Table of Contents

FIRST YEAR

I. SEMESTER

MATH113 Mathematics I
Functions and Their Graphs, CombiJring Functions; Shifting and Scaling Graphs, Trigonometric Functions. Rates of Change and Tangents to Curves, Limit of a Function and Limit Laws, The Precise Definition of a Limit, One-Sided Limits, Continuity, Limits Involving Infinity; Asymptotes of Graphs. Tangents and the Derivative at a Point, The Derivative as a Function, Differentiation Rules, The Derivative as a Rate of Change, Derivatives of Trigonometric Functions, The Chain Rule, Implicit Differentiation, Related Rates, Linearization and Differentials. Extreme Values of Functions, The Mean Value Theorem, Monotonic Functions and the First Derivative Test, Concavity and Curve Sketching, Applied Optimization, Antiderivatives. Area and Estimating with Finite Sums, Sigma Notation and Limits of Finite Sums, The Definite Integral, The Fundamental Theorem of Calculus, Indefinite Integrals and the Substitution Method, Substitution and Area Between Curves, Volumes Using Cross-Sections, Volumes Using Cylindrical Shells, Arc Length, Areas of Surfaces of Revolution. Inverse Functions and Their Derivatives, Natural Logarithms, Exponential Functions, Indeterminate Forms and L'Hopitai's Rule, Inverse Trigonometric Functions, Hyperbolic Functions.

CHM101 Chemistry
Properties of Matter, Fundamental Laws Of Chemistry, The Atomic Theory, Electron configuration, The concept of the mole, The Periodic Table, Chemical Compounds, Thermochemistry-enthalpy-entropy,internal energy , Solutions and their physical properties, Chemical Kinetics-Determination of the rate of reaction, Chemical equilibrium, Acids and Bases, Electrochemistry, Batteries and Electrolysis, Redox reactions.

PHYS113 Physics-I
Vectors. Kinematics. Newton's Law of Motion. Work and energy. Conservation of energy. Linear momentum and its conservation. Rotation of rigid bodies about a fixed axis. Rotational kinetic energy.

MCHT101 Introduction to Mechatronics Engineering
Introduction to Engineering at Okan University, Effective Learning, Engineering Method, Problem solving techniques, brainstorming, Technical Writing, Team Work, Presentation Techniques, Engineering Ethics.

BUS220 Entrepreneurship
Principals of entrepreneurship, Strategic management for entrepreneurship, creativity, human resources management and communication for entrepreneurs, Business Planning, Entrepreneurship in Turkey / Success stories.

Foreign Language Elective

II. SEMESTER

MATH114 Mathematics II

Integration by Parts, Trigonometric Integrals, Trigonometric Substitotions, Integration of Rational Functions by Partial Fractions, Improper Integrals. Sequences, Infinite Series, The Integral Test, Comparison Tests, The Ratio and Root Tests, Alternating Series, Absolute and Conditional Convergence, Power Series, Taylor and Maclaurin Series, Convergence of Taylor Series. Three-Dimensional Coordinate Systems, Vectors, The Dot Product, The Cross Product, Lines and Planes in Space, Cylinders and Quadric Surfaces. Functions of Several Variables, Limits and Continuity in Higher Dimensions, Partial Derivatives, The Chain Rule, Directional Derivatives and Gradient Vectors, Tangent Planes and Differentials, Extreme Values and Saddle Points, Lagrange Multipliers. Double and Iterated Integrals over Rectangles, Double Integrals over General Regions, Area by Double Integration, Double Integrals in Polar Form, Triple Integrals in Rectangular Coordinates, Triple Integrals in Cylindrical and Spherical Coordinates, Substitutions in Multiple Integrals.

PHYS114 Physics-II

Charge and matter. The electric field. Gauss' Law. Electrostatic potential. Capacitance. Current and resistance. Electromotive force and circuits. RC circuits. The magnetic field. Ampéré's law. Faraday's Law of Inductance.

EEE104 Logic Circuits Design

Number systems and coding. Partial ordered sets, lattice structures, Boolean algebra. Combinational logic circuit elements. Boolean functions: Canonical expressions and reduction of Boolean functions, Quine McCluskey and Karnough Methods. Some practical combinational circuits: adders, encoders, multiplexers, ROM and programmable logical arrays. Sequential logic circuits: state table and state diagram. Flip-flops. Analysis of logic sequential logic circuits. Design of synchronous sequential logic circuits. Integrated sequential circuit components: registers, memories, counters.

CLP001 Career and Life Planning

Professional and personal development, seminars, workshops, specialized certification programs, industry and business-field demonstrations, meetings with professionals, on-site training sessions, social-sporting events.

University Elective

Foreign Language Elective

SECOND YEAR

III. SEMESTER

MATH215 Mathematics III

Systems of linear equations; Solution sets of linear equations; Linear dependence and independence; Matrix Algebra; Inverse of a matrix and its characterization; Partitioned matrices; Determinants and their properties: Calculation of determinants; Column and row expansions; Minor and cofactors and inverse matrix; Cramer's rule; Vector spaces:Subspaces, null spaces and column spaces (Image); Basis and coordinate transformations; Linear transformations and their representations; Representation of coordinate transformation; Eigenvalues and eigenvectors :

Characteristic polynomial and Cayley-Hamilton Theorem; Diagonalization of linear transformations and matrices; Matrix polynomials; Diagonalizaton of symmetric matrices and projections; Generalized eigenvectors and eigenspaces; Inner product spaces : Orthonormal sets, Gram-Scmidt process; Singular value decomposition; Pseudo inverse; Least squares

EEE201 Circuit Analysis

Physical electrical circuits. Modeling and measurements of currents and voltages in physical circuits. Definitions of charge, flux, power and energy and modeling their waveforms. Kirchoff's Laws: current and voltage equations. Independent sets of current and voltage equations. Ideal 2-terminal and multi-terminal circuit elements: linear and nonlinear resistors, inductors and capacitors. Modeling of physical elements. Small signal analysis. Solution of resistive circuits: node voltage and mesh current methods. Network theorems. Solution of dynamic circuits: responses of first and second order dynamic circuits.

CMPE152 Computer Programming

Computer architecture, RAM structure and structural programming concept. C Programming Language: Fundamentals, data types, control statements, loops, string functions, array manipulations, procedures, functions, units and recursion. Sort and search algorithms. Basic file applications. Dynamic variables and elementary data structures (Pointer, Stack, Queue, Linked list).

ME201 Computer Aided Technical Drawing

Introduction to computer aided technical drawing. Geometrical constructions. Principles of orthographic projection; projection of principal views from three dimensional models. Drawing techniques for basic manufacturing processes and standard features. Projection of third principal view from two given principal views; free hand drawing techniques. Three dimensional drawing techniques; simple shapes, inclined surfaces, skew surfaces. Principles of dimensioning. Principles of sectioning; full and half sections. Further work on sectioning, conventional practices. Solid Drawing

ME231 Engineering Mechanics

Idealizations and principles of mechanics. Important vector quantities. Classification and equivalence of force systems. State of equilibrium. Elements of structures, trusses, beams, cables and chains. Friction. Statics of fluids. Variational methods, principles of virtual work and minimum potential energy. Concepts of stress and strain. Simple loading; tension, torsion and bending. Deflections with simple loadings, superposition techniques. Statically indeterminate members, thermal stresses. Combined stresses, Mohr's circle, combined loadings. Buckling. Energy methods.

Kinematics and kinetics of particles and system of particles. Plane kinematics and kinetics of rigid bodies. Newton's second law of motion. Methods of work energy and impulse-momentum. Mechanical vibrations.

EEE205 Numerical Methods in Electrical Engineering

Introduction to numerical analysis; floating point arithmetic, computational linear algebra, iterative solution to nonlinear equations, interpolation, numerical integration, numerical solution of ODEs, computer subroutine packages (including Matlab).

IV. SEMESTER

MATH216 Mathematics IV

Introduction and Classification of Differential Equations; First Order Differential Equations: Solution of Separable and Linear Differential Equations; Substitution Methods and Exact Differential Equations; Order reduction; Higher Order Differential. Equations:

Linear, homogeneous Equations with Constant Coefficients; Nonhomogeneous Equations and Method of Undetermined Coefficients; Method of Variation of Parameters; Laplace Transform:

Solution of initial value problems; Linear Systems of Differential Equations; Homogeneous Differential equations in R2; Solution via eigenvalues and eigenvectors; Homogeneous Differential equations in R3; Matrix exponential and Fundamental matrix solution; Solution of Nonhomogeneous Equations; Laplace transform methods; Power Series Method: Series Solution Near Ordinary Points; Regular Singular Points; Method of Frobenius

EEE212 Electronic Circuits-I

Basic semiconductor concepts, structure of the pn junction diode. Analysis of diode circuits. Applications. Zener diode. Operation of bipolar junction transistors (BJT). Biasing. Small signal models. Basic BJT amplifier circuits. Construction and characteristics of field effect transistors (FET). MOSFETs. Small signal analysis. Amplification.

EEE218 Signals and Systems

Basic concepts and properties of linear time-invariant systems, Convolution, Fourier analysis for continuous time and discrete time signals and systems, sampling, Laplace transform, z-transform, MATLAB implementation examples.

EEE208 Electromagnetic Theory

Basic axioms, electric charge, Coulomb's Law, electrostatic field in free space, electrostatic energy, surface charges and Dirac distribution, dipoles, electrostatic field in a material medium. Constitutive equations and boundary conditions, Lorentz Force and magneto static field in free space, Biot-Savart's Law, Ampere's low, magneto static field in a material medium, magnetic energy, magnetic dipoles and permanent magnets, Maxwell's equations and electromagnetic fields, Faraday's induction, self and mutual inductance, electromagnetic energy, potential functions, special theory of relativity.

MCHT234 Mechatronic Systems Design

Review of various mechatronic system designs and basic mechatronic systems. Application of led, switch, resistance, potensiometer, seven segment display. Sensor applications. LM35 temperature sensor measurement. DC motor control with a transistor and a bridge. Motion control with PID-feedback. Different communication protocols. Serial communication application. Different mechatronic system design projects by each team as a final project and their presentations that consist of at least a dc motor control, a sensor, a controller and coding.

THIRD YEAR

V. SEMESTER

EEE301 Electromechanical Energy Conversion

Introduction to machinery principles, The magnetic field, Faraday's law - induced voltage from a time-changing magnetic field, Production of induced force on a wire, Induced voltage on a conductor moving in a magnetic field, Transformers, Why transformers are important to modern life?, Types and construction of transformers, The ideal transformer, Theory of operation of real single-phase transformer, The equivalent circuit of a transformer, The per-unit system of measurements, Transformer voltage regulation and efficiency, Transformer taps and voltage regulation, The autotransformer, Three-phase transformers, Transformers ratings and related problems, Instrument Transformers, Introduction to three-phase induction motors, Basic induction motor concepts, The equivalent circuit of an induction motor, Power and torque in induction motor, Induction motor torque-speed characteristics, Variations in induction motor torque-speed characteristics, Determining circuit model parameters, Synchronous generator construction, The speed of rotation of a synchronous generator, The internal generated voltage of a synchronous generator, The equivalent circuit of a synchronous generator, The phasor diagram of a synchronous generator, Power and torque in synchronous generators, Measuring synchronous generator model parameters, The synchronous generator operating alone, Terminal characteristics of synchronous generators, Parallel operation of synchronous generators, Synchronous generator ratings, Introduction to synchronous motors, Synchronous motor vs. synchronous generator, Steady-state operation of motor, Starting synchronous motors, Relationships between synchronous generators and motors, The linear dc machine - a simple example, The simplest DC machine, Commutation in a simple 4-loop DC machine, Power flow and losses in DC machines, The power-flow diagram, Equivalent circuit of a DC motor, Magnetization curve of a DC machine, Motor types: Separately excited, shunt DC motors and the permanent-magnet DC motor, DC motor efficiency calculations.

EEE303 Control Systems

Elements of control systems; block-diagram representations; open-loop & closed-loop systems; principles and applications of feed-back. LTI systems : time domain and frequency domain analysis. Stability : Routh Hurwitz criterion, root-locus, Nyquist's criterion. Bode-plots, Design of lead-lag compensators; Proportional, PI, PID controllers. DC servo motor – Typical application of control system in industry.

EEE305 Electronic Circuits II

Multistage amplifiers. Frequency response of amplifiers. Bode plots. Differential pair stages. Operational amplifier circuits and applications. Feedback in amplifiers. Stability. Power amplifiers. Sinusoidal oscillators.

ME309 Dynamics

Dynamics of particles: Rectilinear and curvilinear motion. Newton's laws, momentum and angular momentum methods. Work and energy. System of particles. Dynamics of rigid bodies in plane motion; kinematics. Work and energy methods for rigid bodies.

EEE311 Digital Signal Processing

Time-domain analysis of discrete signals and systems, frequency-domain signal analysis: DTFT, z-transform, DFT, FFT, FIR and IIR digital filters, digital filter theory, design and implementation.

VI. SEMESTER

EEE312 Power Electronics & Motion Control Systems

Introduction: Power semiconductors , power electronic circuits, types and operating principles of rectifiers, inverters, DC/DC converters and AC/AC converters. Nonsinusoidal waveforms and supply and load site harmonics and their elimination. Single and three phase uncontrolled rectifiers, fully controlled rectifiers and inversion mode of operation. DC/DC Converters : Buck, Boost, Buck-Boost converters. Switched Mode Power Supplies: flyback, forward, pushpull, half bridge and full bridge DC/DC converters. Single and three phase inverters and their PWM control, space vector control, multilevel inverters. AC/AC Conversion voltage control and UPS.

Introduction, various motion control applications and drive types, dc machine drives, brushless dc Machine control, stepping motors, their supply and control, switched reluctance machines. AC machine drive systems: induction motor control systems, vector control synchronous motor control systems. Motion control examples and applications.

ME310 Theory of Machines

Introduction to mechanisms: basic concepts, mobility, basic types of mechanisms. Position, velocity and acceleration analysis of linkages. Cam mechanisms. Gear trains. Static and dynamic force analysis of mechanisms. Virtual work method. Driving torque characteristics and machine-prime mover interactions. Modeling and elements of vibratory systems. Free and forced vibrations of single degree-of-freedom systems. Introduction to multi degree-of-freedom systems. Vibration control. Critical speeds of shafts. Balancing of rotating machinery.

MCHT332 Introduction to Thermal Systems Engineering

Introduction to thermodynamics, ideal gasses, internal energy, enthalpy, energy transfer by work, heat and mass, the first and second laws of thermodynamics, refrigerators and heat pumps, Carnot cycle, entropy, reversibility. Transient and steady state one dimensional heat transfer, two dimensional steady state heat transfer, surface heat transfer, numerical methods, radiation heat transfer, heat exchangers, introduction to convection heat transfer. Hydrostatics, kinematics of flow, continuity equation, Euler's and Bernoulli's equations, viscous flow equations, head loss in ducts and piping systems, momentum theorems, dimensional analysis and similitude, potential flow, circulation and vorticity.

MCHT302 Mechatronics Components & Instruments

Basic applied concepts in mechatronics components and instruments. Sensors and transducers, machine vision, actuating devices. Information and cognitive systems, hardware components for mechatronics. Laboratory experiments on identification and classification of mechatronics components.

Departmental Elective / Faculty Elective

Departmental Elective / Faculty Elective

EEE304 Digital Design

This course starts transistor level design of basic logic gates and follows by designing digital circuits using hardware description languages (VHDL and Verilog). Emphasis will be on the basic concepts and elements of VHDL and Verilog. Students have the opportunity to use commercial synthesis and simulation tools to design a series of increasingly complex digital circuits. In Labs, students use a logic synthesis tool and implement their assignments into Field Programmable Gate Arrays.

EEE310 Microcontrollers

Computer Systems & Digital Systems Review, Overview of Microcontrollers & Microprocessors, Microcontroller Architecture, Assembly and C Programming of Microcontrollers, Timers & Interrupts, D/A and A/D interface, Memory Interface and I/O Interface.

FOURTH YEAR

VII. SEMESTER

ATA111 History of Turkish Revolution-I

This course covers the analysis of the causes and the consequences of the First World War; the searches for independence of the Turkish nation in Anatolia and salvation of the Turkish lands that were occupied after the Armistice of Montrose; the development and activities of Nationalist militias and the societies against them; the evaluation of the congress administrations that were formed after 19 May,1 919 in terms of their form and content; the structure of the Grand National Assembly and the process through which it gained legitimacy; the leadership of Turkish War of Independence; Treaty of Lausanne, and the Establishment of the Republic.

TRD111 Turkish-I

What is language? Importance of language and its place in a nation's life, language-culture relationship. Definition of grammar, function of grammar and departments of grammar. Phonetics: sounds and audio features of Turkish. Morphology; formal properties of Turkish (roots-adds). Words and word phrases. General information about composition, subject, perspective, ideas, main and ancillary ideas, paragraphs, intellectual order. Written expression, paragraph, the content and types (entrance, development and conclusion paragraphs). Expression forms, explanatory, descriptive, argumentative, narrative expression. Written expression; petition writing, quoting, footnotes and bibliography writing. Oral expression; speech and speech types (prepared speeches, panel, and discussion policies). Literary types; artistic (poetry, short stories, novels, theater and intellectual (articles, paragraphs, essays, criticism, interviews…). Reading and studying the works that about literature and idea world. Analyzing an editing text (story, novel, theater).

EEE405 Engineering Design

Design of integrated, multidisciplinary systems is introduced through a major course project. Project selection and definition of functions and performance objectives for the open-ended design problem will take place early on by teams of students, while learning practical subjects of engineering in lectures and workshops. This process will lead to the preparation of project proposals consisting of identification of design objectives and constraints, generation and evaluation of potential approaches, selection of the most promising design concept, identification of product subsystems, and assignment of responsibilities to team members. Following project approval, the design process will comprise preliminary design, followed by detailed design, prototype construction and testing, and preparation of a final design report. Progress is evaluated biweekly, culminating in a prototype demonstration and design review.

EEE407 Science, Society & Ethics

First to review the importance of logic and language in a society; then to discuss keywords, such as science and technology, research and development, scientific method, scientific process, scientific model, scientific prediction, etc.; public understanding of science, scientific progress; doing research in engineering, in medicine, epidemiology, statistical data evaluation, science - technology relations, case problems and public discussions, earthquakes and public discussion, pollution and public concern, definitions of morality and ethics, ethics in science, risk assessment and precautionary principle, etc.

Departmental Elective / Faculty Elective

Departmental Elective / Faculty Elective

Departmental Elective / Faculty Elective

EEE459 Very Large Scale Integrated Circuits (VLSI)

This course starts Integrated Circuit Fabrication, and follows by MOS transistor theory and digital design techniques with emphasis on CMOS Logic circuit design. Standard cell design methodology is also covered. Students have opportunity to implement techniques learnt at class in the lab using CAD tools.

EEE461 Analog Integrated Circuits

Students learn analysis and design of analog integrated circuits such as current mirrors, differential pair, voltage and current references, bandgap voltage references, operational amplifiers, switched-capacitor circuits in CMOS technology.

EEE453 Electric Drives

Introduction to electric drive systems: history, what is an electric motor drive, world market and scope, factors for growth, typical applications of electric drives, multi-disciplinary nature of electric drives, Basic principles of electro-mechanical energy conversion , Basic structure, Production of magnetic field, Basic principles of operation, Electromagnetic force, Induced EMF, Application of basic principles, Energy conversion, Regenerative braking, Power losses and energy efficiency, Machine ratings, DC-motor drives and electronically-commutated motor drives, The structure of DC machines, Operating principles of DC machines, Armature reaction, DC-machine equivalent circuit, Operating modes in DC-motor drives, Flux weakening in wound-field machines, Power-processing units in DC drive, Electronically-Commutated (Trapezoidal Waveform, Brush-less DC) Motor Drives, Designing feedback controllers for motor drives, Introduction & control objectives, Cascade control structure, Steps in designing the feedback controller, System representation for small-signal analysis, Controller design, Example of a controller design, The role of feed-forward, The effects of limits, Anti-windup (non-windup) integration, Introduction to AC Machines and Space Vectors, Sinusoidally-Distributed Stator Windings, The Use of Space Vectors to Represent Sinusoidal Field Distributions in the Air Gap, Space Vector Representation of Combined Terminal Currents and Voltages, Balanced Sinusoidal Steady-State Excitation, Induction machine equations in phase quantities: Assisted by space vectors, stator inductances, flux linkages, stator voltage equation in terms of space vector for pmsm, making the case for a dq- winding analysis of pmsm, dynamic analysis of permanent-magnet ac machines in terms of dq- windings, mathematical relationships between dq windings and phase winding variables (at an arbitrary speed), electromagnetic torque (induction m.), electrodynamics, sinusoidal permanent magnet ac (brushless dc) drives, the basic structure of permanent-magnet ac synchronous machines, principle of operation, the controller and the power-processing unit (ppu), vector control of induction-motor drives: qualitative examination, emulation of dc- and brushless-dc drive performance, vector control of permanent-magnet synchronous-motor drives, d-q analysis of permanent magnet (non-salient pole) synchronous machines, salient-pole synchronous machines.

ME451 Engineering Applications of Dynamics

Newton's Laws. Energy and Lagrange equation methods. Computer solution of equations of motion. Newton's laws in a body fixed plane. Mechanical systems under active control. Rigid body motion in three dimensions.

VIII. SEMESTER

MCHT412 Graduation Project

This is a compulsory project that each student should take a topic on mechatronics and conduct a research under a supervisor and then prepare a thesis about this topic. Application type of projects are encouraged.

ATA112 History of Turkish Revolution-II

Lausanne Peace Treaty resulting success that is being converted to a modern state via announcement of Republic, and being gained to this state a modern, convenient to development identity, and placing Ataturk's Thought System to the memories precisely by the following revolutions of this process, so that our young people are made conscious and durable against to the threats to their personalities and to their countries.

TRD112 Turkish-II

The place of Turkish language among the world languages, alphabets that Turks are used. The historical development of Turkish language, dialects of Turkish language. Turkish's syntax features, sentence analysis studies. Etymology, Semantics I (basic meanings, connotations) and Sense Events (meaning contraction, meaning expansion, meaning shift), Words' meaning relationship. Semantics II, metaphors, transfers (name transfer, phrase transfer) words, idioms, proverbs, slogans and terms. Expression (language) mistakes and applications. Oral expression, speech and speech types (panel, discussion principles). Written expression; business letters, minutes, report and news writing techniques. Ways to improve thinking in the paragraph, identification, sampling, comparison, utilization of numerical data, producing a witness. Literary types; artistic(poetry, short stories, novels, theater) and intellectual (articles, paragraphs, anecdotes, essays, criticism, travel, biography, memoirs, letter…) Reading and studying the selected sample texts from the literature and idea world. Reviewing a scientific text.

Departmental Elective / Faculty Elective

Departmental Elective / Faculty Elective

University Elective

Departmental Elective / Faculty Elective

EEE462 Analog-to-Digital and Digital-to-Analog Converters

Nyquist-rate resistor, capacitor and current source based Digital-to-Analog Converter topologies. Analog-to-Digital Converter topologies, Flash, Sub-ranging and two-step, folding and interpolation, time-interleaved, successive approximation, pipeline. Oversampling and Delta-Sigma converters.

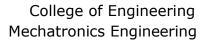### EEE452 Digital Filters and Systems

Students learn the essential advanced topics in digital signal processing. The course includes a review of the linear constant-coefficient system properties covered in the introductory DSP course, and then examines a variety of multirate filter structures, time-varying and adaptive systems, fast algorithms, and other relevant topics.

EEE466 Introduction to EMC Engineering

The purpose of this course is about fundamentals of electromagnetic compatibility. Engineering systems, Fundamentals of Electromagnetic compatibility (EMC), Electric and magnetic dipoles, Electromagnetic Interference (EMI), Bio-Electromagnetics (BEM), EMC in Industrial Engineering, EMC in Computer Engineering, EMC in Automotive Industry, EMC in Medical Industry, EMC in Defense Industry, Electromagnetic spectrum, EMC and Noise, EMC and Coupling, Power distribution systems and EMC, Power quality, EMC in Communication and Control Systems, EMC in Telemetry systems, Fiber Optic Cabling and EMC, EMC and Internet, Electronic Conspiracy and EMC, EMC Standards, EMC-EMI Tests and Measurements, Test and Measurement Environments, Open-space, Screened Rooms, Unechoic Chambers, Emission and Susceptibility measurements, EMC and Protection, Grounding, Filtering, Screening, Shielding Effectiveness, EMC and system Design, EMC and Computer Simulations, CE Mark, EMC and Authorized Institutions.

EEE468 Wireless Networks

This is an introductory course on wireless networks. Students will learn about the fundamentals of wireless channels, queueing theory, error control coding and ARQ, multiple access channels, cellular network planning, backhaul across wired networks, ad hoc networks, sensor networks, and current and future cellular networks.

Foreign Language Elective (Fall Semester)

ENG113 Academic Reading & Writing I

ENG213 Academic Listening & Speaking I

ENG215 English for Business Communication I

ENG313 Toefl IBT Course I

GER111 Basic German I

GER211 German Reading and Speaking I

GER311 Business German I

GER411 Analysis on German Texts I

RUS111 Basic Russian I

RUS211 Russian Reading and Speaking I

RUS311 Business Russian I

RUS411 Analysis on Russian Texts I

CHN111 Basic Chinese I

CHN211 Chinese Reading and Speaking I
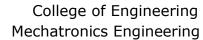
CHN311 Business Chinese I

CHN411 Analysis on Chinese Texts I

ARB111 Basic Arabic I

ARB211 Arabic Reading & Speaking I

ARB311 Business Arabic I

ARB411 Analysis on Arabic Texts I

Foreign Language Elective (Spring Semester)

ENG114 Academic Reading & Writing II

ENG214 Academic Listening & Speaking II

ENG216 English for Business Communication II

ENG314 Toefl IBT Course II

GER112 Basic German II

GER212 German Reading and Speaking II

GER312 Business German II

GER412 Analysis on German Texts II

RUS112 Basic Russian II

RUS212 Russian Reading and Speaking II

RUS312 Business Russian II

RUS412 Analysis on Russian Texts II

CHN112 Basic Chinese II

CHN212 Chinese Reading and Speaking II

CHN312 Business Chinese II

CHN412 Analysis on Chinese Texts II

ARB112 Basic Arabic II

ARB212 Arabic Reading & Speaking II

ARB312 Business Arabic II

ARB412 Analysis on Arabic Texts II