2022-2023 Academic Year
List of Courses Offered in Foreign Language

Institute of Scince
Fen Bilimleri Enstitüsü

	Department *Bölüm*	Course Code *Ders Kodu*	ECTS *AKTS*	Course Title *Dersin Adı*	Semester *Dönem*	Course Content *Dersin İçeriği*	Academic Staff *Dersi Veren Öğretim Elemanı*	Online Available *Çevrimiçi*
1	Computer Engineering *Bilgisayar Mühendisliği*	CSE 5008	6	Scientific Programming	Spring	The course will begin with an overview to programming techniques. Then, data analysis methods will be explained. The Matplotlib, a widely used library will be examined and data visualization methods will be explained. Programming examples and applications will be developed with Matlab and Phyton.	Dr. Öğr. Üyesi Hüseyin Gökhan Akçay	No
2	Computer Engineering *Bilgisayar Mühendisliği*	CSE 5012	6	Bioinformatics	Spring	You'll master computer science and data science concepts applicable to the fields of genomics, microbiology, biotechnology, and biochemistry, including software and research methodologies.	Dr. Öğr. Üyesi Alper Özcan	No
3	Computer Engineering *Bilgisayar Mühendisliği*	CSE 5028	6	Internet of Things	Spring	Internet communication methods and protocols. Data Transmission Mechanisms. Sensors and Mini Computers as Rasperberry PI and Ardinuo.	Dr. Öğr. Üyesi Yusuf Sinan Hanay	No
4	Computer Engineering *Bilgisayar Mühendisliği*	CSE 5040	6	Distributed and Parallel Computing	Spring	Analysis of parallel algorithms. Real and apparent parallelism. Parallel programming and parallel programming compilers. Message Passing Interface. Scheduling and performance analysis. Parallel computer topologies and applications with the hypercube architecture.	Dr. Öğr. Üyesi Taner Danışman	No
5	Computer Engineering *Bilgisayar Mühendisliği*	CSE 5048	6	Image Processing	Spring	This course provides an intermediate level background to image analysis and computer vision for graduates. We will start with low-level vision (early processing) techniques such as binary image analysis, filtering, edge detection and texture analysis. Then, we will cover mid-level vision topics such as image segmentation and feature extraction in detail. Finally, we will do case studies on several applications such as image classification, object recognition, and deep learning.	Dr. Öğr .Üyesi Mustafa Berkay Yılmaz	No
6	Computer Engineering *Bilgisayar Mühendisliği*	CSE 5050	6	Cyber Security	Spring	Asymmetric and symmetric encryption, stream ciphers, modes of encryption, public key cryptosystems, digital signatures, RSA, El Gamal encryption, elliptic curve cryptosystems, cryptographic hash functions, MACs, key establishment	Dr. Öğr. Üyesi Murat Ak	No

7	Computer Engineering *Bilgisayar Mühendisliği*	CSE 5058	6	Artificial Intelligence	Spring	Intelligent Agents, Solving Problems by Uninformed and Informed Search Methods, Constraint Satisfaction Problems, Adverserial Search, Markov Decission Process, Reinforcement Learning	Doç. Dr. Alper Bilge	No
8	Computer Engineering *Bilgisayar Mühendisliği*	CSE 7024	8	Blockhain and Its Applications	Spring	How blockchain is used in cryptocurrencies, supply-chain management, e-voting, healthcare systems.	Dr. Öğr. Üyesi Murat Ak	No
9	Computer Engineering *Bilgisayar Mühendisliği*	CSE 7030	8	Deep Learning	Spring	History and therotical advanteges of the deep learning, basic learning algorithms and architectures for deep learning, regularization of distributed models, optimization techniques for training deep networks, convolutional networks, bacpropogating and recurrent networks, autoencoders and linear factor models, learning by demonstration, deep generative networks - Boltzman machines	Dr. Öğr. Üyesi Hüseyin Gökhan Akçay	No
10	Computer Engineering *Bilgisayar Mühendisliği*	CSE 7052	8	Graph Theory	Spring	This course provides a complete introduction to Graph Theory algorithms in computer science. Topics covered include: how to store and represent graphs on a computer; common graph theory problems seen in the wild; famous graph traversal algorithms (DFS & BFS); Dijkstra's shortest path algorithm (both the lazy and eager version); what a topological sort is, how to find one, and places it's used; learning about detecting negative cycles and finding shortest paths with the Bellman-Ford and Floyd-Warshall algorithms; discovering bridges and articulation points in graphs; understanding and detecting strongly connected components with Tarjan's algorithm, and finally solving the traveling salesman problem with dynamic programming.	Prof. Dr. Ümit Deniz Uluşar	No