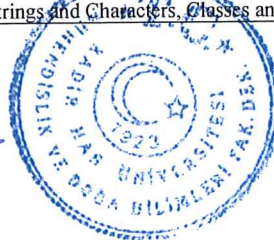


Mehmet Emre Özdoğan  
MDBF Sekreteri



Course Contents:	Introduction to the main concepts of data structures and algorithms. Overview of analysis tools and asymptotic notation. Discussion of recursion and its application to problem solving in computer science. Design and implementation of important abstract data types such as linked lists, doubly linked lists, stacks, queues, priority queues. Discussion of efficient sorting, searching and search tree structures.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Computer Organization and Architecture	CE 244	Spring	03+00+00	Compulsory	3	6
Course Objectives:	1. To establish a solid background in computer design and evaluation. 2. To teach the students how to design the assembly language instruction set for a computer. 3. To teach the fundamentals of a computers datapath, memory organization, controller, and input-output structure such that the students can then actually design these functional units.					
Course Contents:	This course provides the basic knowledge necessary to understand the hardware operation of computers. Main topics are, ?introduction to various digital components used in the organization and design of computers, ?design of an elementary basic computer, ?introduction to the concept of microprogramming, ?introduction to the algorithmic state machine (ASM) chart as a representation for sequencing and controlling operations.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
English-IV	EL 202	Spring	03+00+00	Compulsory	3	4
Course Objectives:	<p>READING</p> <p>By the end of the course, students will have developed their ability to cope with 550-1000 word texts on a variety of topics, especially authentic academic texts at high B2 level. It will provide opportunities to practise the skills developed in English Three. In addition, they will be able to: Identify function of the text annotating text, Read for general understanding, Considering section headings, Identify the main and supporting ideas, Identify the function of paragraphs, Identify word meaning from context, Develop ideas about the topics Identify and summarize key points, Use research as evidence, Prepare notes to support a writer's discussion, Scan the texts and select ideas Select appropriate texts for paper. Make use of the texts: Simulate preparation for a presentation</p> <p>WRITING</p> <p>During this course students will get practice in the skills they have learnt in English One, English Two and English Three. By the end of the course, students will be able to synthesize these skills in order to: Write an extended essay using SPSIE (Situation, Problems, Solutions, Implications and Evaluation) approach and appropriate academic conventions, such as MLA or APA, The course will continue to reinforce the importance of avoiding plagiarism.</p> <p>SPEAKING</p> <p>By the end of the course, students will be able to: Express ideas and opinions in response to others using a variety of techniques and strategies in academic contexts, Initiate, participate in, contribute effectively and add to a discussion on a relevant academic topic in a classroom setting, Produce spontaneous spoken output</p>					
Course Contents:	Unit 5: Food Security Unit 6: Human Resource Management Unit 7: Sustainable Fashion					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Differential Equations	MA 201	Fall	03+00+00	Compulsory	3	6
Course Objectives:	1.To introduce the basic concepts required to understand , solve and iterpret differential equations. 2.To teach methods to solve differential equations of various types. 3.To give an ability to use knowledge of mathematics in engineering problems.					
Course Contents:	First order equations Separable equations, linear equations, exact equations and integrating factors, integration by a change of variable (homogeneous equations and Bernoulli equation etc.) Picard's iteration method. Second order equations whose solutions can be obtained by integrating first order equations. Second order linear equations General theory and definitions. Homogeneous equations with constant coefficients. The method of reduction of order. Non-homogeneous equations, the method of undetermined coefficients and the method of variation of parameters. Higher order linear equations General theory and definitions. Homogeneous equations with constant coefficients. Non-homogeneous equations, the method of undetermined coefficients and the method of variation of parameters Systems of first order linear equations Homogeneous linear systems with constant coefficients. Non-homogeneous systems and the method of variation of parameters. The Laplace transform method Basic definitions and theorems. Heaviside and delta functions and their Laplace transforms. Solutions of initial value problems by the Laplace transform method. Convolution. Power Series Methods Series solutions near regular and regular singular points					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Internship I	MDBF 299	Fall	00+00+00	Compulsory	0	6
Course Objectives:	Building work experience., integrating theory and practice, exploring career alternatives .					
Course Contents:						
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Operating Systems	CE 341	Fall	02+00+02	Compulsory	3	5
Course Objectives:	Operating Systems, History of operating systems, Process Concept: States & process control blocks, OS Kernel, Concurrent Processes, Mutual exclusion, Process Synchronization, Semaphores, Memory Management & Scheduling, Multiprogramming, Virtual Memory, Paging & Segmentation, On demand paging & segmentation, Operations on Moving Head Disks, Disk Scheduling Policies, File System Functions, Blocking and Buffering, File Organization.					
Course Contents:	Operating Systems, History of operating systems, Process Concept: States & process control blocks, OS Kernel, Concurrent Processes, Mutual exclusion, Process Synchronization, Semaphores, Memory Management & Scheduling, Multiprogramming, Virtual Memory, Paging & Segmentation, On demand paging & segmentation, Operations on Moving Head Disks, Disk Scheduling Policies, File System Functions, Blocking and Buffering, File Organization.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Object Oriented Programming Languages	CE 343	Fall	03+00+00	Compulsory	3	6
Course Objectives:	The goal of this course is to provide the object-oriented programming concepts using Java. It will teach students OO techniques which are very useful for large scale software development. Software engineering techniques will be presented to teach how to build high-quality software.					
Course Contents:	To teach object oriented approach for the computer program development using Java language. Students will have an understanding of object oriented approach and Java language. It includes programming and software design, Object Orientation and Java, IDE, Java Language Basics, Data Types in Java, Strings and Characters, Classes and Objects, Methods, Control Structures, GUI Components, Arrays,					

Nafia Nur Başürün  
MDBF Sekreteri

Mehmet Emre Özdoğan  
MDBF Sekreteri



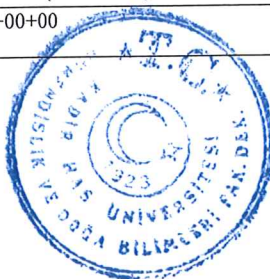






Course Objectives:	Building work experience, integrating theory and practice, exploring career alternatives.					
Course Contents:						
<b>Course Name</b>	<b>Code</b>	<b>Semester</b>	<b>T+A+L (hour/week)</b>	<b>Type (C / O)</b>	<b>Local Credit</b>	<b>ECTS</b>
Engineering Problem Solving and Project Management	GE 401	Fall	02+00+00	Compulsory	2	6
Course Objectives:	The aim of the course is to give engineering students the basic definitions and nature of engineering problem solving along with the theory and application of the well-known methodologies. The course also covers the project management and related topics that will be very helpful for engineering students.					
Course Contents:	This course covers the following topics: definition of engineering problems, classification of open- and closed-ended problems, engineering design, conceptual design, embodiment design, detailed design, concurrent engineering, teamwork, human as a social entity in team works, project management, project proposal writing, innovation problem-solving.					
<b>Course Name</b>	<b>Code</b>	<b>Semester</b>	<b>T+A+L (hour/week)</b>	<b>Type (C / O)</b>	<b>Local Credit</b>	<b>ECTS</b>
Economics for Engineers	EC 309	Spring	03+00+00	Compulsory	3	4
Course Objectives:	1. To provide an engineering student the ability to use economic analysis in his/her engineering field. 2. To teach students the basic principles of microeconomics 3. To present students the general functioning of macroeconomics in relation to Turkish economy					
Course Contents:	Introduction to the principles of microeconomics; the fundamental problems of economics; the modeling of household and firm behaviors; market structures; the principles of public finance; the modeling of macroeconomics in an international context					
<b>Course Name</b>	<b>Code</b>	<b>Semester</b>	<b>T+A+L (hour/week)</b>	<b>Type (C / O)</b>	<b>Local Credit</b>	<b>ECTS</b>
Engineering Design Project	GE 400	Spring	00+08+00	Compulsory	4	10
Course Objectives:	In the design project course, students will find realistic solutions to open-ended engineering problems, and will lead to a product or model by using the knowledge gained from their undergraduate education.					
Course Contents:	A design project is the last stage of undergraduate education. An interdisciplinary project with a team of 2-4 students is carried out under the supervision of one or more faculty members. The faculty assignment, the proposal dates and the final report submission along with the defense dates are announced before the semester begins.					
<b>Course Name</b>	<b>Code</b>	<b>Semester</b>	<b>T+A+L (hour/week)</b>	<b>Type (C / O)</b>	<b>Local Credit</b>	<b>ECTS</b>
Embedded System Design	CE 354	Fall	03+00+00	Elective	3	8
Course Objectives:	To give sufficient background for undertaking embedded systems design and also introduction to embedded mobile application development.					
Course Contents:	This course presents state-of-the-art methods, concepts, tools and techniques for embedded system design.					
<b>Course Name</b>	<b>Code</b>	<b>Semester</b>	<b>T+A+L (hour/week)</b>	<b>Type (C / O)</b>	<b>Local Credit</b>	<b>ECTS</b>
Computer Simulation	CE 412	Fall-Spring	03+00+00	Elective	3	8
Course Objectives:	A variety of techniques for specifying system models will be studied. Theory and techniques available for constructing a simulation from a model will be taught and theory and techniques for determining the accuracy of a simulated system will be examined. Through several computer based simulations, students will be able to practice the techniques that they have learned.					
Course Contents:	Simulation is the practice of designing a model of an actual or theoretical system, executing that model to observe its behavior and then analyzing the results. This course focuses on computer-based simulation, where the model is implemented as part of a computer program, which can then be executed to compute and record the data which describes the simulated system's behavior					
<b>Course Name</b>	<b>Code</b>	<b>Semester</b>	<b>T+A+L (hour/week)</b>	<b>Type (C / O)</b>	<b>Local Credit</b>	<b>ECTS</b>
Mobile Application Development	CE 414	Spring	03+00+00	Elective	3	8
Course Objectives:	This course involves a careful examination of mobile device programming. Emphases are on developing applications on the Android platform. Students will gain knowledge of how to design, develop, and deploy mobile applications written with Java Language at Android platform. The course will be hands-on and project-based. We will examine the development models for Android. We'll begin by building sample apps for the Android. The course covers the UI based applications, store data on mobile, connect to web and retrieve data from a web page. Students will have medium size mobile software development projects.					
Course Contents:	The emergence of a new generation of smart mobile devices and platforms such as the Apple iPhone and Google Android have opened up new opportunities for application developers. This course will teach Android platform for writing wireless application.					
<b>Course Name</b>	<b>Code</b>	<b>Semester</b>	<b>T+A+L (hour/week)</b>	<b>Type (C / O)</b>	<b>Local Credit</b>	<b>ECTS</b>
Cloud Infrastructure and Services	CE 415	Fall-Spring	03+00+00	Elective	3	8
Course Objectives:	This course aims to teach about the key considerations and steps involved in transitioning from the current state of a data center to a cloud computing environment. Upon completing this course, students will have the knowledge to make informed decisions about migrating to cloud infrastructure and choosing the best deployment model for an organization.					
Course Contents:	The Cloud Infrastructure and Services (CIS) course educates students about cloud deployment and service models, cloud infrastructure, and the key considerations in migrating to cloud computing.					
<b>Course Name</b>	<b>Code</b>	<b>Semester</b>	<b>T+A+L (hour/week)</b>	<b>Type (C / O)</b>	<b>Local Credit</b>	<b>ECTS</b>
Information Storage and Management	CE 416	Fall	03+00+00	Elective	3	8
Course Objectives:	This course aims comprehensive learning of storage technology, which will enable you to make more informed decisions in an increasingly complex IT environment. ISM builds a strong understanding of underlying storage technologies and prepares students to learn advanced concepts, technologies, and products.					
Course Contents:	Information Storage and Management (ISM) is the only course of its kind to fill the knowledge gap in understanding varied components of modern information storage infrastructure, including virtual environments.					
<b>Course Name</b>	<b>Code</b>	<b>Semester</b>	<b>T+A+L (hour/week)</b>	<b>Type (C / O)</b>	<b>Local Credit</b>	<b>ECTS</b>
Introduction to Combinatorics	CE 418	Fall	03+00+00	Elective	3	8

Nafia Nur Başürün  
MDBF Sekreteri

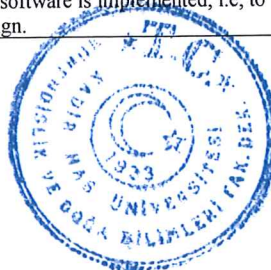


Mehmet Emre Özdoğan  
MDBF Sekreteri




Course Objectives:	This course aims to introduce some of the fundamental concepts and theorems in enumerative combinatorics and basic combinatorial objects in combinatorial designs and graph theory.					
Course Contents:	Topics include set theory, mathematical induction, integers, functions and relations, counting methods, recurrence relations, generating functions, permutations, combinations, principle of inclusion and exclusion, combinatorial designs and graphs (including planar graphs).					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Graph Theory	CE 420	Fall-Spring	03+00+00	Elective	3	8
Course Objectives:	The main objective of this course is for students to learn some classical theorems and algorithms in the field of algorithmic graph theory. It is expected that students will be able to demonstrate their knowledge of algorithms by solving concrete problems. Students will learn some of the applications of graph algorithms in computer engineering and will be able to define some engineering problems on graphs and develop algorithms to solve them. They will be required to complete a small project and make a short simulation in class.					
Course Contents:	In this course we will discuss elements of graph theory with emphasis on algorithms. Approximately half of the course will be devoted to graph-theoretic topics and the other half will be devoted to algorithmic applications. Topics include spanning trees, Eulerian graphs, colorings, matchings, connectivity, network flows and Hamiltonian graphs. In addition they will learn advanced topics such as list coloring and combinatorial games on graphs.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Network Engineering II	CE 453	Fall	03+00+02	Elective	4	8
Course Objectives:	The goal of LAN Switching and Wireless session is to develop an understanding of how switches are interconnected and configured to provide network access to LAN users. This course also teaches how to integrate wireless devices into a LAN. The goal of Accessing the WAN session is to introduce students to fundamental networking concepts and technologies.					
Course Contents:	Differentiating between the following WAN services: LAPB, Frame Relay, ISDN/LAPD, HDLC, PPP, and DDR key frame relay terms and features, commands to configure frame relay LMI, maps, and subinterfaces commands to monitor frame relay operation in the router identify PPP operations to encapsulate WAN data on Cisco routers State a relevant use and context for ISDN networking, Identify ISDN protocols, function groups, reference points, and channels Cisco's implementation of ISDN BRI.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Database Application Development	CE 461	Spring	03+00+02	Elective	4	8
Course Objectives:	To develop internet/3-tier and client-server applications for end users based on a relational database management system, namely Oracle. The students will be able to design and implement forms and reports using the Oracle Internet Applications Developer tools which are development environments with a graphical user interface. They will also learn how to implement triggers, subprograms and access control using PL/SQL within the application scheme.					
Course Contents:	Form development, forms builder, data blocks, frames, text items, LOV's, input items, Windows and canvases, triggers, messages and alerts, query triggers, validation, navigation, transaction processing, multiple form applications, menu modules, data sources, record groups, timers, charts, report builder, report development.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Design and Analysis of Algorithms	CE 467	Fall	03+00+00	Elective	3	8
Course Objectives:	The main objective of this course is to provide the students with a knowledge on foundations of problem solving, computational efficiency, and experience in the design and implementation of algorithms commonly employed in computer science and computational problems.					
Course Contents:	Introduction to the main concepts of design and analysis of algorithms. Overview of basic analysis techniques: approximating functions asymptotically, bounding sums, and solving recurrences. Discussion of efficiently solvable problems with a focus on design techniques such as divide-and-conquer, randomization, dynamic programming, amortization, and greedy algorithms. Illustration of various new concepts through algorithms applied to problems related to sets, sequences, strings, graphs etc.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Compiler Design	CE 473	Fall-Spring	03+00+00	Elective	3	8
Course Objectives:	Introduction to compiler organization and implementation, including formal specifications and algorithms for lexical and syntactic analysis, internal representation of the source program, semantic analysis, run-time environment issues and code generation. Students will write a compiler for a reasonably large subset of a contemporary language, targeted to a virtual machine.					
Course Contents:	The phases of compilation, lexical analysis, parsing, type checking, JVM code generation, survey of famous Java compilers and discussion of modern compiler issues.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Introduction to Computational Biology	CE 474	Fall	03+00+00	Elective	3	8
Course Objectives:	To help students gain (1) An understanding of modelling biological problems as computer science problems. (2) Knowledge on computational methods and algorithms applicable on biological problems. (3) Skills to design and implement new algorithms for similar problems (4) Experience with computational biology&bioinformatics tools.					
Course Contents:	An introduction to the use of computer science methods, tools, and algorithms for the analysis of proteins, genes, and collections of DNA comprising an organism. An overview of string matching algorithms and data structures applied to sequence data and alignment problems in biology. A discussion of the concepts on sample sequence databases. Clustering algorithms from data mining with an application to microarray data and gene expression analysis. A discussion of bioinformatics networks (protein interaction networks, regulatory networks, metabolic pathways etc.) and their analysis via design and engineering of graph algorithms and data structures from computer science.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Computer Networks And Mobile Computing	CE 475	Fall	03+00+00	Elective	3	8
Course Objectives:	In this course we will cover different approaches towards networking in mobile wireless networks, as well as specific applications and uses of these networks.					
Course Contents:	Start with principles and walk through processes that led to today's Networks, using TCP/IP Internet and as a model illustrate how networks work in practice, emphasize how network software is implemented, i.e. to understand how a complete network operates, all the way from application to the hardware of network design.					

Nafia Nur Başürün  
MDBF Sekreteri

Mehmet Emre Özdoğan  
MDBF Sekreteri





Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Internet Engineering and Web Site Develo	CE 476	Fall	03+00+00	Elective	3	8
Course Objectives:	Introduction to basic web design and web development technologies, the development of basic skills in HTML and web programming.					
Course Contents:	* Temel Web Sayfası Yapısı * HTML ve HTML stilleri * Javascript					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Artificial Intelligence	CE 480	Spring	03+00+00	Elective	3	8
Course Objectives:	Students will gain understanding on the basics of artificial intelligence. They will learn logic programming and how to apply it to problems related to artificial intelligence. They will solve problems coming from application areas related to artificial intelligence.					
Course Contents:	Representation of knowledge. Search and heuristic programming. Logic and logic programming. Applications related to problem solving, games and puzzles, expert systems, planning, learning, vision, and natural language understanding.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
e-Business/e-Commerce	CE 481	Fall	03+00+00	Elective	3	8
Course Objectives:	To understand concepts of e-business/e-commerce, and to conduct work on project based analysis, design and application development activities.					
Course Contents:	e-business/e-commerce, business plan, legal issues, customer orientation, application development, platforms.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Network Management	CE 482	Fall	03+00+00	Elective	3	8
Course Objectives:	1. To provide information about telecommunication network structure and components 2. To design network management systems 3. To forecast telecommunication traffic 4. To provide network management tasks: (fault, configuration, performance, security, and accounting management information. 5. To provide telecommunication market structure, socioeconomic aspects					
Course Contents:	Technologies and processes used to plan, design, analysis, optimize and manage telecommunication networks including the functions of network standards, protocols and architecture. OSI protocol and, TMN standard. Telecommunication traffic forecasting. Evaluation of voice and data networks, local and wide area networks, and overall network management. Network management components and functions: tasks (fault, configuration, performance, security and accounting) of network management. Convergence of networks. Telecommunications market structure, socioeconomic aspects, services, standard bodies, regulations and policies.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Distributed Systems	CE 484	Fall	03+00+00	Elective	3	8
Course Objectives:	Distributed systems are highly popular way of data processing and computing. Essential property of such a system is possessing a single system image. Such a basic structure provides a base for application spanning from mobile systems to ubiquitous and pervasive systems. With in that context, basic and detailed information on establishing distributed systems will be explained. From the perspective of application, students are expected to produce typical examples by utilising the information provided by both lecture and literature surveys.					
Course Contents:	This course covers operating system concepts that provide a single system image in a distributed environment. Characterization of distributed systems and system transparencies are given. Basic design issues such as resource management, interprocess communication, synchronization, process/processor management, consistency control, memory management and file management in distributed systems and cloud computing are discussed.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Software Quality and Testing	CE 485	Fall	03+00+00	Elective	3	8
Course Objectives:	The students who will take this course will: 1. Understand the need for quality development and management in the evolution of software technologies 2. Gain a deeper understanding of version-control systems and related best practices 3. Understand which testing or code analysis strategies can catch a given type of software bug 4. Set up and use automated continuous integration services 5. Be able to contribute quality improvements to an existing project					
Course Contents:	This course covers software quality issues and the key concepts of software testing. Students will learn about the best processes to follow to produce better quality software that is also more maintainable. The course will discuss different types of tests, automated quality assurance tools and pipelines, and quality models. Students working in project groups are required to complete the implementation of a system or significant subsystem and undertake unit, integration and acceptance testing.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Smart Multimedia Systems	CE 487	Fall	03+00+00	Elective	3	8
Course Objectives:	This course aims to introduce hardware and software architectures in next-generation smart television systems and to inform about the main software modules implemented in smart television systems. Software layers and modules developed for smart television systems are covered.					
Course Contents:	Smart TV systems; hardware and software architectures; next-generation DVB standards; next-generation broadcast systems; smart connected applications; next-generation audio and video technologies.					
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
IT Security	CE 488	Fall	03+00+00	Elective	3	8
Course Objectives:						
Course Contents:						
Course Name	Code	Semester	T+A+L (hour/week)	Type (C / O)	Local Credit	ECTS
Special Topics in CE	CE 489	Fall-Spring	03+00+00	Elective	3	8

Nafia Nur Başürün  
MDBF Sekreteri

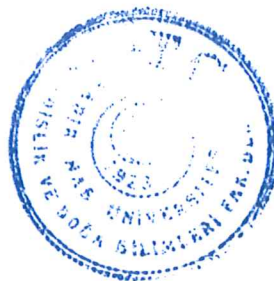


Mehmet Emre Özdoğan  
MDBF Sekreteri



Course Objectives:	This course provides new and emergent topics in computer engineering field. We uses this course name as a template to give a new and special topics cours.
Course Contents:	The content can change according to special topic.

Nafia Nur Başürün  
MDBF Sekreteri



Mehmet Emre Özdoğan  
MDBF Sekreteri

