

DEPARTMENT OF PROFESSIONAL PILOT TRAINING
DEPARTMENTAL COURSES

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT210	Air Law - PPL (A)	(1,0,0)	1	2	Compulsory

The Convention on International Civil Aviation, International law: conventions, agreements and organisations, The Convention on international civil aviation (Chicago) Doc. 7300/6, Annex 8: Airworthiness of aircraft, Annex 7: Aircraft nationality and registration marks, Annex 1: Personnel licensing, Annex 2: Rules of the air, Procedures for air navigation: aircraft operations doc. 8168-ops/611, volume 1, Altimeter setting procedures (including IACO doc. 7030 – regional supplementary procedures), Secondary surveillance radar transponder operating procedures (including ICAO Doc. 7030 – regional supplementary procedures), Annex 11: Doc. 4444 air traffic management, Annex 15: Aeronautical information service, Annex 14, volume 1 and 2: Aerodromes, Annex 12: Search and rescue, Annex 17: Security, Annex 13: Aircraft accident investigation, National law.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT220	Aircraft General Knowledge - PPL(A)	(2,0,0)	2	3	Compulsory

Introduction to light single piston engine airplanes, airframes, loads, stress and strain, Landing gear, tyres and brakes, Piston engine principles, Diesel engines, Engine cooling and lubrication, Ignition systems, Carburation, Piston and Diesel engine fuel systems, Propellers, engine handling, vacuum systems, Electrical system, engine instruments, Pressure instruments, Emergency equipment, ice-protection and anti-ice systems, Airworthiness.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT230	Flight Performance and Planning - PPL(A)	(2,0,0)	1	2	Compulsory

Mass and CG limitations, Terminology, Mass limits and calculations, Fundamentals of CG calculations, Mass and balance details of aircraft, Contents of mass and balance documentation, Extraction of basic mass and balance data from aircraft documentation, Determination of CG position- methods, load and trim sheet, SE aeroplanes, Take-off, climb cruise, descent and landing performance. Flight planning for VFR flights, VFR navigation plan and fuel planning, Pre-flight calculation of fuel required and pre-flight preparation, AIP, NOTAM and Meteorological briefing, ICAO flight plan (ATS flight plan), Individual flight plan, Flight monitoring and in-flight re-planning

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT240	Human Performance and Limitations - PPL (A)	(1,0,0)	1	2	Compulsory

Introduction to human error. Respiratory and circulatory systems. The composition of the atmosphere. Gas laws. Effects of altitude (hypoxia, barotrauma, decompression sickness). Visual, auditory and vestibular proprioceptive systems. Spatial disorientation. Situational awareness. Health and hygiene. Sleep, stress, nervous system. Judgment and decision-making mechanisms. Personality, behavior and motivation. G forces. Visual and hearing impairments. Personal protective equipment.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT250	Meteorology – PPL(A)	(1,0,0)	1	2	Compulsory

The Atmosphere, Composition, extent and vertical division, Air Temperature, Atmospheric Pressure, Air Density, ICAO Standard Atmosphere, Altimetry. Wind, Definition of Measurement of wind, Primary cause of wind.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT260	Navigation - PPL (A)	(2,0,0)	3	4	Compulsory

The form of the Earth, Mapping, Directions and distance, Earth magnetism, Aeroplane magnetism and compass, Meridians, parallels of latitude, Circles on the Earth, Time, Types of chart projection, Chart information, Use of navigation computer, Wind triangle, Navigation Techniques, Flight planning, Ground D/F, Automatic Direction Finding, VOR, DME, RADAR.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT270	Operational Procedures - PPL (A)	(1,0,0)	1	2	Compulsory

Flight preparation and in-flight procedures, Performance and operational limitations, Communication and navigation equipments, Instruments and equipment, Aircraft lights, Maintenance, Flight crew, Search&Rescue, Distress&Urgency, Use of transponder, Aircraft accident investigation, Noise abatement general procedures, Noise preferential routes, Wind shear.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT280	Principles of Flight - PPL(A)	(2,0,0)	1	2	Compulsory

Definition, The Atmosphere, Basic Aerodynamic Theory, Subsonic Airflow, The 4 Forces on an Aircraft, Aerofoils, Lift, Drag, Stability, Lift Augmentation, Flight and Trimming Controls, Stalling and Spinning, Flight Limitations, Ground Limitations.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT290	Communications -PPL (A)	(1,0,0)	1	2	Compulsory

Definitions of VFR Communications, General operating procedures, General phraseology, Relevant weather information terms (VFR), Action required to be taken in case of communication failure, Aerodrome Control-Aircraft, Vehicles, Approach Control, General Radar phraseology, Distress and urgency procedures (VFR), Communications failure, VHF propagation, VFR Flight scenario, Definitions of basic IFR Communications.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory /Elective Course
PLT292	PPL Flights	(0,2,0)	0	3	Compulsory

Familiarization Flight, Airwork, Progress check 01, Pre-solo preparation, Progress check 02, Solo, Airwork and circuits, Second Solo, Progress check 03, FNPT II, Navigation, Progress check, Navigation and circuits,

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory /Elective Course
Progress check 05	150NM VFR Navigation, Mandatory Navigation flight (150 NM), Preparation before PPL skill test, Progress check 06, Skill Test.				

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT311	Air Law - ATP (A)	(4,0,0)	4	5	Compulsory
Air Law and ATC Procedures, International Law : Conventions, Agreements and Organisations, Airworthiness of Aircraft, Aircraft Nationality and Registration Marks, Personnel Licensing, Rules of the Air, Procedures for Air Navigation Services, Air Traffic Services, Air Traffic Management, Aeronautical Information Service, Aerodromes, Facilitation, Security, Search and Rescue, Aircraft Accident and Incident Investigation.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT321	Aircraft General Knowledge (Powerplant) - ATP(A)	(3,0,0)	3	5	Compulsory
Piston engines introductory information, carburetors, piston engine fuels, lubrication, cooling, power augmentation systems, propellers, diesel engines, gas turbine introductory information, air take, compressors, combustion chambers, turbine assembly, exhaust stage, reverse thrust, bleed air, gearboxes, ignition systems, gas turbine fuels and fuel systems, lubrication systems, auxiliary power units, engine instruments.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT323	Aircraft General Knowledge (Airframe) - ATP(A)	(2,0,0)	2	3	Compulsory
Structures: Fuselage, Wings, Stabilizing surfaces, Hydraulic Systems, Aircraft Landing Gear, Wheels, Tyres, Brakes, Flight Control Systems: mechanical/manual, assisted, Flight Controls, Powered Flying Controls, Aircraft Pneumatic Systems, Ice Protection, Rain Protection, Aircraft Oxygen Equipment, Smoke Detection Systems, Fire Detection and Protection, Aircraft Fuel Systems.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT325	Aircraft General Knowledge (Systems) - ATP(A)	(1,0,0)	1	2	Compulsory
DC Electrics: Basic Principles, Switches, Circuit Protection, Capacitance, Batteries, Magnetism, Generators, Alternators, DC Motors, Aircraft DC Electrical Power Systems, Bonding and Screening. AC Electrics: Introductory information, Practical Aircraft Systems, Transformers, AC Motors, Semiconductors, Logic Gates, Computers.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT351	Meteorology – ATP(A)	(6,0,0)	6	8	Compulsory
The Atmosphere, Air Temperature, Atmospheric Pressure, Air Density, ICAO Standard Atmosphere, Altimetry. Winds, Primary cause of wind, Local Winds, Mountain Waves. Thermodynamics, Humidity.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
	Clouds and Fog, Cloud formation and description, Fog, Mist, Haze. Precipitation, Formation of Precipitation, Types of Precipitation. Airmass and Fronts. Pressure Systems, Anti-Cyclones, Non-Frontal depressions. Climatology, Typical Weather in Mid-Latitudes. Flight Hazards, Icing, Turbulence, Windshear, Thunderstorm, Tornado, Inversion, Hazards in Mountainous Areas, Visibility Limiting Phenomena. Meteorological Information, Observation, Weather Charts, Information for Flight Planning.				

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT391	VFR Communications - ATP (A)	(2,0,0)	2	3	Compulsory
	Introduction to VHF Voice Communications, General operating procedures, General phraseology, Relevant weather information terms (VFR), Action required to be taken in case of communication failure, Aerodrome Control-Aircraft, Aerodrome Control-Vehicles, Approach Control, General Radar phraseology, Distress and urgency procedures (VFR), Communications failure, VHF propagation, VFR Flight scenario, Definitions of basic IFR Communications.				

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT322	Aircraft General Knowledge (Instruments) - ATP(A)	(2,0,0)	2	3	Compulsory

Sensors and Instruments, Pressure gauge, Temperature Sensing, Fuel Gauge, Fuel flowmeters, Tachometer, Thrust Measurement, Engine Torquemeter, Synchroscope, Engine-vibration Monitoring, Time measurement. Measurement of Air-Data Parameters, Pressure Measurement, Pitot/static system: design and errors, Temperature Measurement, Angle of Attack measurement, Altimeter, Vertical-Speed Indicator (VSI), Air Speed Indicator (ASI), Machmeter, Air Data Computer (ADC). Magnetism, Earth's Magnetic Field, Aircraft magnetic Field, Direct Reading magnetic compass, Flux Valve. Gyroscopic Instruments, Gyroscope: Basic Principles, Rate-of-turn indicator -Turn coordinator- Balance (slip) indicator, Attitude indicator (artificial horizon), Directional gyroscope, Remote-reading compass systems, Solid-state systems – AHRS. Inertial Navigation and Reference Systems (INS & IRS), Inertial Navigation System (INS) stabilized inertial platform), Inertial Reference System (IRS) (strapped-down), Aeroplane: Automatic Flight Control Systems, Autopilot System, Flight Director, Flight Mode Annunciator (FMA), Autoland. Trims, -Yaw Damper- Flight Envelope Protection, Autothrottle – Automatic Thrust Control System. Communication Systems, Voice communication, data link transmission, Future Air Navigation Systems (FANS), Flight Management System (FMS). Alerting Systems, Proximity Systems, Flight Warning Systems (FWS), Stall Warning Systems (SWS), Stall Protection, Overspeed Warning, Take-off warning, Altitude Alert System, Radio Altimeter, Ground Proximity Warning Systems (GPWS), Terrain-Avoidance Warning System (TAWS), other name: Enhanced GPWS (EGPWS). ACAS/TCAS principles of operations. Integrated Instruments -Electronic Displays. Mechanical integrated instruments: ADI/HIS, Electronic Flight Instrument Systems (EFIS), Primary Flight Display (PFD), Electronic Attitude Director Indicator (EADI), Navigation Display (ND), Electronic Horizontal Situation Indicator (EHSI), Engine parameter, crew warnings, aircraft systems, procedure and mission display systems, Cockpit Voice Recorders (CVR), Flight Data Recorders (FDR), Aeroplane Condition Monitoring System (ACMS). Digital Circuits and Computers

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT331	Mass and Balance - ATP(A)	(3,0,0)	3	4	Compulsory

Principles of mass and balance, Purpose of mass and balance considerations, Terminology, Mass and balance details of aircraft, Mass limits, Mass calculations: MTOM and Traffic Load, Loading of passengers, baggage and crew, Fuel mass, aircraft weighing, mean aerodynamic chord, Fundamentals of cg calculations, CG calculations: Load shifting, Load addition and Load subtraction, Cargo handling, Cargo Loading calculations, Determination of CG position I – Single-Engine Piston Aeroplane, Determination of CG position II – Light Twin-Engine Piston Aeroplane, Determination of CG position III – Medium-Range Twin Jet Aeroplane.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT332	Flight Performance – ATP(A)	(4,0,0)	4	5	Compulsory

General Principles: Take-off, Climb, Cruise, Descent and Landing. Single-Engine Class B Aircraft: Take-off, Climb, Enroute, Descent and Landing. Multi-Engine Class B Aircraft: Take-off, Climb, Enroute, Descent and Landing. Class A Aircraft: Take-off, Additional Take-off Procedures, Take-off Climb, Enroute, Descent and Landing.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT361	General Navigation - PPL (A)	(6,0,0)	6	7	Compulsory

Basics of Navigation – The Solar System, the Earth, Basics of Navigation – Time and time conversions, Basics of Navigation – Directions and distance, Earth Magnetism, Meridians, parallels of latitude, great circles and rhumb lines, Time, Types of chart projection, Mid-Term Week, Use of current aeronautical charts, Use of navigation computer, Wind triangle., Grid Navigation, Point of Equal Time, Point of No Return, Compasses, INS.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT381	Principles of Flight – ATP(A)	(3,0,0)	3	4	Compulsory

Overview and Definitions, The Atmosphere, Basic Aerodynamic Theory, Subsonic Airflow, Lift, Drag, Stalling, High Lift Devices, Airframe Contamination, Stability and Control, Controls Flight Mechanics, High Speed Flight, Limitations, Windshear, Propellers

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT392	IFR Communications – ATP (A)	(2,0,0)	2	3	Compulsory

Introduction to IFR Communications, General operating procedures, IFR Departures, Radar vectors to final approach, Surveillance radar approach, Precision Radar approach, VDF Procedure, NDB Procedure, VOR Procedure, Position and level information, Flights joining and leaving airways, Flights crossing airways, ACAS/TCAS.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory /Elective Course
PLT393	PIC Flights I	(0,2,0)	0	3	Compulsory

Level Assessment and Qualification Flight, Airworks, Navigation, Navigation flight (300 NM) with landings at two different aerodromes.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory /Elective Course
PLT394	PIC Flights II	(0,2,0)	0	3	Compulsory

Level Assessment and Qualification Flight, Airworks, Navigation, Navigation flight (300 NM) with landings at two different aerodromes.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT400	Bitirme Ödevi	(2,0,0)	2	9	Compulsory

Within the scope of Scientific Research: Identification and Delimitation of the Research Problem, Literature Review, Identification of Research Objectives, Identification of the Research Model, Collection of Research Data, Analysis and Interpretation of Research Data, Expression of Research Results and Implications. Within the scope of Software Project: Planning, Analysis, Design and Implementation. The scope of the Graduation Project is subject to change.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT433	Flight Planning and Monitoring – ATP(A)	(3,0,0)	3	5	Compulsory

Planning Documentation, Topographical chart, Fuel Policy and Fuel Monitoring, CAP697, Single Engine Piston Aeroplane, Multi-engine Piston Aeroplane, Medium Range Jet Transport Aeroplane, Flight Charts, Airways, Arrivals and Departures, Flight Plans, Traffic Load, In-flight re-planning, Point of Equal Time, Point of Safe Return

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT441	Human Performance and Limitations – ATP(A)	(5,0,0)	5	7	Compulsory

Definition and concepts of human factors. Flight physiology. Aviation psychology. Introduction to human error. Atmosphere. Respiratory and circulatory system. Nervous system. Vision and hearing. Visual and auditory illusions. Flight and health. Physical stress, sleep and body rhythm. Decision making and situational awareness. Judgment and factors affecting it. Cognition. Communication and cooperation. Information processing. Human error and behavior. Mental stress, cockpit design and automation.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT462	Radio Navigation – ATP(A)	(7,0,0)	9	13	Compulsory

Properties of Radio Waves, Radio Propagation Theory, Modulation, Antennae, Doppler Principle, VHF Direction Finder, Automatic Direction Finder, VHF Omni-Directional Range, Instrument Landing System, Microwave Landing System, Radar Principles, Ground Radar, Airborne Weather Radar, Secondary Surveillance Radar, Distance Measuring Equipment, Area Navigation Systems, Performance Based Navigation, Electronic Flight Information System, Global Navigation Satellite System

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT471	Operational Procedures - ATP (A)	(2,0,0)	2	4	Compulsory

General introduction to ICAO ANNEX 6, Wake Turbulence, Emergency and Precautionary Landings, Fuel Jettisoning, Crew responsibilities, Documentations, Long-Range Flights, MNPS Airspace, ETOPS, Special Operational Procedures and Hazards, Operations Manual, icing conditions, Bird Strike Risk and Avoidance, Noise Abatement, security (Unlawful Events), Fire/Smoke, Decompression of Pressurised Cabin, Wind Shear and Microburst.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT491	NR Flights	(0,2,0)	1	4	Compulsory

Night VFR (Dual), Night VFR (Dual or Solo or can be done as Progress Check), Night VFR (Solo Must be done as five Stop and Go).

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT492	IR Flights	(0,2,0)	1	5	Compulsory

Basic Instrument flying FNPT II, Progress check 01 FNPT II, Approaches FNPT II, Progress check 02 FNPT II, Basic Instrument flying FNPT II, Progress check 03 FNPT II, Failure handling FNPT II, Progress check 04 FNPT II, Navigation FNPT II, Progress check 05 FNPT II, Basic IFR, Progress check 06, Interception, holding, Progress check 07, Approaches, Navigation & Progress check 08.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT494	CPL Flights	(0,2,0)	1	7	Compulsory

CPL preparation / VFR Airwork, CPL preparation / VFR Navigation, VFR Airwork Practice, Progress Check.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PLT496	ME Flights	(0,2,0)	1	5	Compulsory

Basic Instrument flying (IFR) FNPT II, Failure handling, Failure handling (IFR), Progress Check, Navigation (IFR OR VFR), ME/IR Skill Test.

BASIC SCIENCES

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PHY101	Physics I	(3,2,0)	4	6	Compulsory

Measurement, vectors, kinematics, force, mass. Newton's laws, applications of Newton's laws. Work and kinetic energy. Conservation of linear momentum. Impulse, collisions, rotation, moments of inertia. Torque, angular momentum, conservation of angular momentum, static equilibrium.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PHY102	Physics II	(3,2,0)	4	6	Compulsory

Electrical charges. Coulomb's law. Electrical fields. Gauss's law. Electrical potential. Capacitance and dielectrics. Current and resistance. Direct current circuits. Magnetic fields. Sources of the magnetic field. Faraday's law of induction. Inductance and inductors.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
CHE105	General Chemistry	(3,2,0)	4	6	Compulsory

A basic course with emphasizing the metric system. Matter and measurement; atoms, molecules and ions; mass relations in chemistry, stoichiometry; gases; electronic structure and the periodic table; covalent bonding; thermochemistry; acids and bases. atoms. Chemical bonding.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MTH101	Calculus I	(4,0,0)	4	6	Compulsory

Functions, limits and continuity. Derivatives. Rules of differentiation. Higher order derivatives. Chain rule. Related rates. Rolle's and the mean value theorem. Critical Points. Asymptotes. Curve sketching. Integrals. Fundamental Theorem. Techniques of integration. Definite integrals. Application to geometry and science. Indeterminate forms. L'Hospital's Rule.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MTH102	Calculus II	(4,0,0)	4	6	Compulsory

Sequences and Infinite Series; The integral test, comparison test, geometric series, ratio test, alternating series. Power series, Taylor series. Parametric equations and Polar coordinates. Functions of several variables, limits, continuity, partial derivatives, chain rule, extreme of functions of several variables. Multiple integrals: Double integrals, Area, volume, double integral in polar coordinates, surface area, triple integrals, spherical and cylindrical coordinates.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MTH312	Probability and Statistical Methods	(3,0,0)	3	5	Compulsory

Definition of probability. Sample space and events. Permutations and combinations. Conditional probability and Bayes theorem. Random variables. Discrete and continuous distributions. Moment generating function.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
					Expectation, variance, covariance and correlation. Condition densities and regression and transformation of variables. Descriptive statistics.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
CMP101	Programming Application for Engineers	(2,2,0)	3	5	Compulsory

Algorithm development. Elements of C. Structure of a C program, data types, constants, input and output of integer numbers, real numbers. Variables, expressions and assignments. Input and output functions. Control Structures. Selection- If statement, multiple selection- switch statement. Iteration while, do-while, for operators. User-defined functions, arrays and subscripted variables, single and multi dimensional arrays. Array and functions. Pointers, pointers and strings. Structures, creating structures. Structure as function argument. Subprograms. Files. File operations. Application programs will be developed in a laboratory environment using the C language.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
CMP151	Introduction to Information Technology	(3,0,0)	3	4	Compulsory

Basic concepts of information technologies, software and hardware, operating systems in general, word processing programs, spreadsheet programs, data presentation, internet use in education, the effects of information technologies on social structure and its place in education, information systems security and related ethical concepts.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MTH112	Linear Algebra	(3,0,0)	3	5	Elective

System of linear equations: elementary row operations, echelon forms, Gaussian elimination method. Matrices: elementary matrices, invertible matrices. Determinants: adjoint and inverse matrices, Cramer's rule. Vector spaces: linear independents, basis, dimension. Linear mapping. Inner product spaces: Gram-Schmit orthogonalization. Eigenvalues and eigenvectors, Cayley-Hamilton theorem, diagonalization

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MTH201	Differential Equations	(4,0,0)	4	6	Elective

Ordinary and partial differential equations. Explicit solutions, Implicit Solution. First-order differential equations, separable, homogenous differential equations, exact differential equations. Ordinary linear differential equations. Bernoulli differential equations. Cauchy-differential equations. High-order ordinary differential equations. Introduction to Laplace transforms. Introduction to series method for solving differential equations

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MEC101	Technical Drawing I	(2,2,0)	3	5	Elective

Introduction to technical drawing. Drawing instruments and their use, lettering, lines, geometry of straight lines, scale drawing. Dimensions. Development of surfaces, shape description, selection of views, projecting the views. Pictorial drawing, diametric trimetric projection. Isometric projection, oblique projection. Perspective drawing cross section.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MEC203	Statics	(3,0,0)	3	5	Elective

Composition and resolution of forces, equilibrium of particles and rigid bodies, centroids and center of gravity. Analysis of trusses, frames and machines. Moments and products of inertia, method of virtual work. Friction

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MEC204	Dynamics	(3,0,0)	3	5	Elective

A study of motion particles and rigid bodies. Application of Newton's second law to planar motions of rigid bodies, energy and momentum principles. Free, forced and damped vibrations of particle. Central force motions. Inertia tensor. Euler's equation of motion.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MEC205	Material Science	(3,0,0)	3	5	Elective

Classification of engineering materials, sub-groups. Microstructure of Engineering Materials Applications feature does not. CWR cycle. Mechanical and physical properties of the presentation. Atomic structure and bonds. Nanostructures. Crystal structure and set up. Crystal defects and material effect on the properties. Diffusion in solids. Phase diagrams and applications. Fe-C phase diagram. Steels and cast irons.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MEC207	Thermodynamics I	(3,0,0)	3	5	Elective

Basic concepts and definitions of classical thermodynamics. Thermodynamic processes, work and heat interactions. First law for systems and for flow processes. Second law and entropy, irreversibility and availability.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MEC209	CAD and 3-D Printing	(3,0,0)	3	5	Elective

Introduction to digital fabrication, the Fab movement and open source concept. Introduction to CAD Modeling and open source software (Rhino, Grasshopper, AutoCAD, FreeCAD). Implementing 2D and 3D modelling techniques. Importing/ exporting/ DWG/ DXF/ DGN/ IFC Bitmap.3ds/ STL/ IGS/ GCODE. Creating suitable files for communication with all available machines. 3D Printing. CNC Milling. Laser Cutting. Robotic Arm Cutting/ Sculpting. Circuits with input and output devices. Basic Coding (eg "Arduino IDE", "Processing")

UZEM COURSES

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
AIT151	Principles of Atatürk and the History of Turkish Revolution I	(2,0,0)	0	2	Compulsory

The reasons that prepared the collapse of the Ottoman Empire and the Turkish Revolution. Disintegration of the Ottoman Empire, Tripoli War, Balkan Wars, First World War. Armistice of Mudros. The situation of the country in the face of the occupations and the reaction of Mustafa Kemal Pasha, the departure of Mustafa Kemal Pasha to Samsun. The opening of the Turkish Grand National Assembly of the National Struggle. Treaty of Sevres. The Lausanne Peace Treaty. Atatürk's Principles: Republicanism, Nationalism. Populism, Statism. Secularism, Revolutionism.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
AIT152	Principles of Atatürk and the History of Turkish Revolution II	(2,0,0)	0	2	Compulsory

Abolition of the Sultanate; Proclamation of the Republic; Taking the Election Decision in the First Parliament; Establishment of the People's Party; Ankara Becoming the Capital, Proclamation of the Republic and Reactions; Abolition of the Caliphate (The Emergence of the Problem of the Caliphate and the Events Preparing the Abolition of the Caliphate), Progressive Republican Party and Sheikh Said Rebellion; Law of Takrir-i Sükun; Closing the Progressive Republican Party; İzmir Assassination Attempt), Free Republican Party and Menemen Incident; An Overview of Atatürk-İnönü Separation, Revolutions and Their Goals; Revolutions in Law; 1924 Organization-ı Esasiye Law; Adoption of the Turkish Civil Code; Adoption of Other Basic Laws; Revolutions in Women's Rights, Education and Culture; The Law of Unification of Education; Adoption of the New Turkish Alphabet; New Understanding of History and Language; From Darülfünun to Istanbul University; Fine Arts, Developments in Economics; Late Ottoman Economy; Turkish Economy Congress and Its Results; Economic Activities in the First Years of the Republic; Transition to the Practice of Statism, Revolutions Made in Social Life (Modernization in Clothing: The Law on Wearing Hats; Closure of Lodges, Zaviyas and Tombs, Adoption of International Time, Calendar, Numbers, Measurements and Week Holidays; Adoption of the Law on Surnames; Developments), Turkey's Foreign Policy in Atatürk Era; Years 1919-1923; Years 1923-1930, Going to the Second World War and Turkish Foreign Policy 1931-1939, Principles of Atatürk; General Overview of Atatürk's Principles; Republicanism, Nationalism, Populism, Statism, Secularism, Revolutionism, İsmet İnönü Period (1938-1950); Domestic Policy During the Second World War; Establishment of the Democratic Party, Democratic Party Period (1950-1960); May 27 Military Intervention and National Unity Committee

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
AIT153	History I for International Students	(2,0,0)	0	2	Compulsory

Course Code	Course Name	(T,A,L)	Credit	ECT S	Compulsory/Elective Course
	Origins and rise of Ottoman Empire, Ottoman Administrative System, Ottoman Society, Law and Education, Revolts and Reform Attempts in Ottoman Empire, Reforms Through 19th Century, Military and Administrative Reforms, Reign of Abdülhamid II, Young Ottomans and Ottomanism, First Constitutional Era, Second Constitutional Era, Political Struggle for Power, The Ideological Debates: 1913-1918, Ottoman Empire and First World War I				

Course Code	Course Name	(T,A,L)	Credit	ECT S	Compulsory/Elective Course
AIT154	History II for International Students	(2,0,0)	2	2	Compulsory
	The Aarmistice of Moundros and Its Aftermath, The National Resistance Movement and Mustafa Kemal Pasha, The Great National Assembly and the Treaty of Sevres, Great Offensive, Treaty of Lausanne and Sheikh Sait Rebellion, Declaration Of The Turkish Republic, The Major Periods in the Political History of Turkey I, The Major Periods in the Political History of Turkey II, Women and Nationbuilding in the early Turkish Republic I, Women and Nationbuilding in the early Turkish Republic II				

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TUR151	Turkish I: Written Expression	(2,0,0)	0	3	Compulsory
	Reading passages related to the chapter; grammar studies; vocabulary and translation activities; listening activities; debates on current issues related to the department (Repetition of tenses, Internet history, Health and medicine, passive frameworks, Social issues, Environmental issues, Repetition of modals, Law and punishment, repetition of adjective phrases, Language and Literature, Repetition of noun phrases.				

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TUR152	Turkish II: Written Expression	(2,0,0)	0	2	Compulsory
	Spelling, punctuation and composition (punctuation marks, other signs), Spelling, spelling rules (capital letters, spelling of numbers, spelling of abbreviations, spelling of quoted words), Composition (purpose of composition, method of writing composition), plan in composition, introduction, development, result, Expression features, clarity in expression, simplicity in expression, clarity and sincerity in expression, Expression disorders (using synonyms in sentences), Misuse of idioms, Expression styles (explanation, story, concise expression, description, satire, portrait, proof, speech, Verbal expression types (daily and impromptu speech, prepared speech, panel discussion, debate, panel), Written expression types (letter, telegram, greeting, invitation, literary letter), business letters, official letter, petition, report, report, decision, advertisement, conversation, criticism, memoir, travel writing, interview, survey, autobiography, biography, novel, story, fairy tale, fable, theatre, tragedy,drama ,scenario) .				

Course Code	Course Name	(T,A,L)	Credit	ECT S	Compulsory/Elective Course
YIT151	Turkish for International Students I	(2,0,0)	0	2	Compulsory

The Turkish Alphabet and how Phonetics is in Turkish Alphabet, how nouns are made plural in Turkish, how to form yes-no questions, how to form sentences with “there is/there are, possessives in Turkish, how to use personal pronouns, numbers and asking questions related to numbers, how to use noun states in Turkish, where and how to use present continuous tense and simple present tense.

Course Code	Course Name	(T,A,L)	Credit	ECT S	Compulsory/Elective Course
YIT152	Turkish for International Students II	(2,0,0)	0	2	Compulsory

The Turkish Alphabet and how Phonetics is in Turkish Alphabet, how nouns are made plural in Turkish, how to form yes-no questions, how to form sentences with “there is/there are, possessives in Turkish, how to use personal pronouns, numbers and asking questions related to numbers, how to use noun states in Turkish, where and how to use present continuous tense and simple present tense.