



COURSE LIST FOR EXCHANGE STUDENTS (2025/2026)

FACULTY OF COMPUTER AND INFORMATION SCIENCES

DEPARTMENT: COMPUTER ENGINEERING

CODE	COURSE	ECTS	SEMESTER	PROFESSOR	LEVEL OF EDUCATION	COURSE CONTENT
BIL502	Operating Systems	5	-	Asst. Prof. Dr. Alper Kılıç	Undergraduate	Focusing on the theoretical foundations of operating systems, which underlie computer applications, the interaction between computer architecture and user applications is explained. It aims to enhance students' theoretical knowledge and practical competencies in high-performance, concurrent software development and the design and management of computing infrastructures.
BIL503	Computer Organization	4	-	Assoc.Prof.Dr.Ö.Kaan BAYKAN	Undergraduate	Introduction to computer organization and architecture, Computer Evolution and Performance, Computer Arithmetic, Memory Systems, Input/Output Processor- Structure, functions Processor- Instruction set, addressing methods Pipeline principle, Superscalar Processor, Parallel Processing, Multicore Computers



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BIL747	Basic Learning Algorithms	5	-	Assoc. Prof. Dr. Ersin KAYA	Undergraduate	The Fundamentals of Learning Algorithms course aims to present the core principles and methods of machine learning within a rigorous theoretical framework. The course provides a comprehensive examination of fundamental algorithms—such as classification, regression, and clustering—covering both their mathematical foundations and practical implementation strategies. It is designed to equip students with the ability to construct, evaluate, and scientifically interpret machine learning models across various data types.
BIL303	Logic Design	5	-	Assoc. Prof. Dr. Ahmet BABALIK	Undergraduate	Teaching the necessary concepts for the design of complex logic systems starting from simple digital circuits. Gaining necessary hardware knowledge for design and analysis and developing logic design knowledge.
BIL102	Algorithms and Programming - I	5	-	Prof. Dr. İsmail BABAOĞLU	Undergraduate	The Algorithms and Programming - I course aims to teach the basics of algorithm development and core programming logic. Students learn how to plan the steps needed to solve a problem, establish logical flow, and use the main programming structures correctly. The course covers variables and data types, conditional statements, loop structures, creating and using functions, array structures, and manipulating character strings. Additionally, students gain practical skills in basic input/output operations and simple algorithmic patterns.



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BIL640	Fundamentals of Data Science	5	-	Assoc. Prof. Dr. Sait Ali UYMAZ	Undergraduate	This course provides an introduction to the scientific methods, processes, algorithms, and systems required to extract meaningful knowledge from both structured and unstructured data. Students will learn fundamental skills in collecting, organizing, analyzing, and interpreting datasets. The curriculum emphasizes the strategic use of historical and current data to gain a deep understanding of complex problems and forecast future trends. A significant focus will be on the practical application of data analysis techniques to uncover hidden solutions within large data piles for real-world problems. Key topics covered include data collection, manipulation, and visualization. Upon completion, students will be proficient in clearly and thoroughly presenting and communicating the results of their data analysis.
BIL535	Artificial Intelligence	5	-	Prof. Dr. Mesut GÜNDÜZ	Undergraduate	This course aims to introduce students to the fundamental principles of artificial intelligence, including the behavior of intelligent agents and methods for solving problems in complex environments. Through search algorithms, constraint satisfaction techniques, adversarial game strategies, and logic-based representation approaches, students learn how to design and analyze intelligent systems. The course seeks to enhance students' ability to apply first-order logic inference and knowledge representation techniques to develop effective solutions for real-world problems.



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BIL305	Object-Oriented Programming	4	-	Prof. Dr. Mustafa Servet KIRAN	Undergraduate	This course introduces fundamental concepts such as classes, objects, inheritance, polymorphism, and encapsulation to help students understand modern software development approaches. Students learn to analyze real-world problems and model them using object-oriented techniques to create structured and efficient software components. Through hands-on exercises and projects, the course enables learners to develop scalable, maintainable, and reusable software designs.
BIL301	Discrete Mathematics	5	-	Assoc. Prof. Dr. Nurdan Baykan	Undergraduate	Learning how to think mathematically and work with discrete structures. Having the ability to acquire the materials necessary to use discrete mathematics effectively and efficiently.



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DEPARTMENT: ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

CODE	COURSE	ECTS	SEMESTER	PROFESSOR	LEVEL OF EDUCATION	COURSE CONTENT
YPZ101	Introduction to Artificial Intelligence and Machine Learning	6	Fall	Prof. Dr. Mesut Gündüz	Undergraduate	The goal of this course is to teach students the fundamental concepts and algorithms of artificial intelligence and machine learning, and to equip them with the skills to apply this knowledge to real-world problems.
YPZ351	Introduction to Image Processing	6	Fall	Dr. Öğr. Üyesi Burak YILMAZ	Undergraduate	Image fundamentals; image detection and retrieval; image enhancement; image filtering; image matching; color space; geometric transformations; object detection and extraction methods; image segmentation and classification methods
YPZ604	Deep Learning	5	Spring	Doç. Dr. Hakan Yılmaz	Undergraduate	The history and theoretical advantages of deep learning, the basic artificial neural network architectures and learning algorithms that can be used for deep learning, the organization of distributed models, optimization techniques for training deep models, convolutional networks, feedback and recursive networks,



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DEPARTMENT: SOFTWARE ENGINEERING

CODE	COURSE	ECTS	SEMESTER	PROFESSOR	LEVEL OF EDUCATION	COURSE CONTENT
YAZ201	Introduction To Software Engineering	2	Spring	Assoc. Prof. Dr. Özgür Öksüz	Undergraduate	The aim of this course is to introduce computer software and its types, basic concepts related to software engineering discipline, various software process models, phased software development approach, activities, tools and techniques used, software project, configuration and quality management.
YAZ301	Discrete Structures	6	Fall	Assoc. Prof. Dr. Özgür Öksüz	Undergraduate	To learn the details of mathematical facts, to know how to use them, and to show how to achieve mathematical thinking.
YAZ505	Otomata Theory	3	Fall	Assoc. Prof. Dr. Özgür Öksüz	Undergraduate	The goal is to explain the computational process of computers using abstract and algorithmic models. Using these abstract models, we explain fundamental computational theories and examine example problems with and without solutions. We also aim to develop the ability to break down large, complex problems into smaller, more manageable ones and to abstract these problems.



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YAZ601	Algorithm Analysis and Complexity	4	Spring	Assoc. Prof. Dr. Özgür Öksüz	Undergraduate	This course provides students with familiarity and proficiency in evaluating and designing computer programs for computational efficiency. It introduces students to the fundamentals of theory and many of the classical algorithms and data structures that solve fundamental computational problems. Additionally, this course teaches students how to calculate distances in networks, search for items in large collections, and rank them.
YAZYL1007	Blockchain Technology and Crypto Currencies	5	Fall	Assoc. Prof. Dr. Özgür Öksüz	Graduate	This course aims to give students the properties and use areas of blockchain technology and cryptocurrencies.