Tarsus University
Faculty of Engineering
Electrical and Electronic Engineering

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Course Content Report

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
OD 107	CAREER PLANNING	1	0	0	1.00	2.00	Compulsory

Course Content

Conceptual framework for career planning; Promotion of exchange programs and scholarship programs to support undergraduate education; Introduction of vocational national and international certificate and training-practice programs; Introduction of the program and elective courses for career alternatives; Explaining communication issues such as introducing oneself, official correspondence rules, addressing in official interviews and interviews; Giving information about the use of diction and body language; Introduction of the sector and related business lines; Transfer of professional experience with the participation of a sector representative or a successful professional in the sector; Preparing a CV and transferring basic information to the CV; Examining CV samples and introducing job/professional application platforms; Teaching interview techniques; Transfer of professional experience with the participation of a sector representative or a successful professional in the sector

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 105	INTRODUCTION TO ELECTRICAL ELECTRONICS ENGINEERING	2	0	0	2.00	2.00	Compulsory

Course Content

Overview of Electrical and Electronics Engineering and its principal fields, including programming, electronics, energy, electromagnetics, control, communication, antennas, embedded systems, biomedical systems, signal processing, renewable energy, robotics, career planning, ethics, sustainability, and professional practice.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 107	COMPUTER PROGRAMMING I	2	1	0	2.50	3.00	Compulsory

Course Content

Basic computer organization; binary data representation; introduction to an programming language; basic and container data types; variables, expressions, statements; repetitive programming; algorithmic thinking; functions; working with files; exception handling and debugging; scientific programming.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
OD 111	ATATURK PRINCIPLES AND HISTORY OF TURKISH REVOLUTION I	2	0	0	2.00	2.00	Compulsory

Course Content

Developments leading to the Turkish Revolution, the development of democracy in the world, Ottoman modernization in the Tanzimat and Constitutional (Meşrutiyet) periods, the Ottoman State during and after World War I, the organization of the national resistance, the congresses and the National Pact (Misak-ı Milli), the foundation of the Grand National Assembly of Turkey (TBMM), domestic rebellions, the Treaty of Sèvres, the resources and fronts of the War of Independence, the foreign relations of the TBMM, the proclamation of the Republic, and the characteristics of the Turkish Revolution.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
OD 113	TURKISH I	2	0	0	2.00	2.00	Compulsory

Course Content

Definition and Features of Language; Language-Thought, Language-Nation and Language-Culture Relationship; Classification of World Languages, Language Families; The Place of Turkish Language Among World Languages ??and Its Historical Development; Sound Characteristics of Turkish; Turkish Language Association, Atatürk's Turkish View; Phonology, Sound Events; Writing rules; Punctuation.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
TM 101	PHYSICS I	3	1	0	3.50	5.00	Compulsory

Course Content

This course includes these topics: units and physical quantities, vectors, motion in one or two dimensions, force, laws of conservation of work and energy, potential energy, circular motion, static equilibrium etc.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
TM 107	GENERAL CHEMISTRY	3	1	0	3.50	5.00	Compulsory

Course Content

Chemical and physical properties of matter, measurement, atomic structure and models, periodic properties, chemical bonds, intermolecular forces, the mole and stoichiometry, chemical compounds and reactions, chemical kinetics, chemical equilibrium, solutions, acids and bases, thermochemistry, and electrochemistry.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
TM 105	MATHEMATICS I	4	0	0	4.00	5.00	Compulsory

Course Content

This lesson includes the following subjects; limit and continuity, derivative and applications of derivative, integral and integral applications.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
OD 119	ADVANCED ENGLISH I	3	0	0	3.00	4.00	Compulsory

Course Content

B2-level academic reading strategies, listening and note-taking, vocabulary and grammar, paragraph organisation, summarising, academic writing, and oral communication practice.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
OD 120	ADVANCED ENGLISH II	3	0	0	3.00	4.00	Compulsory

Course Content

This course covers advanced English grammar rules, effective writing techniques, oral communication skills, listening and reading skills, and advanced vocabulary study.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
OD 112	ATATURK PRINCIPLES AND HISTORY OF TURKISH REVOLUTION II	2	0	0	2.00	2.00	Compulsory

Course Content

Political, economic, cultural, and social developments from the foundation of the Republic of Turkey to the present day, and the fundamental principles of the Atatürkist system of thought.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
OD 114	TURKISH II	2	0	0	2.00	2.00	Compulsory

Course Content

Expression disorders, types of written expression, thoughts, artistic writing, types of correspondence, types of verbal expression.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
TM 102	PHYSICS II	3	1	0	3.50	5.00	Compulsory

Course Content

Electric Fields; Gauss's Law; Electric Potential; Capacitance and Dielectrics; Current and Resistance; Direct Current Circuits; Magnetic Field; Sources of the Magnetic Field; Faraday's Law; Inductance; Alternating Current Circuits.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
TM 106	MATHEMATICS II	4	0	0	4.00	5.00	Compulsory

Course Content

This course includes sequences, series and applications, vectors, limit, continuity and derivative, direction derivatives and multiple integrals in multivariable functions etc.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
TM 110	LINEAR ALGEBRA	3	0	0	3.00	4.00	Compulsory

Course Content

Fields, matrix algebra, elementary row operations, rank and inverse of a matrix, determinants, systems of linear equations, Gauss-Jordan elimination, Cramer's rule, vector spaces, linear independence, basis and dimension, inner product and orthogonality, linear transformations, eigenvalues and eigenvectors, the characteristic polynomial, the Cayley-Hamilton Theorem, diagonalization, coordinates, and isomorphisms.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 106	COMPUTER PROGRAMMING II	2	1	0	2.50	4.00	Compulsory

Course Content

Programming and algorithm development, constants, variables, operators, conditional expressions, loops, functions, data structures, object-oriented programming, modules and packages, file operations, database operations, graphical interface operations, purposeful use of libraries, modules and packages.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 108	COMPUTER AIDED ENGINEERING DRAWING	2	2	0	3.00	4.00	Compulsory

Course Content

Basic concepts and standards of technical drawing, geometric constructions, CAD commands, line types, layers, projection, orthographic views, full, half, stepped and partial sections, perspective drawing, and dimensioning principles.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 215	CIRCUIT THEORY I	3	0	0	3.00	3.00	Compulsory

Course Content

Current, voltage, power, and energy. Independent and dependent sources, resistors, Ohm's law, and Kirchhoff's laws. Nodal and mesh analysis, Thevenin and Norton equivalents, superposition, source transformation, and maximum power transfer. Operational amplifiers, capacitors, inductors, and the transient, step, and complete responses of RL, RC, and RLC circuits.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 223	SEMICONDUCTORS	3	0	0	3.00	3.00	Compulsory

Course Content

Atomic structure and energy-band concepts, intrinsic and doped semiconductors, electrons and holes, carrier concentration, conductivity and mobility, p-n junctions, diode current-voltage characteristics, diode types and applications, BJTs, FETs, and basic transistor current-voltage analysis.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 213	ENGINEERING MATHEMATICS	3	0	0	3.00	3.00	Compulsory

Course Content

Vector operations, scalar and vector fields, orthogonal coordinate systems, differential elements, Stokes' and divergence theorems, Laplace and inverse Laplace transforms, Fourier series, Fourier and inverse Fourier transforms, and their applications to electrical and electronic circuits.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 217	CIRCUIT THEORY LABORATORY I	0	2	0	1.00	2.00	Compulsory

Course Content

Laboratory safety and instrument use, measurement of current, voltage, power, and energy, sources and resistors, Ohm's and Kirchhoff's laws, nodal and mesh analysis, Thevenin and Norton equivalents, maximum power transfer, superposition, source transformation, operational-amplifier circuits, capacitors and inductors, and transient, step, and complete responses of RL, RC, and RLC circuits.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 219	LOGIC CIRCUITS	3	0	0	3.00	3.00	Compulsory

Course Content

Number systems, Boolean algebra, Boolean function simplification, combinational arithmetic and data-routing circuits, latches, flip-flops, sequential circuit analysis, registers, and counters.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 221	LOGIC CIRCUITS LABORATORY	0	2	0	1.00	2.00	Compulsory

Course Content

Number systems, Boolean algebra, logic gates, Boolean function simplification, combinational arithmetic and data-routing circuits, latches, flip-flops, sequential circuit analysis, registers, counters, laboratory implementation, measurement, and reporting.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
TM 203	DIFFERENTIAL EQUATIONS	3	0	0	3.00	5.00	Compulsory

Course Content

The content of this course consists of solution methods for first-order differential equations, applications of differential equations in electrical and electronics engineering, solution methods for linear differential equations and systems, and Laplace and inverse Laplace transforms.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 203	PROBABILITY AND STATISTICS	3	0	0	3.00	4.00	Compulsory

Course Content

Introduction to probability, counting methods, axioms of probability, set theory, conditional probability, Bayes' theorem, independence, discrete and continuous random variables, probability mass, density and distribution functions, expected value, variance, moments, special probability distributions, multidimensional and conditional distributions, the Central Limit Theorem and an introduction to random processes.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 209	TECHNICAL ENGLISH	2	0	0	2.00	2.00	Compulsory

Course Content

Reading, interpreting, discussing, and presenting electrical and electronics engineering texts on electronic diagrams, technology, computers, LEDs, materials, components, technical development, devices, affixes, safety procedures, testing tools, and ICT systems.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 211	OCCUPATIONAL HEALTH AND SAFETY I	2	0	0	2.00	3.00	Compulsory

Course Content

This course covers the basic concepts and historical development of occupational health and safety; the duties, authorities and responsibilities of the occupational physician and the occupational safety specialist in the workplace; the concepts of risk, hazard, and primary, secondary and tertiary protection; physical, chemical, biological and psychosocial risks; and occupational health and safety legislation and its implementation in workplaces.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
TM 206	COMPLEX ANALYSIS	3	0	0	3.00	5.00	Compulsory

Course Content

Basic concepts of functions of a complex variable, limit, continuity, branch points and Riemann surfaces, derivative, analytic functions, Cauchy-Riemann equations, harmonic functions, contour integrals, Cauchy's theorem, Cauchy's integral formula, locating the roots of equations, singular points and isolated singular points, the Cauchy-Goursat theorem, sequences, sequences of functions, power series, Taylor series, Laurent series, the residue theorem and calculation of residues, evaluation of integrals using the residue theorem, and conformal mappings.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 210	BUSINESS ENGLISH	2	0	0	2.00	2.00	Compulsory

Course Content

Preparation and analysis of English CVs, cover letters, letters of intent, workplace documents, technical and business reports, professional vocabulary, workplace problem-solving communication, and professional presentations.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 212	OCCUPATIONAL HEALTH AND SAFETY II	2	0	0	2.00	3.00	Compulsory

Course Content

Risk management, risk assessment and analysis, risk perception and communication, psychosocial, physical, ergonomic, biological and chemical risk factors, risk assessment methods, risk control and documentation, fire and emergency management, working with display screen equipment and prevention of musculoskeletal disorders.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
TM 204	NUMERICAL ANALYSIS	3	0	0	3.00	4.00	Compulsory

Course Content

Error analysis; solution of nonlinear equations by the graphical, simple (fixed-point) iteration, bisection, Newton-Raphson, regula falsi and secant methods; finite differences; interpolation; Lagrange interpolation; least squares; nonlinear curve fitting; multiple regression; numerical differentiation; numerical integration; and solution of ordinary differential equations by the Euler, Heun and Runge-Kutta methods.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 214	CIRCUIT THEORY II	3	0	0	3.00	3.00	Compulsory

Course Content

Sinusoidal steady-state analysis, phasor transformations, impedance and reactance, frequency-domain circuit methods, transformer analysis, impedance reflection and matching, phasor diagrams, AC power calculations, maximum power transfer, and balanced three-phase circuit analysis.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 216	CIRCUIT THEORY LABORATORY II	0	2	0	1.00	2.00	Compulsory

Course Content

Laboratory safety and measurement instruments; investigation of sinusoidal AC signals; phasor representation; experimental analysis of R, L, and C elements in AC circuits; series and parallel AC circuits; impedance and admittance measurements; nodal voltage and mesh current analysis of AC circuits; AC circuit theorems; measurement of active, reactive, and apparent power; power factor and power factor correction; balanced and unbalanced three-phase systems; star and delta connections; three-phase power measurement; magnetically coupled circuits and mutual inductance; experimental investigation of ideal and practical transformers; resonance in series and parallel RLC circuits; resonant frequency, quality factor, and bandwidth; frequency response of electrical circuits; and experimental analysis of basic filter circuits.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 218	SIGNALS AND SYSTEMS	3	0	0	3.00	3.00	Compulsory

Course Content

Continuous-time and discrete-time signals and systems, signal transformations and classification, linear time-invariant systems, convolution, difference equations, Fourier series and the Fourier transform, the Laplace transform, the z-transform, transform-domain analysis of system properties, and MATLAB-supported project applications carried out within the theoretical course.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 220	ELECTROMAGNETIC FIELDS	3	0	0	3.00	3.00	Compulsory

Course Content

Vector analysis, orthogonal coordinate systems, electrostatic fields, Coulomb's and Gauss's laws, electric potential, electrostatic boundary value problems, steady electric currents, magnetostatic fields, magnetic materials, inductance, magnetic energy, force and torque.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 222	ELEKTRONİK I	3	0	0	3.00	3.00	Compulsory

Course Content

Semiconductors; Diodes; Electrical Behaviour of Diodes and Current-Voltage Curve; Different Diode Structures; Clippers; Rectifiers; Structure of Bipolar Junction Transistors (BJT) and Calculation of Operating Point; Examination of Various DC Bias Circuits; Analysis of Multi-Layer Circuits; Structure of MOSFET and Calculation of Operating Point; Analysis of MOSFET Amplifiers; Analysis of BJT and MOSFET Amplifiers in Low and High Frequency Regions;

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 224	ELECTRONICS LABORATORY I	0	2	0	1.00	2.00	Compulsory

Course Content

Diode Characteristics; Rectifiers; Trimmers; BJT DC Characteristics; Using BJTs as time, heat, and light switches; MOSFET DC Characteristics; Voltage Regulators; BJT Amplifier Frequency Response; MOSFET Amplifier Frequency Response

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
STJ 01	INTERNSHIP	0	0	0	0.00	5.00	Compulsory

Course Content

An internship offers students the opportunity to put the theoretical knowledge acquired during their undergraduate program into practice. Therefore, it encompasses all types of work-related activities. Students are required to work actively for 30 days in any field of work covered by the internship. Detailed daily records and reports are made of the work performed. The prepared internship report is approved by the relevant person in the work environment and submitted to the department for evaluation and grading.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 317	ELECTROMAGNETIC WAVES	3	0	0	3.00	4.00	Compulsory

Course Content

Time-varying fields, Faraday's law, Maxwell's equations, potential functions, wave equations, time-harmonic fields, plane waves in lossy and lossless media, polarization, the Poynting vector, normal and oblique incidence, total reflection, and the Brewster angle.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 319	ELEKTRONİK II	3	0	0	3.00	4.00	Compulsory

Course Content

Small signal theory and applications, small-signal model parameters, small signal models “hybrid p”i model, “T” model, single-level BJT/MOSFET amplifiers, high-frequency behavior of amplifiers, multistage amplifiers. CMOS principles, feedback concept, operational amplifiers, filter and oscillator circuits

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 321	ELECTRONICS LABORATORY II	0	2	0	1.00	2.00	Compulsory

Course Content

Applications of the analysis and synthesis of the load line in the characteristic functions of BJT and FET circuits in AC conditions in amplifier circuits, applications of analysis and synthesis of low, medium and high frequency equivalent circuits of transistors, applications of circuits related to the synthesis of multi-layer amplifier circuits (with Transistor or FET), amplifiers and operational amplifiers.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 311	FUNDAMENTALS OF CONTROL SYSTEMS LABORATORY	0	2	0	1.00	2.00	Compulsory

Course Content

Laboratory modeling of open-loop and closed-loop systems, block-diagram and transfer-function simulations, time-response measurements, steady-state error, Routh-Hurwitz stability, root-locus analysis, P, PI, PD and PID controller implementation, Bode and Nyquist analysis, gain and phase margins, and experimental reporting.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 315	ANALOGUE COMMUNICATION	3	0	0	3.00	4.00	Compulsory

Course Content

Introduction to communication systems, Fourier analysis of signals and systems, spectrum, energy and power signals, ideal transmission and distortion, amplitude modulation and demodulation, single-sideband and vestigial-sideband modulation, frequency division multiplexing, angle modulation, probability and random processes, and the effects of noise on analog communication systems.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 305	ELECTRIC MACHINS I	3	0	0	3.00	4.00	Compulsory

Course Content

Electromagnetic principles and equivalent circuits, single-phase and three-phase transformers, excitation and connection groups, losses and efficiency, parallel operation, autotransformers and instrument transformers, rotating magnetic fields, induction-machine construction and equivalent circuits, torque–speed and power characteristics, starting and speed control, wind-turbine dynamics, and fixed-speed, self-excited, and doubly fed induction generators.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 307	ELECTRIC MACHINES LABORATORY I	0	2	0	1.00	2.00	Compulsory

Course Content

Laboratory safety and measurement procedures, transformer equivalent-circuit tests, voltage regulation, three-phase transformer connections and magnetizing current, transformer efficiency, asynchronous-machine equivalent-circuit tests, starting methods, and self-excited asynchronous-generator operation.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 309	FUNDAMENTALS OF CONTROL SYSTEMS	4	0	0	4.00	5.00	Compulsory

Course Content

Introduction to open-loop and closed-loop control systems, block diagrams, dynamic and electromechanical system modeling, feedback properties, time response, steady-state error, stability, root-locus analysis, controller design, Bode and Nyquist criteria, frequency response, and gain and phase margins.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 306	DIGITAL COMMUNICATION	3	0	0	3.00	4.00	Compulsory

Course Content

Random processes and communication applications, sampling, digital transmission over band-limited channels, binary and multilevel transmission, ASK, FSK, PSK and QAM, the matched filter, timing and phase synchronization, multiplexing, source and channel coding, and MATLAB-based system modeling and performance analysis.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 308	COMMUNICATION LABORATORY	0	2	0	1.00	2.00	Compulsory

Course Content

Experiments on oscillators, filters, amplitude modulation and demodulation, frequency and phase modulation and demodulation, ADC and DAC, PCM, PWM, PAM, ASK, PSK, QPSK, time division multiplexing and frequency division multiplexing.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 310	POWER ELECTRONICS	3	0	0	3.00	4.00	Compulsory

Course Content

Power semiconductor switches, power and harmonic calculations in nonlinear circuits, controlled and uncontrolled AC/DC converters, switched DC/DC converters, DC/AC inverters, AC/AC converters, switching and conduction losses, thermal design, PWM methods, EMI, filters, protection circuits, soft switching, and multilevel converters.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 320	MICROPROCESSORS	3	0	0	3.00	3.00	Compulsory

Course Content

Historical development of microprocessors, Basic microprocessor architecture, Memories, Advanced microprocessor features, CISC and RISC architectures, x86 microprocessor families, Advanced microprocessors, assembly programming language, x86 instruction structure and set, addressing techniques, in microprocessor programming: arithmetic and logical operations, rotating and orientation commands, control commands, string operations, BIOS and OS relationship, interrupts, screen and keyboard operations, disk operations, basic input/output techniques, subprograms.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 318	MICROPROCESSORS	0	2	0	1.00	2.00	Compulsory

Course Content

Microprocessor hardware connections, microprocessor assembly compiler programs, microprocessor emulator program, microprocessor programming related: data transfer command applications, applications related to arithmetic and logic operations, rotating and routing applications, control instructions applications, string operations applications, time delay operations and applications related to subroutine, applications related to interrupts, applications related to basic input-output techniques.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 322	DESIGN PROCESSES	3	0	0	3.00	4.00	Compulsory

Course Content

Engineering design and problem definition, need identification, information gathering, decision-making and concept selection, project definition and management, Gantt charts, CPM and PERT, resource scheduling, MS Project, earned value and risk analysis, detailed design, modeling and simulation, reliability and safety, cost analysis, quality and robust design, and legal, ethical, and sustainability considerations.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 324	APPLICATIONS OF MATHEMATICS IN ELECTRICAL AND ELECTRONICS ENGINEERING	2	2	0	3.00	6.00	Compulsory

Course Content

In the context of a high-level programming environment, the course covers variables, operators, algorithms, file handling, conditional structures, loops, logical operations, functions, arrays, vectors, matrices, visualization, debugging, code quality, numerical methods, differential equations, and applications in circuits, control, power, communications, and signals and systems.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 312	POWER ELECTRONICS LABORATORY	0	2	0	1.00	2.00	Compulsory

Course Content

Laboratory safety and measurement, semiconductor switch characterization, uncontrolled and controlled rectifiers, DC–DC converters, gate-drive and PWM circuits, single-phase and three-phase inverters, harmonics, efficiency, protection, thermal behavior, simulation, experimental validation, and experiment design.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
STJ 03	INTERNSHIP	0	0	0	0.00	5.00	Compulsory

Course Content

An internship offers students the opportunity to put the theoretical knowledge acquired during their undergraduate program into practice. Therefore, it encompasses all types of work-related activities. Students are required to work actively for 30 days in any field of work covered by the internship. Detailed daily records and reports are made of the work performed. The prepared internship report is approved by the relevant person in the work environment and submitted to the department for evaluation and grading.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 405	ELECTRICAL AND ELECTRONICS ENGINEERING APPLICATIONS	1	2	0	2.00	5.00	Compulsory

Course Content

Essential rules of teamwork, identification of research problems, design constraints, assumptions and specifications, literature review, generation and evaluation of solutions, project planning, prototype development, testing and troubleshooting, research grant proposal writing, technical reporting, and project presentation.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 403	ELECTRICAL POWER SYSTEMS I	3	0	0	3.00	5.00	Compulsory

Course Content

Three-phase systems and transformers, per-unit modeling, power transfer, synchronous machines, active-power and frequency control, voltage and reactive-power control, load-flow analysis, symmetrical and asymmetrical fault analysis, steady-state and transient stability, and high-voltage direct-current transmission.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 402	GRADUATION PROJECT	0	2	0	1.00	5.00	Compulsory

Course Content

Problem and requirement definition, literature review, formulation of the research question, selection of engineering methods, data collection, design or implementation, testing and analysis, interpretation of results, technical report writing, and project presentation under advisor supervision.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 406	ENERGY TRANSMISSION AND DISTRIBUTION SYSTEMS	3	0	0	3.00	5.00	Compulsory

Course Content

Electrical energy transmission and distribution networks, power transmission lines, network line constants, transformer centers and equipment, overhead line conductors, underground cables, poles, insulators, distribution of electrical energy, transformer selection, protection relays and grounding.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE GS I	GENEL SEÇMELİ I	2	0	0	2.00	3.00	

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 001	RESEARCH METHODS	2	0	0	2.00	3.00	Seçmeli

Course Content

This course includes information about scientific research, research process, identification of research problem, literature review, data collection methods, creating hypothesis, universe, sample, analysis methods and research report.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 003	TECHNICAL COMMUNICATION	2	0	0	2.00	3.00	Seçmeli

Course Content

This course includes information about scientific research, research process, identification of research problem, literature review, data collection methods, creating hypothesis, universe, sample, analysis methods and research report.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 005	STRESS AND TIME MANAGEMENT	2	0	0	2.00	3.00	Seçmeli

Course Content

This lesson; historical development of occupational health and safety, occupational accident and occupational diseases and costs, the concept of occupational safety, the importance of occupational safety studies in terms of workforce efficiency, basic factors in occupational safety, sources of hazards, the concept of occupational health, psychosocial risk factors, ILO conventions, events that disrupt security Includes fire, earthquake and flood issues.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 009	PUBLIC ADMINISTRATION	2	0	0	2.00	3.00	Seçmeli

Course Content

The nature of public administration, Central government organizations, Local administrations; Subjects such as special provincial administration and the concept of bureaucracy constitute the content of this course.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 011	VOLUNTEERING STUDIES	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 013	ACADEMIC TURKISH	2	0	0	2.00	3.00	Seçmeli

Course Content

Definition of language, its characteristics, relations between language-nation / language-thought and language-culture. Language in the world; the place and importance of Turkish among them and its historical development. Ataturk's language revolution, concept and works. Sounds in Turkish. Phonology of Turkish. Spelling rules and application. Punctuation rules and application. Vocabulary. Productiveness of Turkish.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 015	CREATIVE DRAMA AND IMPROVISION	2	0	0	2.00	3.00	Seçmeli

Course Content

This course includes the sociological and psychological dimensions of drama, history of drama and its applications in education, drama in education, role play and improvisation, and the relationship of drama with creativity and communication concepts, drama practices and how to use drama activities in teaching different courses.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 017	HUMAN RESOURCES MANAGEMENT	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 019	FIRST AID	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 021	BUSINESS LAW	2	0	0	2.00	3.00	Seçmeli

Course Content

This lesson; the emergence of labor law, sources of labor law, types of employment contract, termination of employment contract, working hours, Permissions and wages, etc. covers topics.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 023	ENTERPRISE RESOURCE PLANNING	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 025	HUMAN RIGHTS	2	0	0	2.00	3.00	Seçmeli

Course Content

Historical Development of Human Rights, European Convention on Human Rights and International Fundamental Documents on the Protection of Human Rights, European Court of Human Rights and its Case Laws, Fundamental Rights and Freedoms, Generational Rights.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 027	ENTREPRENEURSHIP	2	0	0	2.00	3.00	Seçmeli

Course Content

Basic terms in entrepreneurship; Preparing a business plan; Basics of marketing research; Preparing a marketing plan; Production plan; Organization plan; Financial plans; Financial statement

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 031	HISTORY OF SCIENCE	2	0	0	2.00	3.00	Seçmeli

Course Content

Science. Science from the perspective of civilizations: Nile and Anatolian civilizations; Asian, Chinese, Indian, Roman, Greek and Islamic civilizations. European, American, Asian, Far East, Middle-Eastern civilizations. Turkish World History of Science and Technology; History of glass, textile and ceramic technology; history of iron-copper and casting technology.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 033	SOCIAL PSYCHOLOGY	2	0	0	2.00	3.00	Seçmeli

Course Content

Psychology science, fields of psychology, the place of social psychology in psychology, social psychology field and methods, human nature, socialization, social perception, attitudes and change, social impact, individual behavior in the group, interpersonal attraction and love.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 035	COMMUNICATION	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 037	FINANCIAL LITERACY	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 039	SIGN LANGUAGE	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 041	DISASTER AND CRISIS MANAGEMENT	2	0	0	2.00	3.00	Seçmeli

Course Content

The principles of disaster and crisis management, concepts, definitions and standards, elements of the emergency plans and emergency management, emergency situations, the communication, the importance of evacuation, examination of mitigation-preparation-intervention improvement phase, the next desk applications; The objective of crisis management, identification of the crisis, characteristics, stages, aspects of crisis management, history and time, disaster management and crisis management as well as providing information on legislative issues

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 043	CITY AND SOCIETY	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 045	ENVIRONMENTAL PROTECTION	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 047	BEHAVIORAL SCIENCES	2	0	0	2.00	3.00	Seçmeli

Course Content

Behavior, Behavioral Sciences, Development of Behavioral Sciences and Their Relationship with Other Social Sciences, Behavioral Plane and Social Institutions, Needs and Related Theories as the Main Source of Behaviors, Personality and Personality Traits, The Concept of Learning, Perception and Perception, Social Impact and Adaptation, Attitude Concept and Attitudes, Communication and Impressive Communication, Group Structure and Dynamics, Teaming, Group Team Decomposition, Effect of Culture and Behavior.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 049	HISTORY OF CLOTHING	2	0	0	2.00	3.00	Seçmeli

Course Content

Clothing in Prehistoric Societies; A.D. Clothing Culture in Various Regions of the World (Anatolia, Asia, Europe, Australia, Africa, America...) from the 5th Century to the 20th Century; the Latest Situation of Clothing Culture in the 21st Century.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 051	FINANCIAL INVESTMENT ANALYSIS	2	0	0	2.00	3.00	Seçmeli

Course Content

Financial markets, investment instruments, interest calculations, return and risk calculations, valuation, and portfolio transactions.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 053	SPECIAL EDUCATION	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 055	INTERNATIONAL POLITICS	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 057	HISTORY OF TURKISH DEMOCRACY	2	0	0	2.00	3.00	Seçmeli

Course Content

Democracy, Political Party and Parliament; Parliamentary System, Presidential System, Parliamentary Government System; Emergence of Parliament: England; Emergence of Parliament: France; Turkish Modernization and Democratization: From Nizam-ı Cedid to the First Constitutional Monarchy; I. Constitutional Monarchy and II. Abdulhamid Eras; II. Constitutional Era; War of Independence and Parliamentary Government System; Early Republican Era; From Transition to Multi-Party Life to the Constitution of 61; Political Developments from the Adoption of the Constitution of 61 to the 12 March Regime; Political Developments from 1971 to the 12 September Regime; Political Developments from 12 September Regime to the 28 February; Political Developments Since the 28 February.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 059	CREATIVITY MANAGEMENT AT THE WORKPLACE	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 061	HISTORY OF MATHEMATICS	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 063	ANALYZING THE ECONOMICAL INDICATORS	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 065	ENGLISH-TURKISH TRANSLATION	2	0	0	2.00	3.00	Seçmeli

Course Content

This course follows a process consisting of material sharing that facilitates students' basic vocabulary knowledge and foreign language reading and writing skills, as well as provides guidance for translating the target language to the native language. It also includes regular assignments to practice and apply what they have learned.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 067	NEUROMARKETING	2	0	0	2.00	3.00	Seçmeli

Course Content

The basic topics in this course are; determining the methods of neuroscience methods on marketing strategies, using neuroscience data in the process of consumer protection, neuromarketing strategies and ethical side of neuromarketing.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 069	COMMUNICATION WITH DISABLED INDIVIDUALS	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 071	ADDICTION AND FIGHT AGAINST ADDICTION	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 073	INFORMATION LITERACY	2	0	0	2.00	3.00	Seçmeli

Course Content

The importance of information literacy Information literacy: Concepts, definitions Legal and ethical issues in the scientific research process The scientific research process (wonder, research, select, binding, transfer and evaluation) Information access tools (library catalogs, databases, search engines) Information Search Strategies Principles of quotation, footnote and bibliography

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 007	OCCUPATIONAL HEALTH AND SAFETY	2	0	0	2.00	3.00	Seçmeli

Course Content

This lesson; historical development of occupational health and safety, occupational accident and occupational diseases and costs, the concept of occupational safety, the importance of occupational safety studies in terms of workforce efficiency, basic factors in occupational safety, sources of hazards, the concept of occupational health, psychosocial risk factors, ILO conventions, events that disrupt security Includes fire, earthquake and flood issues.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS-MTH-01	INTRODUCTION TO SYSTEM ENGINEERING	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS-MTH-03	DIGITAL TRANSFORMATION ECOSYSTEM	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 117	EVENT PARTICIPATION I	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE GS II	GENEL SEÇMELİ II	2	0	0	2.00	3.00	

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 002	MEDIA AND COMMUNICATION	2	0	0	2.00	3.00	Seçmeli

Course Content

The content of this course; It will provide a historical, economic, political and cultural general introduction to communication theories, current mass communication systems and different factors in their development. In addition to cultural industries such as internet, radio, television, cinema, newspaper, advertising and public relations, more comprehensive topics such as globalization will be examined.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 004	DICTION AND EFFECTIVE SPEAKING	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 006	BUSINESS ETHICS	2	0	0	2.00	3.00	Seçmeli

Course Content

The lesson contains these topics: Ethical and moral concepts - Ethical systems - Professional Concept and Professional Ethics - Ethical and Unethical Behaviors in Business Life - Professional Corruption and Ethics - Social Responsibilities of Business and Ethics etc.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 008	PROTOCOL AND SOCIAL BEHAVIOR RULES	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 010	PRODUCTION MANAGEMENT	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 012	VOLUNTEERING STUDIES	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 016	CREATIVE DRAMA AND IMPROVISATION	2	0	0	2.00	3.00	Seçmeli

Course Content

This course includes the sociological and psychological dimensions of drama, history of drama and its applications in education, drama in education, role play and improvisation, and the relationship of drama with creativity and communication concepts, drama practices and how to use drama activities in teaching different courses.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 018	HUMAN RESOURCE MANAGEMENT	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 020	FIRST AID	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 022	BUSINESS LAW	2	0	0	2.00	3.00	Seçmeli

Course Content

This lesson; the emergence of labor law, sources of labor law, types of employment contract, termination of employment contract, working hours, Permissions and wages, etc. covers topics.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 024	POLITICAL MANAGEMENT	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 026	SUSTAINABILITY	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 028	PROBLEM SOLVING AND DECISION MAKING	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 030	TECHNOLOGY ADDICTION	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 032	BUSINESS ADMINISTRATION	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 034	FACTORY ORGANIZATION	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 036	QUALITY MANAGEMENT SYSTEMS	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 038	TECHNOLOGY MANAGEMENT AND R&D	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 040	MARKETING	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 042	SERVICE MARKETING	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 044	E-COMMERCE	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 046	CURRENT ECONOMIC ISSUES	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 048	PUBLIC RELATIONS	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 050	SOCIOLOGY	2	0	0	2.00	3.00	Seçmeli

Course Content

Within the scope of the course, the definition of sociology, its basic concepts, its emergence as a science will be emphasized. Afterwards, some topics of sociological interest (such as modernization, globalization, social stratification, class, gender) will be discussed.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 052	GLOBALIZATION READINGS	2	0	0	2.00	3.00	Seçmeli

Course Content

The course covers the modern and its conceptual concepts, the general outlines of the modernization process and evolution from the past to the present, 20th-century modernization theories and their criticism, the post-modern period, the emergence conditions and historicity of globalization, the large-scale changes that occurred in the post-globalization period and their economic, political discusses and discusses the topics that will reveal the social and cultural consequences of these developments, and finally question the effects, results, and meanings of these developments in Turkey.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 054	PHOTOGRAPHY	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 056	PROJECT MANAGEMENT	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 058	INTRODUCTION TO BUSINESS SCIENCE	2	0	0	2.00	3.00	Seçmeli

Course Content

Basic concepts of business organizations, organizations' objectives and environment, establishment and classification of organizations, expansion of organizations, the concept of international business and business functions.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 060	HEALTHY AND ACTIVE AGEING	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 062	SALES TECHNIQUES	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 014	ACADEMIC TURKISH II	2	0	0	2.00	3.00	Seçmeli

Course Content

Definition of language, its characteristics, relations between language-nation / language-thought and language-culture. Language in the world; the place and importance of Turkish among them and its historical development. Ataturk's language revolution, concept and works. Sounds in Turkish. Phonology of Turkish. Spelling rules and application. Punctuation rules and application. Vocabulary. Productiveness of Turkish.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 064	DIGITAL TRANSFORMATION AND INDUSTRY 4.0	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 066	HISTORY OF CLOTHING	2	0	0	2.00	3.00	Seçmeli

Course Content

Clothing in Prehistoric Societies; A.D. Clothing Culture in Various Regions of the World (Anatolia, Asia, Europe, Australia, Africa, America...) from the 5th Century to the 20th Century; the Latest Situation of Clothing Culture in the 21st Century.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 068	ADDICTION AND FIGHT AGAINST ADDICTION	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 070	CHILD RIGHTS AND FAMILY EDUCATION	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 042	SERVICE MARKETING	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 044	E-COMMERCE	2	0	0	2.00	3.00	Seçmeli

Course Content

Historical Development Process of Electronic Commerce, Basic Concepts of Internet and Electronic Commerce, Management of Marketing over the Internet, Electronic Logistics; Electronic Commerce Applications

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 046	CURRENT ECONOMIC ISSUES	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 048	PUBLIC RELATIONS	2	0	0	2.00	3.00	Seçmeli

Course Content

Concept of Public Relations; Historical Development; Methods and Techniques Used; Principles and Organization; Strategic Management in Public Relations; Public Relations in the Information Society

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
GS 100	Activity Participation Course II	2	0	0	2.00	3.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE TS I	TEKNİK SEÇMELİ I	3	0	0	3.00	5.00	

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 417	ELECTRIC VEHICLES	3	0	0	3.00	5.00	Seçmeli

Course Content

Electric vehicle fundamentals and architectures, electrical machines and energy sources, hybrid-vehicle energy management, fuzzy logic and artificial neural network approaches, numerical simulation, charging stations, energy storage, distribution-grid integration, and electric vehicle business models.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 419	WIRELESS AND MOBILE COMMUNICATIONS	3	0	0	3.00	5.00	Seçmeli

Course Content

Introduction to wireless and mobile communication, fundamentals of data transmission, communication networks and protocols, wireless channel models, signal coding, OFDM, spread spectrum, wireless LAN (IEEE 802.11), Bluetooth and IEEE 802.15, cellular networks, 4G and 5G systems, mobile applications and Mobile IP.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 421	DIGITAL SIGNAL PROCESSING AND APPLICATIONS	3	0	0	3.00	5.00	Seçmeli

Course Content

Discrete-time signals and systems, discrete-time Fourier transform (DTFT), discrete Fourier transform (DFT), discrete-time processing of continuous-time signals, z-transform, frequency domain analysis of linear time-invariant systems, digital filter structures and design techniques (FIR and IIR). Computer applications.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 423	COMPUTER-AIDED CIRCUIT DESIGN	3	0	0	3.00	5.00	Seçmeli

Course Content

Using computer-aided circuit design program, electronic circuit diagram drawing, circuit analysis, manual printed circuit drawing, automatic printed circuit drawing, and printed circuit assembly.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 425	COMMUNICATION ELECTRONICS	3	0	0	3.00	5.00	Seçmeli

Course Content

Series and parallel resonant circuits, coupled circuits, impedance transformation, noise and noise figure, noise measurements, tuned amplifiers, phase-locked loop oscillators, superheterodyne receivers and receiver sensitivity, mixers.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 427	ANTENNAS AND PROPAGATION	3	0	0	3.00	5.00	Seçmeli

Course Content

Electromagnetic radiation and the wave equation, fundamental antenna parameters, power and radiation density, directivity, gain, polarization, impedance, effective aperture, antenna temperature and noise, Friis transmission equation, dipole and loop antennas, antenna arrays, broadband antennas, horn and microstrip antennas, antenna simulation and measurement principles.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 429	IMAGE PROCESSING	3	0	0	3.00	5.00	Seçmeli

Course Content

Digital image concepts, image acquisition, sampling and quantization, image processing with MATLAB, arithmetic and geometric operations, gray-level transformations, histogram processing, spatial and frequency domain filtering, morphological operations, color image processing, image analysis and image compression.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 431	PRODUCTION PLANNING AND CONTROL I	3	0	0	3.00	5.00	Seçmeli

Course Content

Concepts of production systems and production management, production line balancing, capacity planning, production programming, routing, loading, sequencing and scheduling, machine assignments, sales and demand forecasting, aggregate production planning and master production scheduling, network analysis for production planning and control (activity-on-node technique), project crashing and time–cost analysis.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 433	FACILITY DESIGN AND PLANNING	3	0	0	3.00	5.00	Seçmeli

Course Content

Facility-location and arrangement decisions, location and layout analysis methods, site-selection evaluation methods, basic facility-layout problems, fixed-cost location analysis, non-assignable placement zones, continuous facility-location problems, minimum-transport-cost models, and computer-aided facility-layout algorithms.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 489	MEDICAL ELECTRONICS	3	0	0	3.00	5.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE TS III	TECHNICAL ELECTIVE III	3	0	0	3.00	5.00	

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 455	ENGINEERING MECHANICS	3	0	0	3.00	5.00	Seçmeli

Course Content

Vectors and force systems, particle equilibrium, moments and couples, equivalent force systems, rigid body equilibrium, trusses, frames and machines, centroids, moments of inertia, friction, particle kinematics, Newton's second law, work and energy, impulse and momentum.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 457	ELECTRICAL POWER GENERATION AND RENEWABLE ENERGY	3	0	0	3.00	5.00	Seçmeli

Course Content

Principles of electrical power generation, thermal and hydroelectric plants, wind energy, photovoltaic and solar thermal systems, biomass, geothermal energy, generators, power electronics, energy storage, grid integration, resource assessment, economics, environmental impacts, and preliminary renewable-system design.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 459	ARTIFICIAL NEURAL NETWORKS	3	0	0	3.00	5.00	Seçmeli

Course Content

Artificial intelligence and its history, basic neural biology, basic elements of artificial neural networks, learning strategies and algorithms, artificial neural network models (Perceptron, ADALINE, MADALINE, MLP, LVQ, ART, Elman, Hopfield, Cognitron, SOM), composite and hybrid network designs, artificial neural network design, artificial neural network applications.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 461	MEDICAL IMAGING TECHNIQUES	3	0	0	3.00	5.00	Seçmeli

Course Content

X-ray production, interaction of X-rays with matter, exposure dose, X-ray propagation model, X-ray tubes and generators, scatter and image noise, scatter rejection, detectors and grids, image geometry, parameters of radiographic image formation, image intensifying screens, introduction to medical imaging devices and their use, Radon transform, inverse Radon transform, sinogram generation and image reconstruction algorithms.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 463	HIGH VOLTAGE TECHNIQUES	3	0	0	3.00	5.00	Seçmeli

Course Content

Electric-field stresses, breakdown in gases, liquids, and solids, corona and partial discharge, lightning and switching overvoltages, travelling waves, surge protection, insulation coordination, generation and measurement of high voltages, dielectric testing, and high-voltage safety.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 465	ELECTRONIC DEVICE TECHNIQUES	3	0	0	3.00	5.00	Seçmeli

Course Content

Semiconductor fundamentals, pn junction and Schottky diode characterization, BJT and MOSFET characterization, MOS capacitor C-V techniques, resistivity and Hall measurements, optoelectronic devices, noise, SPICE parameter extraction, high-frequency S-parameter measurements, fabrication techniques, reliability and power devices.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 467	WIRELESS COMMUNICATIONS	3	0	0	3.00	5.00	Seçmeli

Course Content

Introduction to wireless and mobile communication, fundamentals of data transmission, communication networks and protocols, wireless channel models, antennas and propagation, signal encoding techniques, OFDM, spread-spectrum communications, wireless LAN (IEEE 802.11), Bluetooth and IEEE 802.15, cellular networks, 4th and 5th generation cellular systems, mobile applications and Mobile IP.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 469	PRINCIPLES OF ENERGY CONVERSION	3	0	0	3.00	5.00	Seçmeli

Course Content

Energy-conversion principles, magnetic circuits, energy and co-energy, transformers, DC machines, induction machines, synchronous machines, power-electronic converters, electrical drives, renewable-energy conversion, efficiency, losses, thermal limits, sustainability, and integrated conversion-system design.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 471	DYNAMICS	3	0	0	3.00	5.00	Seçmeli

Course Content

Rectilinear and curvilinear motion of particles, relative and constrained motion, Newton's laws, work and energy, impulse and momentum, planar kinematics and kinetics of rigid bodies, and introduction to mechanical vibrations.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE TS II	TEKNİK SEÇMELİ II	3	2	0	4.00	5.00	

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 441	BIOMECHANICS	3	2	0	4.00	5.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 443	LIGHTING TECHNIQUES AND INTERIOR INSTALLATION PROJECT	3	2	0	4.00	5.00	Seçmeli

Course Content

Photometric quantities, light sources and luminaires, interior lighting criteria, lumen and point-by-point calculation methods, lighting simulation, energy efficiency, low-voltage interior installation principles, load and conductor calculations, voltage drop, protection, grounding, distribution panels, single-line diagrams, and preparation of an integrated lighting and interior installation project.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 437	MICROCONTROLLER PROGRAMMING	3	2	0	4.00	5.00	Seçmeli

Course Content

Differences between microprocessor systems and microcontroller systems, Microcontroller systems, Programmer cards, Translation program to machine language, Installation of the compiled program to microcontroller, Algorithms, Flow diagrams, Microcontroller memory map, Digital input-output applications with a microcontroller, Analog applications with a microcontroller, Display (Display, LCD) applications with a microcontroller, Keypad applications with a microcontroller, Motor control applications with a microcontroller, Communication applications (Serial, I2C, SPI) with a microcontroller, Timer applications with a microcontroller, Various sensors applications with microcontroller.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 445	ARTIFICIAL INTELLIGENCE AND OPTIMIZATION	3	2	0	4.00	5.00	Seçmeli

Course Content

Introduction to traditional and modern heuristic techniques such as algorithmic complexity and combinatorial problems, branch-and-bound, Lagrangian relaxation, local search, simulated annealing, evolution strategies, genetic algorithms, tabu search, neural networks, hybrid methods and the great deluge algorithm. The reasons for the existence, capabilities and applicability of heuristic techniques.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 447	ROBOTIC SYSTEMS	3	2	0	4.00	5.00	Seçmeli

Course Content

Introduction to robotics, rigid-body transformations, forward and inverse kinematics, the Jacobian, robot dynamics, sensors and actuators, joint control, trajectory planning, mobile robot kinematics, navigation and path planning, introduction to ROS.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 449	FPGA PROGRAMMING AND APPLICATIONS	3	2	0	4.00	5.00	Seçmeli

Course Content

FPGA technology and architecture, fundamentals of VHDL design, objects, data types and operators, combinational and sequential circuit design, subcircuits and subprograms, finite state machines, structural design, file and memory operations, test bench development, simulation, synthesis and verification on FPGA.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 451	PROTECTION IN POWER SYSTEMS	3	2	0	4.00	5.00	Seçmeli

Course Content

Protection principles and zones, instrument transformers, overcurrent and directional protection, relay coordination, distance and differential protection, transformer, generator, motor, busbar and transmission-line protection, communication-assisted schemes, digital relays, IEC 61850 concepts, and protection-system evaluation.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 453	DATA COMMUNICATIONS	3	2	0	4.00	5.00	Seçmeli

Course Content

Data compression and transmission, error detection and correction, communication network structures and layers, physical layer, data link layer, network layer and routing, circuit-switched and packet-switched networks, wide and local area networks, sensor networks, standards and protocols, examples of communication networks.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE TS IV	TECHNICAL ELECTIVE IV	3	2	0	4.00	5.00	

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 473	LINEAR CONTROL SYSTEMS	3	2	0	4.00	5.00	Seçmeli

Course Content

Open and closed loop systems, Laplace transform and transfer functions, block diagrams, state-space models, time response, steady-state error, Routh-Hurwitz stability, root locus, Bode and Nyquist analysis, gain and phase margins, PID and lead-lag compensator design.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 475	MECHATRONICS	3	2	0	4.00	5.00	Seçmeli

Course Content

Introduction to mechatronic systems, system modelling, sensors and signal conditioning, actuators and drive circuits, data acquisition, microcontrollers, dynamic systems, feedback control, PLCs, system integration, simulation, and mechatronic system design.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 477	MICROCONTROLLER PROGRAMMING	3	2	0	4.00	5.00	Seçmeli

Course Content

Differences between microprocessor systems and microcontroller systems, Microcontroller systems, Programmer cards, Translation program to machine language, Installation of the compiled program to microcontroller, Algorithms, Flow diagrams, Microcontroller memory map, Digital input-output applications with a microcontroller, Analog applications with a microcontroller, Display (Display, LCD) applications with a microcontroller, Keypad applications with a microcontroller, Motor control applications with a microcontroller, Communication applications (Serial, I2C, SPI) with a microcontroller, Timer applications with a microcontroller, Various sensors applications with microcontroller.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 479	DATABASE PROGRAMMING FOR INTERNET APPLICATIONS	3	2	0	4.00	5.00	Seçmeli

Course Content

Programming fundamentals review, Linux and C, data structures, TCP/IP and HTTP, HTML, CSS, PHP, MVC, SQL and relational database design, JavaScript and Ajax, security, transactions, concurrency control and distributed databases, and a term project building a web database application.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 481	AERODYNAMICS	3	2	0	4.00	5.00	Seçmeli

Course Content

Aerodynamic forces and moments, center of pressure, dimensional analysis and flow similarity, introduction to the boundary layer, control volume analysis (continuity and momentum), flow kinematics (streamlines, vorticity, strain, circulation, stream function, velocity potential), Bernoulli equation and airspeed measurement, elementary flows, flow over a cylinder, Kutta-Joukowski theorem, airfoil terminology and characteristics, classical thin airfoil theory and aerodynamic center.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 483	ELECTRIC MACHINES II	3	2	0	4.00	5.00	Seçmeli

Course Content

Synchronous generators and motors, equivalent circuits, regulation, power-angle characteristics, parallel operation, induction-machine performance and control, starting methods, special machines, efficiency, testing, selection, and sustainability considerations.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 485	SYSTEM DYNAMICS AND CONTROL	3	2	0	4.00	5.00	Seçmeli

Course Content

Modeling of physical systems, Laplace transform and transfer functions, state-space representation, time response, block diagrams, Routh-Hurwitz stability, root locus, Bode and Nyquist analysis, PID and compensator design, simulation with MATLAB/Simulink.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 487	OPTIMIZATION METHODS FOR ENGINEERING APPLICATIONS	3	2	0	4.00	5.00	Seçmeli

Course Content

Computational complexity and combinatorial problems, branch and bound, integer programming and relaxation, Lagrangian relaxation, local search, genetic algorithms, tabu search, simulated annealing, neural networks, hybrid methods and the Great Deluge algorithm, with their capabilities and applicability to engineering problems.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE TS V	TEKNİK SEÇMELİ V	3	0	0	3.00	5.00	

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 412	ELECTRICAL POWER SYSTEMS II	3	0	0	3.00	5.00	Seçmeli

Course Content

Power-flow analysis, symmetrical faults, symmetrical components, analysis of unsymmetrical faults, protection systems, power-system controls, and transient stability.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 414	HIGH VOLTAGE TECHNIQUES	3	0	0	3.00	5.00	Seçmeli

Course Content

Introduction to high-voltage engineering, conduction and breakdown in gaseous, liquid, and solid dielectrics, corona discharges, applications of insulating materials, generation and measurement of high voltages and currents, lightning and switching overvoltages, protection methods, insulation coordination, non-destructive testing, high-voltage testing of electrical apparatus, and the safe design and planning of high-voltage laboratories.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 416	RENEWABLE ENERGY SOURCES	3	0	0	3.00	5.00	Seçmeli

Course Content

Renewable energy fundamentals, fossil fuels and climate change, solar thermal and photovoltaic systems, wind energy, hydropower, biomass and bioenergy, microalgae, geothermal energy, wave energy, renewable hydrogen, fuel cells, and the technical, economic, environmental, and societal evaluation of these technologies.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 418	OPTICAL COMMUNICATION SYSTEMS	3	0	0	3.00	5.00	Seçmeli

Course Content

Historical Process of Electromagnetism. Historical Process of Optical Communication. The Place and Importance of Optical Communication in Communication Technologies. Optical Theory, Geometric Optics, Wave Optics, Fiber Optics. Basic Concepts Used in Optical Communication. Fiber Optics, Optical Waveguides (Optical Fibers). Factors Distorting Data in Optical Communication. Nonlinear Fiber Optics. Polarization, Linear Polarization, Elliptical Polarization. Optical Communication Systems. Production Techniques of Optical Fibers. Modulation Techniques in Optical Communication, Analog Modulation, Digital Modulation. Multiplexing Techniques in Optical Communication. Processing of the Optical Signal. Optical Circuit Elements. Performance of Optical Communication Systems. Determination of the Characteristic Properties of the Optical Signal. Design of Optical Communication Systems. Use of Optical Communication Together with Other Communication Technologies. Applications of Optical Communication in Other Disciplines and Interdisciplinary Studies. Optical Setup Applications with OptiWave, OptiSystem, OptiBpm and Matlab. Seminars on Optical Communication.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 420	MICROWAVE THEORY	3	0	0	3.00	5.00	Seçmeli

Course Content

Introduction to microwave engineering, the high-frequency phenomenon, Maxwell's equations and boundary conditions, rectangular and circular waveguides, coaxial lines, power, energy and attenuation, transmission line theory, the Smith chart, impedance matching, passive microwave components and basic radar principles.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 422	DIGITAL DESIGN	3	0	0	3.00	5.00	Seçmeli

Course Content

Equivalence and partial ordering relations, lattice structures, Boolean algebra, reduction and encoding in finite state machines, synchronous and asynchronous sequential circuit design, critical race-free state assignment, FPGA- and PLC-based implementation, and fault analysis in digital circuits.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 424	CIRCUIT SYNTHESIS	3	0	0	3.00	5.00	Seçmeli

Course Content

Introduction, Basic Circuit Blocks, Properties of circuit functions, Positive real functions and passivity, Properties and implementation of LC input-functions, Properties and implementation of RC/RL input-functions, Passive implementation of transfer functions, Filter approach, Active filters, Sensitivity.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 426	PROCESS CONTROL	3	0	0	3.00	5.00	Seçmeli

Course Content

Basic concepts in process control, fundamental principles of modeling chemical processes, modeling of systems frequently encountered in industry such as the blending tank, the stirred-tank heater, liquid storage systems and the isothermal continuous stirred-tank reactor (CSTR), dynamic behavior of processes, analysis and design of feedback and feedforward control methods, frequency response, control of blending, distillation and reactor systems.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 428	ELECTROCHEMISTRY	3	0	0	3.00	5.00	Seçmeli

Course Content

Fundamentals of electrochemistry, industrial applications of electrolysis, cathodic technical methods (electrolytic deposition of metals and alloys, electroforming, electrolytic refining), electrolytic reductions and oxidations, anodic technical methods, electrometallurgy (electrolysis of aqueous solutions and molten salts), electrolysis of alkali chlorides, coating with metals and organic substances, electrochemical generators (primary and secondary cells, fuel cells).

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 430	STATIC	3	0	0	3.00	5.00	Seçmeli

Course Content

Introduction and Fundamental Principles; Vectors and Forces; Force Systems; Equilibrium of Particles and Rigid Bodies; Center of Gravity; Internal Forces; Trusses; Cables; Moments of Inertia; Friction; Virtual Work

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 432	COMPUTER ARCHITECTURE	3	0	0	3.00	5.00	Seçmeli

Course Content

Computer Components, Computer Evolution and Performance, Central Processing Unit Design, Cache Memory, Cache Optimization, Virtual Memory, Instruction-Level Parallelism and Pipelining, Data-Level Parallelism, GPU Architectures, Thread-Level Parallelism, Multiprocessor Systems, Term Project and Presentation

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 434	DATABASE MANAGEMENT	3	0	0	3.00	5.00	Seçmeli

Course Content

ER/UML Model in Conceptual Design; Relational Model in Logical Design; Relational Algebra; Structured Query Language (SQL); Data Integrity Programming (Assertions, Triggers); Database Programming (Stored Procedures, Embedded SQL, JDBC); Normalization; Physical Design

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 436	PRODUCTION SYSTEMS	3	0	0	3.00	5.00	Seçmeli

Course Content

Introduction to production systems, modern manufacturing systems, transfer lines, NC, CNC, DNC and AC machine tools, machining centers, CAD-CAM, industrial robots, material handling and storage, flexible manufacturing systems, group technology and cellular manufacturing, and a seminar study on these topics.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 438	STATISTIC	3	0	0	3.00	5.00	Seçmeli

Course Content

Series, means, measures of dispersion, skewness and kurtosis, moments, probability, binomial, Poisson, normal and lognormal distributions, significance tests, goodness-of-fit and independence tests, regression and correlation

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 440	ADAPTIVE SIGNAL PROCESSING	3	0	0	3.00	5.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE TS VI	TEKNİK SEÇMELİ VI	3	2	0	4.00	5.00	

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 442	DSP PROGRAMMING AND APPLICATIONS	3	2	0	4.00	5.00	Seçmeli

Course Content

Introduction to Digital Signal Processors. DSP Development System. Input and Output with the DSP Starter Kit. Architecture and Instruction Set of C6x Processors. Finite Impulse Response Filters. Infinite Impulse Response Filters. Fast Fourier Transform. Adaptive Filters. Code Optimization. DSP/BIOS and RTDX Using Matlab, Visual C++, Visual Basic and LabVIEW. DSP Applications and Student Projects.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 448	EMBEDDED SYSTEMS	3	2	0	4.00	5.00	Seçmeli

Course Content

Introduction of embedded systems and system hardware, microprocessor selection, ARM microcontroller architecture, properties of elements, elements and circuits that make up embedded systems; Basic tools and software methods used in programming embedded systems, ARM microcontroller based embedded system application examples; GPIO, interrupts, timers, ADC, USART, DMA, loop resources and PLL, SPI, I2C communication.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 450	PROGRAMMABLE LOGIC CONTROLLERS	3	2	0	4.00	5.00	Seçmeli

Course Content

PLC memory structure, digital and analog inputs/outputs, programming with ladder logic and instruction list, bit logic instructions, timers, counters, variable comparison, mathematical functions, data transfer, subroutines and shift registers.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 454	INDUSTRIAL ELECTRONICS	3	2	0	4.00	5.00	Seçmeli

Course Content

Industrial circuit components, semiconductor switching devices, DC–DC and DC–AC converters, power electronic applications, motor speed control, induction heating, sensors, signal conditioning, and analog controllers.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 456	INTRODUCTION TO MEDICAL IMAGING	3	2	0	4.00	5.00	Seçmeli

Course Content

X-ray production and the interaction of X-rays with matter, radiation dose, the X-ray propagation model, X-ray tubes and generators, reduction of scatter and image contamination, detectors and grids, image geometry, radiographic imaging parameters, image intensifiers, Radon and inverse Radon transforms, sinogram generation, image reconstruction, and the operating principles of medical imaging devices.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 458	DIGITAL CONTROL SYSTEMS	3	2	0	4.00	5.00	Seçmeli

Course Content

Linear discrete systems and Z-transform theory. Digital filter design. Numerical methods. Control system design with transformation and state-space methods. Application of controllers with microprocessors. Sampled data systems. Quantization effects. Multivariate and optimal control. System identification.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 460	SENSORS, SIGNAL OPTIMIZATION AND DATA	3	2	0	4.00	5.00	Seçmeli

Course Content

Resistive sensors and signal conditioning, variable-reactance and electromagnetic sensors, self-generating (signal-producing) sensors, digital and smart sensors, signal conversion and transmission circuits, noise and interference, data acquisition cards, sampling rate and methods.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 462	SOFTWARE DEFINED RADIO PROGRAMMING AND APPLICATIONS	3	2	0	4.00	5.00	Seçmeli

Course Content

SDR architecture and components, RF front end and sampling theory, IQ signal modeling, analog and digital modulation and demodulation techniques (AM, FM, PSK, QAM, etc.), filtering, mixing and spectrum analysis, real-time signal processing and SDR applications with GNU Radio, Python (PySDR) and LabVIEW, cognitive radio and spectrum sensing.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 464	INFORMATION THEORY AND CODING	3	2	0	4.00	5.00	Seçmeli

Course Content

Linear codes, weights and distances, generator and parity-check matrices, dual codes, Hamming codes, Reed-Muller codes, Golay codes, bounds, finite fields, cyclic codes, BCH and Reed-Solomon codes, weight distributions.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 444	ELECTRONIC MEASUREMENTS AND INSTRUMENTATION	3	2	0	4.00	5.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 446	COMPUTER AIDED ELECTRICAL PROJECT DRAWING	3	2	0	4.00	5.00	Seçmeli

Course Content

CAD environment and drawing standards, symbols and layers, architectural base plans, lighting and socket layouts, load and demand calculations, panel and feeder schedules, single-line diagrams, cable and protection selection, grounding and lightning protection, low-current systems, quantity schedules, standards compliance, plotting, and integrated electrical project preparation.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 452	INTEGRATED CIRCUIT DESIGN	3	2	0	4.00	5.00	Seçmeli

Course Content

Fundamentals of VLSI design, design and testability, integrated circuit design techniques (hierarchical design, design representations, computer-aided design), fabrication and layout, design tools and design rules, digital and analog integrated circuit design techniques, Application-Specific Integrated Circuit (ASIC) design, on-chip floorplanning, architecture design, chip design, analysis and synthesis algorithms.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 410	BIOMEDICAL SIGNALS AND SYSTEMS	3	2	0	4.00	5.00	Seçmeli

Course Content

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE TS VII	TECHNICAL ELECTIVE VII	3	0	0	3.00	5.00	

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 466	CONTROL OF ROBOTS	3	0	0	3.00	5.00	Seçmeli

Course Content

Actuators and sensors used in robot control, trajectory planning (joint space, Cartesian space, dynamic model based), linear control of robots (feedback, second-order systems, trajectory tracking, disturbance rejection, single-joint modeling, industrial controller architectures), nonlinear control (basic concepts, feedback linearization, adaptive control, sliding mode control), interaction control (compliance control, impedance control).

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 470	INTRODUCTION TO CYBER SECURITY	3	0	0	3.00	5.00	Seçmeli

Course Content

A fundamental introduction to all aspects of cyber security, including communication security, network security, access control, cryptography, software development security, security management, business continuity, and legal, political and technical issues.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 472	SMART GRID	3	0	0	3.00	5.00	Seçmeli

Course Content

Smart Grid, Renewable Energy Sources & Distributed Generation, Smart pricing, Smart devices, Energy efficiency & Demand Forecasting, Energy Management, Smart Homes, Applications.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 476	FLIGHT STABILITY AND CONTROL	3	0	0	3.00	5.00	Seçmeli

Course Content

System modeling, fundamentals of control theory and flight control systems, state-space modeling, full-state feedback control and pole placement, LQR control, controllability and observability, reference frames and Earth axes, Euler angles, fundamentals of aerodynamics, forces and moments acting on the aircraft, static and dynamic aircraft stability, aircraft pitch motion model, analysis and control.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 478	GENERAL ECONOMICS	3	0	0	3.00	5.00	Seçmeli

Course Content

Basic economic concepts and principles, supply and demand, elasticity, firm costs, input markets, consumer choice theory, market efficiency, government intervention, public economics, industrial organization, GDP, inflation, unemployment, balance of payments, money and the monetary system, fiscal and monetary policy, economic growth, and an overview of the Turkish economy.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 480	PRODUCTION PLANNING AND CONTROL II	3	0	0	3.00	5.00	Seçmeli

Course Content

Production systems and production management concepts, assembly line balancing, capacity planning, production scheduling, routing, loading, sequencing, shop floor scheduling, sales and demand forecasting, aggregate production planning and master production scheduling, network analysis with the activity-on-node technique, project crashing and time-cost analysis.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 468	COMPUTER AIDED CIRCUIT DESIGN	3	0	0	3.00	5.00	Seçmeli

Course Content

Using computer-aided circuit design program, electronic circuit diagram drawing, circuit analysis, manual printed circuit drawing, automatic printed circuit drawing, and printed circuit assembly.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 474	COMPUTER NETWORKS	3	0	0	3.00	5.00	Seçmeli

Course Content

Layers 3 to 7 of the OSI reference model, routing algorithms, congestion control, IP, ICMP, DHCP, TCP and UDP transport protocols, TCP/IP application protocols (Telnet, SSH, DNS, FTP, HTTP, SMTP) and basic network security.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 482	IMAGE PROCESSING	3	0	0	3.00	5.00	Seçmeli

Course Content

Digital image representation, acquisition, sampling and quantization, arithmetic and geometric operations, gray-level transformations, histogram processing, spatial and frequency-domain filtering, morphological processing, color image processing, image analysis, and image compression.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE TS VIII	TECHNICAL ELECTIVE VIII	3	2	0	4.00	5.00	

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 484	INTRODUCTION TO NONLINEAR CONTROL	3	2	0	4.00	5.00	Seçmeli

Course Content

Nonlinear system phenomena, phase plane analysis, equilibrium points and limit cycles, Lyapunov stability theory, describing function analysis, feedback linearization, sliding mode control, backstepping, adaptive control, robust Lyapunov redesign, nonlinear observers and applications.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 494	INDUSTRIAL SYSTEMS AND CONTROL	3	2	0	4.00	5.00	Seçmeli

Course Content

Industrial automation architecture, sensors and actuators, process modeling, time response and stability, PID control and tuning, PLC programming, motor drives, SCADA/HMI, industrial communication, advanced process control, industrial safety and Industry 4.0.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 488	ADVANCED COMPUTER PROGRAMMING	3	2	0	4.00	5.00	Seçmeli

Course Content

Introduction to C# and development environment, variables, data types and arrays, namespaces and class libraries, form architecture and controls, decision structures, loops and exception handling, methods, object-oriented programming (inheritance, constructors and destructors, static members), operators and flow control, database operations, LINQ, threads and parallel programming.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 486	PROGRAMMABLE LOGIC CONTROLLERS	3	2	0	4.00	5.00	Seçmeli

Course Content

PLC architecture and memory, digital and analog input/output interfaces, ladder and instruction-list programming, bit-logic instructions, timers, counters, comparison and arithmetic functions, data transfer, subroutines, shift registers, simulation, and debugging.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 492	EMBEDDED SYSTEMS	3	2	0	4.00	5.00	Seçmeli

Course Content

Introduction to embedded systems and system hardware, microprocessor selection, ARM microcontroller architecture, characteristics of elements, components and circuits that make up embedded systems; basic tools and software methods used in programming embedded systems, examples of ARM microcontroller-based embedded system applications; GPIO, interrupts, timers, ADC, USART, DMA, loop sources and PLL, SPI, I2C communication.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 490	MATLAB APPLICATIONS FOR ENGINEERING	3	2	0	4.00	5.00	Seçmeli

Course Content

MATLAB environment, arrays and matrices, scripts and functions, control flow, plotting, file I/O, linear systems, interpolation and curve fitting, symbolic math, numerical integration and ODEs, signal processing, Simulink, circuit and control applications, GUI development, optimization.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 496	ELECTROMAGNETIC COMPATIBILITY	3	2	0	4.00	5.00	Seçmeli

Course Content

EMI/EMC fundamentals, conducted and radiated emissions, coupling mechanisms (common mode, differential mode, crosstalk), shielding theory and materials, grounding and filter design, PCB-level EMC design, ESD, EMC standards and measurement laboratory techniques.

Course Unit Code	Course Name	T	U	L	Credit	ECTS	Type
EE 498	POWER ELECTRONIC APPLICATIONS	3	2	0	4.00	5.00	Seçmeli

Course Content
Power semiconductor devices, rectifiers, DC–DC converters, isolated converters, single-phase and three-phase inverters, PWM, motor drives, renewable-energy interfaces, power-factor correction, thermal management, protection, simulation, and converter design.