



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	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM103	7	Physics I	Güz <i>Fall</i>	Introduction, Measurement, Estimating Motion: Kinematics in one dimension Kinematics in two or three dimensions, vectors Dynamics: Newton's Laws of Motion Using Newton's Laws: Friction, Circular Motion Gravitation and Newton's Synthesis Work and Energy Conservation of Energy Linear Momentum Rotational Motion Angular Momentum: General Rotation Static Equilibrium Fluids Oscillators Wave Motion	-	
2	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	MAT163	7	Mathematics I	Güz <i>Fall</i>	The concept of rate of change, Limit and continuity concepts, Derivative, Derivative applications (especially optimization), Integral, Integral applications, Vector algebra, Matrix algebra, Taylor (and Maclaurin) series as a power series	-	
3	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	KİM175	6	Fundamentals of Chemistry	Güz <i>Fall</i>	Matter and Its Properties, Atom and its structure, periodic table, Chemical Reactions, Liquids, Solids, Gases, Liquid Solutions and Equilibrium, Acids and Bases	-	
4	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM209	4	Probability Theory & Statistical Analysis	Güz <i>Fall</i>	Definition, history, development and basic principles of probability and statistics. Statistical methods. To provide students with the necessary information and equipment and some statistical methods so that they can analyze the data obtained as a result of the studies carried out in their own fields, and obtain accurate and meaningful results from them and make comments.	-	
5	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM322	5	Elektronics II	Güz <i>Fall</i>	Field-Effect Transistors, Small-Signal Modeling and Linear, Amplification, Single Transistor Amplifiers, Diferential MOS Amplifiers, Amplifier Frequency Response	Doç. Dr. H. Feza CARLAK	

6	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM307	4	Electrical Machines	Güz Fall	Magnetic properties of materials, magnetic circuits, transformers: working principles, characteristic equivalent circuits and steady-state analysis, electromechanical energy conversion principles: linear and non-linear systems DC machines: equivalent circuits, performance analysis, operating characteristics, starting and speed control, induction motors and generators, special purpose motors, linear motors, stepper motors, AC machines: structures, equivalent circuits and steady state analysis.	Prof. Dr. Selim BÖREKÇİ	
7	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM391	2	Introduction to Economics	Güz Fall	Introduction to engineering economics and basic concepts, Introduction to engineering economics and basic concepts, Market Conditions and demand forecasts, Market conditions and demand forecasts, Cost concepts, Cost concepts, Interest phenomenon and cash flow series, Interest phenomenon and cash flow series, Depreciation and Depreciation methods , Midterm exam, Investment decisions and evaluation of investment options, Investment decisions and evaluation of investment options, Investment decisions in case of uncertainty, Investment decisions in case of uncertainty	-	
8	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM309	5	Electrical Machines Laboratory	Güz Fall	Magnetic properties of materials, magnetic circuits, transformers: working principles, characteristic equivalent circuits and steady-state analysis, electromechanical energy conversion principles: linear and non-linear systems DC machines: equivalent circuits, performance analysis, operating characteristics, starting and speed control, induction motors and generators, special purpose motors, linear motors, stepper motors, AC machines: structures, equivalent circuits and steady state analysis.	Prof. Dr. Selim BÖREKÇİ	
9	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM381	5	Introduction to Microwave Theory	Güz Fall	Voltage and current waves in transmission lines, frequency and time domain analysis, energy and power flow, impedance matching, smith diagram, pulse propagation on line, directed waves: TEM, TE and TM waves, rectangular and circular waveguides, resonator, s - parameters.	Prof. Dr. Selçuk HELHEL	
10	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM417	5	Deep Learning	Güz Fall	Machine Learning Fundamentals, Deep Learning Tools - Caffe, Torch, TensorFlow, Theano, Feedforward Deep Networks, Regularization of Deep or Distributed Models, Optimization for Training Deep Models, Convolutional Networks, Sequence Modeling: Recurrent and Recursive Nets, Structured Probabilistic Models for Deep Learning , Linear Factor Models and Auto-Encoders, Computer Vision Applications, Big Data Applications, Natural Language Processing Applications, Speech Processing Applications	Prof. Dr. Hüseyin GÖKSU	
11	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEE473	5	Cellular Communication	Güz Fall	Architecture of cellular communication systems, functions and working principles of base station, base station control center, mobile service switching center, VLR,HLR, and operations management center. Fundamentals of network planning, traffic planning, noise and quality testing and system optimization.	Prof. Dr. Selçuk HELHEL	
12	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEE487	5	Fundamentals of Antenna Theory	Güz Fall	Maxwell Equations, Propagation of Electromagnetic Waves in Space, Antenna Definition, Antenna Parameters, Antenna Radiation Pattern and Impedance. Antenna Arrays and General Array Formula, Sequence Analysis and Synthesis Techniques.	Prof. Dr. Selçuk HELHEL	
13	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEE477	4	Communication Laboratory-II	Güz Fall	Analog to Digital signal conversion technics. Transmission of digital signals to communications channel. Digital modulation technics. Measurement and testing of digital modulation technics.	Prof. Dr. Selçuk HELHEL	
14	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM4001	4	Graduation Project I	Güz Fall	In this course, students are expected to research and implement the project they propose in the 1st semester. A well-defined engineering problem should be solved in hardware and/or software and the solution should be implemented by using the gains gained during the Electrical and Electronics Engineering education. The results are reported as a thesis presented orally before a 3-person jury.	Prof. Dr. Selçuk HELHEL	

15	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM104	6	Physics II	Bahar <i>Spring</i>	Electric charge and electric field Gauss's law Electrical potential Capacitance, dielectrics, storage of electrical energy Electrical circuits and resistance DC circuits Magnetism magnetic field sources Electromagnetic induction and Faraday's law Induction, electromagnetic oscillations and alternating current circuits Maxwell's equations and electromagnetic waves	-	
16	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM110	5	Linear Algebra and Vector Analysis	Bahar <i>Spring</i>	Indefinite Integral, Definite Integral, Applications of Integrals, Multivariable Functions	Doç. Dr. H. Feza CARLAK	
17	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM304	4	Power Electronics	Bahar <i>Spring</i>	Semiconductor power diodes. Diode circuits and rectifiers. Thyristors and controlled rectifiers. AC voltage controllers. Thyristor switching techniques. Power transistors and dc choppers. Pulse wide modulation inverters. Resonant pulse converters. Static switches and power supplies. DC and AC drives. Inverter and converter structures. Switch position regulators, single and three phase PWM inverters. Experimental investigation of power electronics circuits by realization.	Prof. Dr. Selim BÖREKÇİ	
18	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	MAT164	7	Mathematics II	Bahar <i>Spring</i>	Indefinite Integral, Definite Integral, Applications of Integrals, Multivariable Functions	-	
19	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM306	2	Power Electronics Laboratory I	Bahar <i>Spring</i>	Power electronics components, circuits, design and application areas	Prof. Dr. Selim BÖREKÇİ	
20	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM316	2	Engineering Management	Bahar <i>Spring</i>	Description and scope of management. Development of management ideas. Social and moral responsibilities of management. Functions of management: planning, organizing, leading and controlling. Managerial decision making. Organization design. Delegation of authority and managerial control.	Prof. Dr. Selçuk HELHEL	
21	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM370	5	Communication Theory - I	Bahar <i>Spring</i>	Fundamentals of Orthogonal functions, amplitude modulation and angular modulations. Noise in communications system. Knowledge about general components of analog communication systems.	Prof. Dr. Selçuk HELHEL	
22	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM374	3	Communication Laboratory I	Bahar <i>Spring</i>	These topics cover the conversion of analog signals to digital and the transmission of digital signals to baseband and passband channels.	Prof. Dr. Selçuk HELHEL	
23	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM432	3	Power Electronics Laboratory II	Bahar <i>Spring</i>	Driver circuits for Tristor (SCR), Gate Clogged Tristor (GTO), Transistor (BJT), MOSFET, Gate Insulated Transistor (IGBT) and MOS Controlled Thyristor (MCT). Switch losses, hard and soft switching, heatsink design. Electronic components used in power electronics circuit design. Protection and control circuits. Examples of power electronics circuit design: DC chopper, alternating current chopper, controlled rectifier and inverter design.	Prof. Dr. Selim BÖREKÇİ	

24	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM456	5	Introduction to Medical Imaging	Bahar <i>Spring</i>	Basic parameters in vision and imaging systems Numerical performance metrics, spatial resolution, noise and contrast. Basic principles and applications of modern medical imaging systems. X-ray radiology, ultrasound, nuclear medicine and scintigraphy magnetic resonance imaging, hardware, data acquisition and image generation in medical imaging systems.	-	
25	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEE490	2	Investment Project Analysis	Bahar <i>Spring</i>	Project Types, development of investment projects; economic and financial evaluation; risk in fixed investment projects; inflation effects; financing and lending of investments; techniques for evaluating investment projects	-	
26	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEM4002	4	Graduation Project II	Bahar <i>Spring</i>	In this course, students are expected to research and implement the project they propose in the 1st semester. A well-defined engineering problem should be solved in hardware and/or software and the solution should be implemented by using the gains gained during the Electrical and Electronics Engineering education. The results are reported as a thesis presented orally before a 3-person jury.	Prof. Dr. Selçuk HELHEL	
27	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEE488	3	Radar Systems	Bahar <i>Spring</i>	Properties of radar signals, radar and system parameters, radar cross section, radar propagation, radar equation, CW radars, moving target radars, tracking radars, SAR radars and their applications.	Prof. Dr. Hüseyin GÖKSU	
28	Elektrik - Elektronik Mühendisliği <i>Electrical and Electronical Engineering</i>	EEE486	5	Microwave Circuit Design	Bahar <i>Spring</i>	High frequency transmission lines, Electric and Magnetic Field Calculations, Reflection and Transmission, Characteristic Impedance and Line Calculations, Impedance Matching, S Parameters, high frequency amplifiers, oriented couplers and power dividers.	Prof. Dr. Selçuk HELHEL	