



2023-2024 Academic Year
List of Courses Offered in Foreign Language

Faculty of Engineering
Mühendislik Fakültesi

	Department <i>Bölüm</i>	Course Code <i>Ders Kodu</i>	ECTS <i>AKTS</i>	Course Title <i>Dersin Adı</i>	Semester <i>Dönem</i>	Course Content <i>Dersin İçeriği</i>	Academic Staff <i>Dersi Veren Öğretim Elemanı</i>	Online Available <i>Çevrimiçi</i>
1	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 101T	4	Computer Programming I	Güz <i>Fall</i>	This course will begin with an introduction to computing and solving problems in a programmatic way. The discussion will then focus on the development of a prgorams using the datatypes and control structures available in the Java programming language.	Assist. Prof. Joseph William Ledet	X
2	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 101L	2	Computer Programming I Laboratory	Güz <i>Fall</i>	This course will begin with an introduction to computing and solving problems in a programmatic way. The discussion will then focus on the development of a prgorams using the datatypes and control structures available in the Java programming language.	Prof. Dr. Melih Günay	X
3	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 105	2	Introduction to Computer Science	Güz <i>Fall</i>	This course will begin with a short introduction by giving information about the history of computer science. The following topics will be presented from slides in this course during the semester: The Role of Algorithms, The History of Computing, Theory of Computation, Computer Graphics, Image Processing, Digital Design, Operating Systems, Data Structures, Software Engineering, Database Systems, Networks and the Internet, Artificial Intelligence	Prof. Dr. Ümit Deniz Uluşar	X
4	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 181	6	Natural Sciences	Güz <i>Fall</i>	Outline the history of science from Aristotle to the Present while reviewing the basic principles of fundamental physics, chemistry, biology, mathematics and geometry.	Prof. Dr. Melih Günay	X
5	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 201	6	Data Structures	Güz <i>Fall</i>	Detail analysis of data structures such as stack, queue, list, tree and graph.	Prof. Dr. Ümit Deniz Uluşar	X
6	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 211	5	Digital Design	Güz <i>Fall</i>	It starts with a discussion of combinational logic: logic gates, minimization techniques, arithmetic circuits, and modern logic devices such as field programmable logic gates. The second part of the course deals with sequential circuits: flip-flops, synthesis of sequential circuits, and case studies, including counters, registers, and random access memories. State machines will then be discussed and illustrated through case studies of more complex systems using programmable logic devices. Different representations including truth table, logic gate, timing diagram, switch representation, and state diagram will be discussed.	Assoc. Prof. Taner Danışman	X
7	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 213	5	Microcontroller Programming	Güz <i>Fall</i>	To introduce students to the architecture and operation of typical microprocessors and microcontrollers. To familiarize the students with the programming and interfacing of microprocessors and microcontrollers. To provide a strong foundation for designing real-world applications using microprocessors and microcontrollers.	Assoc. Prof. Alper Bilge	X
8	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 221	6	Discrete Mathematics	Güz <i>Fall</i>	Combinations, permutations, logic, mathematical induction, pigeonhole principle, inclusion-exclusion, generating functions, graphs and graph theory	Assist. Prof. Murat Ak	X
9	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 281	6	Principles of User Interface Design	Güz <i>Fall</i>	Introduction, history of interfaces, usability, learnability, visibility, efficiency, user error control, user-centered design, user and task analysis, generating designs, software architecture, layout, output, input, test, experimentation, web, prototyping, graphic design, visualization, color, accessibility, internationalization, heuristic evaluation, animation, input-output technologies.	Assist. Prof. Mustafa Berkay Yılmaz	X

10	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 301	6	Algorithms	Güz Fall	Asymptotic notation. Divide and conquer approach. Solving recurrences. Analysis of randomized quicksort. Medians and order statistics. Heaps: heapsort, priority queues. Sorting in linear time. Dynamic programming. Greedy algorithms. Amortized analysis and dynamic tables.	Assist. Prof. Hüseyin Gökhan Akçay	X
11	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 303	6	Fundamentals of Operating Systems	Güz Fall	The course will start with a brief historical perspective of the evolution of operating systems over the last fifty years and then cover the major components of most operating systems. This discussion will cover the tradeoffs that can be made between performance and functionality during the design and implementation of an operating system. Particular emphasis will be given to two major OS subsystems: process management (processes, threads, CPU scheduling, synchronization, and deadlock), memory management (segmentation, paging, swapping), and file systems; and on operating system support for distributed systems.	Assoc. Prof. Taner Danışman	X
12	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 337	6	Advanced Web Programming	Güz Fall	Hands on learning of the most commonly used web development technologies for basic web applications including HTML, CSS, Javascript, PHP, CodeIgnator, JDBC, Client-Server Architecture.	Prof. Dr. Melih Günay	X
13	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 341	6	Fundamentals of System Administration	Güz Fall	The objective of this course is to provide enough knowledge to install a Server operating system, understand the functionality of the different system components and be able to critically evaluate different server technologies.	Assist. Prof. Joseph William Ledet	X
14	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 351	6	Design Patterns	Güz Fall	This course covers the principles behind the software design patterns and their application in constructing software components. The students who succeeded in this course; - Be able to state the intention of the pattern and show in UML notation, - Be able to identify the participants and their responsibilities, - Be able to contrast the difference in intentions between structurally similar patterns, - Be able to apply several appropriate patterns in the design of small programming assignments, - Be able to select appropriate design patterns to improve an existing design.	Assoc. Prof. Alper Bilge	X
15	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 377	6	Game Programming	Güz Fall	Game Design. Unity. Multiplayer Gaming. AI in Gaming. Audio. Building and Deployment.	Assist. Prof. Alper Özcan	X
16	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 435	6	Formal Languages and Automata	Güz Fall	Finite automata, regular expressions, regular languages and their properties, the pumping lemma. Context free grammars and languages, normal forms, pushdown automata, the pumping lemma for the CFLs. Turing machines and their properties. Decidability and undecidable languages. Complexity theory, NP-completeness.	Assist. Prof. Murat Ak	X
17	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 483	2	Entrepreneurship	Güz Fall	In this course, the conceptual framework of entrepreneurship, approaches, functions, process, entrepreneurship culture, entrepreneurship local and issues related to international context and entrepreneurial ethics It will be discussed.	Prof. Dr. Ümit Deniz Uluşar	X
18	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 409	6	Introduction to Natural Language Processing	Güz Fall	Learn to use Machine Learning, Spacy, NLTK, SciKit-Learn, Deep Learning, and more to conduct Natural Language Processing	Prof. Dr. Melih Günay	X
19	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 415	6	Fundamentals of Cloud Computing	Güz Fall	Cloud computing is a scalable services consumption and delivery platform that provides on-demand computing service for shared pool of resources, namely servers, storage, networking, software, database, applications etc., over the Internet. It is a model for enabling ubiquitous, on-demand access to a shared pool of configurable computing resources, which can be rapidly provisioned and released with minimal management effort. This course will introduce various aspects of cloud computing, including fundamentals, management issues, security challenges and future research trends.	Assist. Prof. Alper Özcan	X
20	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 445	6	Introduction to Machine Learning	Güz Fall	This course has two parts. The first part includes an introduction to the basic machine learning concepts and algorithms, which will also provide the basis for the second part of the course. The second part covers selected recent topics in machine learning. Topics include: (i) Supervised learning (parametric/non-parametric algorithms, support vector machines, kernels, neural networks). (ii) Unsupervised learning (clustering, dimensionality reduction, recommender systems, deep learning). (iii) Best practices in machine learning.	Assist. Prof. Hüseyin Gökhan Akçay	X
21	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 469	6	Virtual Reality and Metaverse	Güz Fall	Fundamentals of virtual reality systems, geometric modeling, transformations, graphical rendering, haptic rendering, evaluation of virtual reality systems.	Assist. Prof. Alper Özcan	X
22	Bilgisayar Mühendisliği <i>Computer Engineering</i>	CSE 481	4	Engineering Economics	Güz Fall	Engineering Economics is an application of economic principles in the analysis of engineering decisions. The aim of the lesson is improving the ability of economic thought and understanding in conjunction with engineering economics. Principles of economics, introduction to engineering economics are the subjects handled. The main sources for the lesson are Chan S. Park, "Fundamentals of Engineering Economics", N. Gregory Mankiw, "Principles of Economics", N. Gregory Mankiw, "Principles of Macroeconomics". Paul A. Samuelson and William D. Nordhaus, "Economics". The stuff provided for the lesson are books, related articles and economic data. The subjects which are focused on are principles of economics, main economical issues, introduction to engineering economics.	Assist. Prof. Alper Özcan	X