

TOROS UNIVERSITY
FACULTY OF ENGINEERING ELECTRICAL-ELECTRONICS ENGINEERING DEPARTMENT
2020-2021-2022-2023 YEARS COURSE CONTENT

	1. Dönem	► Compulsory					
	Code	Course Name	Compulsory / Elective	Theory	Prac.	Credit	ECTS
	PHY101	PHYSICS I	C	3	2	4	6
CONTENT	Quantitative approach, measurements, quantities, and units; Vectors and manipulations with vectors; Kinematics of mechanical motion and simplest motions; Dynamics of mechanical motion, Newton's laws, forces, momentum, solving motion using forces; Rotational motion, torque and angular momentum, rotational and rolling motion of solid bodies;• nservation of energy, linear, and angular momentum, significance and application of conservation laws in physics; Simple harmonic oscillations, forced oscillations and resonance, simple wave motion, basic properties of waves.						
	FLE101	ENGLISH I	C	3	0	3	4
CONTENT	This course is a 3 hour course aims to empower students with language and life skills which they need to carry out their career goals. To this end the courses provide the students with background in major concepts and ample opportunities for students to build awareness and practice the language in real-life scenarios. The courses will provide opportunities to practice language students need for work in their profession.						
	TUR101	TURKISH LANGUAGE I	C	2	0	2	2
CONTENT	World Language Groups, The Place of Turkish Among World Languages, Spreading Areas of Turkish, Punctuation Marks, Spelling Rules, Petition, Sound Features of Turkish, Sound Events in Turkish, Written Expression, Type of Memory						
	HIS101	ATATURK'S PRINCIPLES & HISTORY OF TURKISH REFORMS I	C	2	0	2	2
CONTENT	To overcome the love of the nation and the homeland to the youth of the university and to follow the principles of Ataturk: to make them grow up as Ataturk young people, to develop the consciousness of democracy and to understand what stages we have reached through the level of modern democratic administration. To give attitudes, behaviors and talents to the Turkish youth, which will bring the solutions of the present and future problems with the Ataturk approach.						
	MAT101	CALCULUS I	C	4	0	4	6
CONTENT	Limit, precise definition of limit, limit at infinity. Derivative concept, derivative definition, differentiation rules, implicit differentiation, related rates. Maxima and minima, concavity, curve sketching, optimization. Area problem, definite integral, fundamental theorem of Calculus, substitution rule. Transcendental functions, their derivatives and integrals, indeterminate limits and L'Hospital rule. Integration by parts and other iintegration techniques.						
	CSE103	INTRODUCTION TO PROGRAMMING	C	2	2	3	4
CONTENT	The course introduces the art of programming in small steps, starting from clearly structuring the required data. Typed functions, conditional expressions, and repetition (recursion) are introduced alongside as the basic methods to operate on this structured data. A key aim is to illustrate the interdependency of algorithms and data structures - significantly, that data structures largely determine algorithms, for example, that products are processed by projections, unions by alternatives, and that recursive data structures such as lists are processed by recursive algorithms.						
	EEE105	TECHNICAL DRAWING FOR ELECTRICAL & ELECTRONICS ENGINEERING	C	2	2	3	5
CONTENT	"Terminology of technical drawing, Types of technical drawings, Drawing tools, standard line types and thicknesses, Basic geometric drawings, Isometric perspective projections, Six principal views and auxiliary views, Dimensioning elements and rules, Types of section, Freehand sketching techniques, Introduction to computer aided design. "						
	KRY101	CAREER PLANNING	C	1	0	1	2
CONTENT	It is recommended that the Career Planning course be taught within the framework of the draft created by the Presidential Human Resources Office, with videos and activities prepared for each week, and guest trainers to be invited from university lecturers, industry professionals, non-governmental organizations and international organizations. The supporting activities to be included in the course are designed to inform students about the methods and tools used in professional applications and to enable them to use them in the most effective way, and are supported by practical activities. Career centers will follow the course in practice with activities that provide experience opportunities that will support students to develop their skills. The proposed program regarding the structure and contents of the course is presented below. The program in question may differ according to the characteristics of the universities and the departments where the students who will take the course are registered.						
	2. Dönem	► Compulsory					
	Code	Course Name	Compulsory / Elective	Theory	Prac.	Credit	ECTS
	PHY102	PHYSICS II	C	3	2	4	6

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CONTENT	The topics covered in this course include: • electric charge, electric fields, Gauss' law, electric potential; • electric properties of materials, conductors and dielectrics; • electric current, resistance, Ohm's law; • simple DC electric circuits, Kirchhoff's laws; • AC circuits, phasors, phasor diagrams for AC circuits; • magnetic fields and force, Biot-Savart law, Amper's law; • magnetic induction, Faraday's law; • Maxwell's equations, electro-magnetic waves; • basics of wave optics;						
	FLE102	ENGLISH II	C	3	0	3	4
CONTENT	This course is a 3 hour course aims to empower students with language and life skills which they need to carry out their career goals. To this end the courses provide the students with background in major concepts and ample opportunities for students to build awareness and practice the language in real-life scenarios. The courses will provide opportunities to practice language students need for work in their profession.						
	TUR102	TURKISH LANGUAGE II	C	2	0	2	2
CONTENT	Punctuation and Composition (Punctuation Marks, Other Marks) marks of abbreviations, Spelling Rules (The spelling of capital letters, The writing of quotations. numbers, The Composition the purpose of composition, method in composition writing, planning, introduction, development and result in composition, the features of telling (purity in telling, simplicity in telling, clarity and sincerity in telling mistakes in telling (the use of synonymous words in the sentence). The use of synonymous words in the sentence, The misuse of phrases, Explanation, story, description, criticism, portray, speaking, proving. The kinds of verbal telling (daily and unprepared speaking- prepared speaking, debate, panel) The kinds of written telling (letter, telegraph, celebration, invitation, literary letter Job letters, formal letter, petition, report, decision, announcement, advertisement). Talking, criticism, memoir, travel, writing, interview, survey Autobiography biography novel- story, fable- theater tragedy, drama- scenario, poetry and its kinds.						
	HIS102	ATATURK'S PRINCIPLES & HISTORY OF TURKISH REFORMS II	C	2	0	2	2
CONTENT	The aim of this course is to provide the students with the love of nation and homeland and the principles of Ataturk. The aim of this course is to strengthen the beliefs of citizenship and beliefs in democracy by giving attitudes, behaviors and skills that will bring solutions to the problems of today and the future.						
	MAT102	CALCULUS II	C	4	0	4	6
CONTENT	Transcendental functions, L'Hopital's rule, Integral solving techniques, Simple first ODEs, Power series, Taylor and Maclaurin Series, Numerical integration, Polar coordinates, Vector operations, Partial derivatives, Multiple integrals.						
	CSE106	ADVANCED PROGRAMMING	C	3	2	4	5
CONTENT	Object oriented programming and class structure, Class examples, Inheritance, Polymorphism, Event driven programming, Recursion, Threads						
	EEE112	INTRODUCTION TO ELECTRICAL ENGINEERING	C	3	0	3	5
CONTENT	The relationships between the circuit variables. Ohm's and Kirchhoff's Laws. Fundamental circuit analysis methods; nodal and mesh analysis. Circuit theorems; source transformations, superposition, maximum power transfer, Thevenin's and Norton's theorems. Analysis of the first and second order circuits including reactive circuit elements under dc conditions.						
	3. Dönem	► Compulsory					
	Code	Course Name	Compulsory / Elective	Theory	Prac.	Credit	ECTS
	FLE201	ENGLISH III	C	3	0	3	4
CONTENT	This course is a 3 hour course aims to empower students with language and life skills which they need to carry out their career goals. To this end the courses provide the students with background in major concepts and ample opportunities for students to build awareness and practice the language in real-life scenarios. The courses will provide opportunities to practice language students need for work in their profession.						
	MAT201	LINEAR ALGEBRA	C	3	0	3	4
CONTENT	Systems of linear equations. Matrices, matrix algebra determinants. Vector spaces, subspaces, orthogonal spaces. Charactersitic equation of matrix, eigenvalues, eigenvectors. Cayley-Hamilton Theorem.						
	ISG201	OCCUPATIONAL HEALTH AND SAFETY I	C	2	0	2	2
CONTENT	Work accidents, occupational illnesses law and social rules, personal protecting tools, ergonomy, fire and protection rules from fire and first aid						
	EEE201	ELECTRIC CIRCUITS I	C	3	2	4	6
CONTENT	The relationships between the circuit variables. Ohm's and Kirchhoff's Laws. Fundamental circuit analysis methods; nodal and mesh analysis. Circuit theorems; source transformations, superposition, maximum power transfer, Thevenin's and Norton's theorems. Analysis of the first and second order circuits including reactive circuit elements under dc conditions.						

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	EEE205	DIGITAL SYSTEMS AND DESIGN	C	3	2	4	6
CONTENT	Digital systems and binary codes, Boolean algebra and logic gates, Karnaugh maps, combinational logic circuits - arithmetic circuits, decoders, encoders, MUX, DEMUX, flip flops, sequential logic circuits - registers, counters.						
	MAT205	COMPLEX CALCULUS	C	3	0	3	4
CONTENT	Definition of complex numbers, Fundamental operations including complex numbers (Four basic operations, roots etc.), Use complex numbers in AC circuits (Phasor algebra), Complex derivatives and complex limits, Complex integrals, Fourier transformations, Conformal mapping.						
	MAT203	PROBABILITY AND RANDOM VARIABLES	C	3	0	3	4
CONTENT	Set Concept. Counting Methods. Introduction to Possibility. Conditional Probability and Independence. Random Variables. Some Theoretical (theoretical) Distribution (Division) Functions. Bernoulli Probability Distribution, Binomial Probability Distribution, Moments, Skewness and Kurtosis Measures. Moment Generating Functions. Poisson, Standard normal Probability and Distribution Functions, Central Limit Theorems. Algebra of Events. Interpretation of probabilities on real life.						
	4. Dönem	► Compulsory					
	Code	Course Name	Compulsory / Elective	Theory	Prac.	Credit	ECTS
	FLE202	ENGLISH IV	C	3	0	3	4
CONTENT	This course is a 3 hour course aims to empower students with language and life skills which they need to carry out their career goals. To this end the courses provide the students with background in major concepts and ample opportunities for students to build awareness and practice the language in real-life scenarios. The courses will provide opportunities to practice language students need for work in their profession.						
	ISG202	OCCUPATIONAL HEALTH AND SAFETY II	C	2	0	2	2
CONTENT	Safety of working with non-electric appliances, Safety at work with power tools, Machinery and personal protection for work safety, Work safety rules in maintenance and restoration work, Lifting and transportation work in safety, Safety measures in fire, explosion and natural disasters, First aid rules						
	EEE202	ELECTRIC CIRCUITS II	C	3	2	4	6
CONTENT	The analysis of ac circuits in phasor domain. Power analysis in ac circuits. Mutual inductance, lineear and ideal transformers. Transfer functions and filters. Circuit analysis using Laplace transform technique. Two-port network and two- port network parameters.						
	EEE204	ELECTROMAGNETIC FIELD THEORY	C	4	0	4	5
CONTENT	Static electric fields created by static charges distributed across different space geometries. Gauss law and its applications. The effects of electrostatic fields on dielectric media. Capacitance of capacitor with any geometry. Magnetostatic fields created by electric charges moving at a constant speed, Ampere's law and its applications. The effects of magnetostatic fields on magnetic materials. The inertia of the coil with any geometry. Mutual inductance between circuits. Energy stored in electrostatic and magnetostatic fields. Faraday's law and induction. Maxwell equations.						
	EEE210	COMPUTER AIDED CIRCUIT ANALYSIS	C	3	2	4	5
CONTENT	Circuit Elements and Model Definitions / Definitions of Various Source Parameters / Model Definitions of Voltage Controlled and Current Controlled Sources / DC Analysis of Voltage Controlled and Current Controlled Switches / DC Analysis of Circuits, Operation Point Analysis and Transfer Function Analysis / AC Analysis of Circuits / Analysis of Transient Regime Behavior of Circuits and Fourier Analysis /Simulation of Circuits Containing Voltage Controlled and Current Controlled Switches / Simulation of Ideal Transformer and Multiphase Transformer Circuits / Simulation of Circuits Containing Voltage Controlled and Current Controlled Switches / Simulation of Ideal Transformer and Multiphase Transformer Circuits /Simulation of Nonlinear Magnetic Circuits / Simulation of Non-sinusoidal Sources and Circuits with Non-Linear Loads						
	EEE206	SEMICONDUCTORS	C	3	0	3	4
CONTENT	Crystal structures, Introduction to Quantum Mechanics, Charge transport phenomena, Metal-semiconductor and semiconductor heterostructures, pn junctions, Bipolar transistor, Metal-oxide semiconductor field effect transistor fundamentals of Field-effect transistor junctions, Optoelectronic devices, Semiconductor power devices, Photovoltaic applications, Coding of Optoelectronic Components 1 Coding of Optoelectronic Components 2.						
	MAT202	DIFFERENTIAL EQUATIONS	C	4	0	4	6
CONTENT	Types of differential equations and definitions, Solving of first order differential equations, Solving of higher order differential equations, Modeling with first order differential equations, Modeling with higher order differential equations, Series solutions of differential equations, Laplace transforms of differential equations, Numerical solutions of differential equations.						
	5. Dönem	► Compulsory					
	Code	Course Name	Compulsory / Elective	Theory	Prac.	Credit	ECTS
	EEE303	ELECTRONICS I	C	2	2	3	5
CONTENT	Diodes, Diode Circuits Analysis, Rectifier Circuits, Clipper Circuits, Clamper Circuits, Zener Diode Circuits. BJTs and FETs: DC Analysis and Small Signal Analysis, Frequency Responses.						

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	EEE319	SIGNALS AND SYSTEMS	C	2	2	3	5
CONTENT	Introduction: Definition of signals and systems. Transformation of independent variable. Properties of signals and systems. Linear, time-invariant systems. Convolution. Properties of linear, time-invariant (LTI) systems. Systems represented by differential equations. State-space analysis of LTI-causal systems described by differential equations. Fourier series. Fourier transform. Properties of Fourier series and Fourier transform. Filtering. Continuous-time modulation. Demonstration of amplitude modulation. The Laplace transform. Analysis of systems by using Fourier and Laplace transform. Continuous-time second-order systems. Butterworth filters. Feedback. Sampling. Interpolation.						
	EEE307	ELECTROMAGNETIC WAVES	C	3	0	3	5
CONTENT	Maxwell's Equations, Constitutive Equations, Comparison of Field Theory and Circuit Theory, Wave Equation, D'Alembert's Solution, Time-Harmonic Electromagnetic Waves, Distributions, Boundary Conditions, Power and Energy Relations, Phase Velocity and Group Velocity, Vector and Scalar Potentials, Plane Waves, Reflection and Refraction, Polarization, Traveling Waves and Standing Waves, Transmission Lines, Terminated Uniform Transmission Line, Directional Couplers and Quarter Wave Transformers, Waveguides and Resonators, Hollow Rectangular Waveguide, Cavity Resonators, Fiber Optics, Basic Antenna Parameters, Simple Radiators, Radar Equation : Friss Formula.						
	EEE305	MİKROİŞLEMCİLER	C	2	2	3	5
CONTENT	General microprocessor architecture and micro program, microcontroller architecture and addressing modes, RAM and ports structure, Timers/ Counters, serial communication, interrupts, and writing code.						
	SEC301	EEE ELECTIVE COUSES-1	C	2	2	3	5
CONTENT							
	SEC301	EEE ELECTIVE COUSES-2	C	2	2	3	5
CONTENT							
	OSD301	EEM COMMON ELECTIVE COURSES	C	3	0	3	5
CONTENT							
	6. Dönem	► Compulsory					
	Code	Course Name	Compulsory / Elective	Theory	Prac.	Credit	ECTS
	EEE304	ELECTRONICS II	C	2	2	3	5
CONTENT	Integrated Circuits: Current Mirrors, Circuits with active loads. Differential and Multistage Amplifiers: Basic, With Active Load, Simplified Op-Amp Circuit. Operational Amplifier (Op-Amp). Operational Transconductance Amplifier (OTA). Non-ideal Effects in Analog Integrated Circuits: Offset voltage, Input Bias Current, Frequency Response, Common Mode Rejection Ratio. Applications and Design of Integrated Circuits: Feedback, ADC and DAC, Active Filters, Power Amplifiers, Voltage Regulators.						
	EEE316	UTILIZATION OF ELECTRICAL ENERGY	C	3	0	3	4
CONTENT	Generation of electrical energy, Distribution of electrical energy; 3-phase systems, transformers, transmission lines and parameters, transmission line equipment, Three phase systems, Active and reactive energy; power factor correction. Choice of voltage levels. Current and voltage transformers. Overcurrent and thermal protection. Earthing Methods, Power Plants.						
	EEE306	ELECTROMECHANICAL ENERGY CONVERSION	C	3	2	4	4
CONTENT	Distributed windings, MMF waveforms, multi-phase windings and rotating field winding factor, harmonic voltages, synchronous machines, cylindrical and salient pole machine types, synchronous and asynchronous machines, Circle diagram, speed control for asynchronous motors, single and three-phase asynchronous motors.						
	EEE308	CONTROL THEORY	C	2	2	3	4
CONTENT	Linearization, Laplace Transformation, Mechanical system modelling, mass,spring and Friction, Rotational sys.:inertia,spring, dash-pot, D.C. Motors, generator, motor-generator set, Transfer function ,simulation,Statespace formulation, solution of state equations, Observability, controllability, First and second order systems, time domain solution,Design spec. Overshoot, peak time, settling time, rise time, Stability, Routh-Hurwitz, Signal flow diagram, Mason Formula, Construction of Root-locus diagram, Observer design , PID design, Phase lead, phase lag compensators, Design of phase lead compensator						
	SUMMER	INDUSTRIAL STUDY	C	0	0	0	3
CONTENT	The content depends on the institution where the practice is done.						
	SEC302	EEM SEÇMELİ DERS-1	C	3	0	3	5
CONTENT							
50306028	SEC302	EEM SEÇMELİ DERS-2	C	3	0	3	5
CONTENT							
	7. Dönem	Compulsory					
	Code	Course Name	Compulsory / Elective	Theory	Prac.	Credit	ECTS

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	EEE491	EE ENGINEERING PROJECT	C	0	6	3	5
CONTENT	Content depends on thesis topic						
	EEE409	HIGH VOLTAGE TECHNIQUES	C	3	0	3	5
CONTENT	AC and DC Electric Transmission Systems; Standards Related to High Voltages; High Voltage Equipments; Recognition of Design Criteria of High Voltage Substations and Distribution Systems and Ability to Design High Voltage Substations and Distribution Systems in Basic Level; Generation of High Voltages; Measurement of High Voltages; Electrical Breakdown in Gases, Liquids and Solids, Switchgears, breakdown Strength of Insulating Materials, Corona, Electrode Systems, High Voltage Testing of Electrical Equipments, Transients in Power Systems and Insulation Coordination, Per unit calculations, Symmetrical components, transmission line parameters.						
	EEE411	ELECTRIC POWER GENERATION AND RENEWABLE ENERGY	C	3	0	3	5
CONTENT	Renewable Energy Sources: Hydro Power; Wave; Wind; Solar; Geothermal; Biomass; Bio-fuel; Sustainability; Incentives and Barriers; Efficiency and Effectiveness; Management of Renewable Energy and Its Sustainability; Energy Storage Methods: Flywheel; Batteries and Fuel Cell; Hybrid System and Integration; AC and DC Electricity Conversion; Power Conditioning and Renewable Energy to Grid, Thermal and Nuclear Power Plants, Fundamentals of Cogeneration/Trigeneration, Energy Market, Energy management, Power to X technologies.						
	ECO401	ENGINEERING ECONOMICS	C	3	0	3	5
CONTENT	The topics covered in this course include: • Understanding money and its management. • Evaluating business and engineering. • Development of project cash flows. • Special topics in engineering economics.						
	SEC403	EEM SEÇMELİ DERS-1	C	3	0	3	5
CONTENT							
	SEC403	EEM SEÇMELİ DERS-2	C	3	0	3	5
CONTENT							
	8. Dönem	► Compulsory					
	Code	Course Name	Compulsory / Elective	Theory	Prac.	Credit	ECTS
	EEE490	INTERN ENGINEERING	C	0	40	10	30
CONTENT	Intern Engineers work like an engineer in the industry. They are trained as engineers ready for industrialization by directly adding their applications to the theoretical and practical training they have received in college. After completing all of their courses, the engineers of the engineers spend all of their time in the field of industry and production, directly in the field, in accordance with the working and shift hours of the industry.						

ELECTIVE COURSES							
		EEE ELECTIVE COURSES (SEC305)					
	Code	Course Name	Compulsory / Elective	Theory	Prac.	Credit	ECTS
	EEE333	PROGRAMMABLE LOGIC CONTROLLERS	E	2	2	3	5
CONTENT	Memory Structure of PLC, Digital and Analog Inputs / Outputs, Programming in Ladder and by Command list, Bit Logic Instructions, Timers, Counters, Comparison of Variables, Subroutines, Shift Registers.						
	EEE335	MICROCONTROLLERS	E	2	2	3	5
CONTENT	Selecting a microcontroller for the solution of a problem and solving the problem with the microcontroller by creating the necessary algorithm.						
	CSE313	ARDUINO PROGRAMMING	E	3	0	3	5
CONTENT	Arduino programming codes and Arduino sensors						
	CSE319	MATLAB PROGRAMMING	E	3	0	3	5
CONTENT	Matlab introduction, conditions, parentheses, nested loops, functions, probabilities and averages, vectors, drawings, arrays-matrices, images, characters and texts, cell type arrays, numeric / text operations, file operations, sorting and rama, recursion						
	MAT311	ENGINEERING STATISTICS	E	3	0	3	5

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CONTENT	Descriptive statistics. Elementary probability. Propagation of error. Probability distributions. The central limit theorem. Point and interval estimations. Confidence intervals. Hypothesis testings. Selected examples of engineering applications.						
	EEE329	ORGANIC ELECTRONICS	E	3	0	3	5
CONTENT	Introduction to Organic Semiconductors, Comparison of Organic Semiconductors and Inorganic Semiconductors, Classification of Organic Semiconductors, Electronic Properties of Conjugated Polymers, Electronic Properties of Organic Molecules, Working Principles of Organic Luminescent Diodes (OLED), Use of Conjugated Polymers and Organic Molecules in Luminescent Diodes, Organic Solar Cells Working Principle Using Conjugated Polymers and Organic Molecules in Organic Solar Cells, Working Principles of Organic Field Effect Transistors (OFET)I, Working Principles of Organic Field Effect Transistors II, Using Conjugated Polymers and Organic Molecules in Field Effect Transistors, Working Principles of Biosensors, Using Conjugated Polymers and Organic Molecules in Biosensors.						
	EEE331	POWER SYSTEMS I	E	3	0	3	5
CONTENT	Basic structure of electrical power systems. Representation of electrical power systems. Symmetrical components. Electrical characteristics of generators, transformers, transmission lines and cables. Use of per-unit system in power network calculations. Current and voltage relations in short, medium and long transmission lines. Symmetrical and asymmetrical fault calculations. Limitation of voltage levels.						
	CSE323	C/C++ PROGRAMMING LANGUAGE	E	3	0	3	5
CONTENT	Data and information concepts, data types. The main parts of a C/C++ program, Automatic type transforms, Operators, operator precedence. Mapping, arithmetic and bitwise operators, Logical comparison and mapping operators. Control and decision structures, Algorithm concept and flow diagrams, Loops. Arrays, Nested loops, Functions, Pointers and structures, Data files and access methods.						
	EEE ELECTİVE COURSES (SEC306)						
	Code	Course Name	Compulsory / Elective	Theory	Prac.	Credit	ECTS
	EEE326	ELECTRICAL-ELECTRONICS MEASUREMENT AND INSTRUMENTATION	E	3	0	3	5
CONTENT	Introduction. Definitions: Measurement, Accuracy and Precision, et al. Static and dynamic characteristics of measurement systems. Types of error, error analysis. Analogue meters: Principle of operating, accuracy. Digital multimeters; principle of calibration, common mode rejection. AC or DC current and voltage measurement - standards, methods and instruments. Bridge measurements (Wheatstone, Kelvin, Maxwell, and Hay Bridge). Measuring amplifiers with operational amplifier, converters of average and of RMS value, phase-sensitive rectifier. Principle of sampling and quantisation of analogue signal, DACs and ADCs - principle and properties. Measurement of power - definition, measuring methods, digital wattmeter; measurement of energy consumption. Sensors and transducers: Principles of operating and characteristics. Analog and Digital Data Acquisition Systems.						
	EEE328	COMMUNICATION THEORY	E	3	0	3	5
CONTENT	Introduction, Frequency Domain Analysis, Sampling of Bandlimited Signals, DSBSC-AM modulation, Conventional Amplitude Modulation, Phase Modulation and Frequency, Modulation, Probability Review, Random Processes, Information Sources and Coding, Source Coding Algorithms and Entropy, Quantization, Waveform Coding, Digital Transmission through AWGN Channels						
	EEE324	COMPUTER AIDED ELECTRICAL INSTALLATION	E	3	0	3	5
CONTENT	The purpose of illumination and classification. Important theories of photometric light-emitting yasalar. Işık basic forms. Physiological optics calculations. Fundamentals of light production. Lamps. Light sources. Types of lighting fixtures and lighting. Lighting accounts canceled. Electrical installation materials inside. Architectural features of the exercise project. Plumbing connection diagram. Electrical Interior Facilities Ordinance important ingredients. Table loading table. Project control.						
	EEE312	NANOTECHNOLOGY	E	3	0	3	5
CONTENT	The topics covered in this course include: • What is nanotechnology? • Nano-scale effects • Nanomaterials and their classification • Characterization of nanomaterials						
	EEE332	POWER ELECTRONICS	E	3	0	3	5
CONTENT	Power electronics systems and applications. Power electronics, semiconductor elements and their characteristics. Rectifier circuits, AC-AC converters, Voltage Source Inverters, Voltage Control Methods, DC - DC converters, Power Electronics Applications.						
	EEE320	POWER SYSTEMS II	E	3	0	3	5
CONTENT	Matrix analysis of power systems, methods and solutions. Power flow studies. Economic operation of power systems and economic distribution of load. Power systems stability.						
	EEE314	MEDICAL IMAGING	E	3	0	3	5
İÇERİĞİ	• General Image Characteristics, • Data Acquisition, • X-ray Radiography, • Scintigraphy, • Ultrasonic imaging, • Magnetic Resonance Imaging.						
	FLE302	İNGİLİZCE VI	E	3	0	3	5

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CONTENT							
	EEE ELECTIVE COURSES (SEC405)						
	Code	Course Name	Compulsory / Elective	Theory	Prac.	Credit	ECTS
	EEE451	PROFESSIONAL ENGINEERING DEVELOPMENT	E	3	0	3	5
CONTENT	Relations between science, technology, industry and economy. History of industry and technology in Turkey. Innovation, entrepreneurship, patent, know-how, royalty, risk capital, Law of Copyright in Turkey. Law of Patent in Turkey. Research and development, sources for the financial support for R&D projects from industry. TTGV(Technology Foundation of Turkey). TUBITAK. KOSGEB. Capital. Feasibility.						
	EEE413	OPTOELECTRONICS	E	3	0	3	5
CONTENT	The nature of light. Basic optical laws and definitions. Photodetectors. solar cells. Light emitting diodes. Laser and its applications. Homojunction, heterojunction, quantum well and advanced lasers. Fiber types. Light diffusion in optical fibers. Modulators. Display devices.						
	CSE413	SECURITY OF INFORMATION SYSTEMS	E	3	0	3	5
CONTENT	This course focuses on the security issues in computer systems and computer networks.						
	CSE433	OPTIMIZATION METHODS	E	3	0	3	5
CONTENT	Mathematical Programming: Linear, Integer and Quadratic Programs - Linear Programming: Simplex and Dual Simplex Methods, Duality and Precision Analysis, Expansions - Integer Programming: Branch Boundary, Cutting and Transportation Algorithms - Nonlinear Programming: Single Variable Optimization, Multivariate Constrained and Unconstrained CPM - Inventory Models - Estimation Models: Regression Methods, Plane Methods - Game Theory - Decision Theory - Markov Processes - Queuing Systems: Optimization - Dynamic Programming - Network Analysis: Minimum Span, Shortest Path, and Maximum Flow Problems - Project Management: PERT / CPM - M / M / 1, M / M / s, M / M / 1 / K and M / M / s / K Systems						
	CSE419	ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING	E	3	0	3	5
CONTENT	Artificial intelligence definition, basic concepts and techniques, Expert systems and engineering applications, Fuzzy logic and engineering applications, Decision support systems and applications, Genetic algorithms and application examples, Artificial neural networks: structure and basic elements of artificial neural networks, the first artificial neural networks, artificial neural network models, back propagation networks. Engineering applications of artificial neural networks.						
	EEM COMMON ELECTIVE COURSES (OSD305)						
	Code	Course Name	Compulsory / Elective	Theory	Prac.	Credit	ECTS
	INE459	ENTREPRENEURSHIP	E	3	0	3	5
CONTENT							