1. Semester

Course Code:	AIT181	**Course Title:**	Atatürk's Principles and History of Revolutions I					**Semester:**	1
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	This course teaches the spirit and significance of Atatürk's Revolution which aimed at achieving contemporary civilization.								
Course Content:	Introduction, Fall of the Ottoman Empire, Tanzimat and Islahat Eras, Tripoli and Balkan Wars, World War I, The Armistice of Moudros, the Occupation of Anatolia and the National Reactions, The Birth of the Turkish Revolution, Turkish War of Independence, The Armistice of Mudanya, The Treaty of Lausanne								

Course Code:	TUR181	**Course Title:**	Turkish Language I					**Semester:**	1
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of this course is to inform students about the content, characteristics, and development of Turkish language and to provide them with writing and reading skills in Turkish and to raise the awareness of using Turkish as the national language.								
Course Content:	This course is designed to teach the definiton of language and culture, language-culture relation, the role of language as a social institution in societies, the situation of Turkish Language among world languages, the development and historical periods of Turkish language, the current condition of Turkish Language and span of usage, Turkish Phonology, inflectional and derivational morphemes in Turkish, types of lexicon in Turkish, and elements of the sentence.								

Course Code:	YDL181	**Course Title:**	Foreign Language I					**Semester:**	1
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of this course is to equip students with language knowledge and skills which are essential for general communication purposes and future academic studies, and also help students develop positive attitudes towards the target foreign language.								
Course Content:	The course is designed to teach basic grammatical structures of English languages such as to be, there is/are, have/has got, tenses, modals, passives, conditionals, noun clauses, reported speech, gerunds/infinitives.								

Course Code:	ATE101	**Course Title:**	Introduction to Automotive Engineering					**Semester:**	1
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	3
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Aims of this course are to; 1. Introduce the vehicle and engine systems. 2. Gain the calculation ability in themes related to automotive engineering.								
Course Content:	Introduction to automotive engineering. Engine systems. Power transmission systems. Steering and suspension systems, brakes, tires and car body types. Vehicle performance calculations: traction, speed and acceleration, clutch dynamics, brakes and fuel consumption. Vehicle production line and selection of materials. Alternative vehicles. Automotive industry and environmental sensitivity.								

Course Code:	BLM183	**Course Title:**	Information Technologies And Applications					**Semester:**	1
Lecture:	2	**Practice:**	2	**Lab:**	0	**Credit:**	3	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of this course is to prepare students for information age, to inform about hardware and software of computer, to create awareness in word processors, presentations, tables, internet and e-mail issues and to be able to use tools and applications related to this field effectively.								
Course Content:	Computer hardware, software and operating system, internet and internet browser, e-mail management, newsgroups and forums, web based learning, word processing, tables, presentation maker, personal web site development, e-commerce and making a identifier material.								

Course Code:	FIZ183	**Course Title:**	General Physics I					**Semester:**	1
Lecture:	4	**Practice:**	0	**Lab:**	0	**Credit:**	4	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To teach the concepts of statics, dynamics and kinematics given in the course content, their applications in daily life and modern technology.								
Course Content:	Units, Physical quantities and vectors, Linear motion, Motion in two and three dimensions, The Newton laws of motion, Applications of Newton's laws, Work and kinetic energy, Potential energy and conservation of energy, Linear momentum, Impuls and collisions, Rotation of a rigid body, Dynamics of rotational motion, Equilibrium and elasticity, Gravitation								

Course Code:	KIM183	**Course Title:**	General Chemistry					**Semester:**	1
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	3
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	This course teaches and examines the behavior of atoms and molecules and providing knowledge to students to forecast the behaviour of them in reactions.								
Course Content:	Knowledge of matter , structure of atom, sequence of electrons, periodic system, Chemical bonds and interactions, classification and atomicity, mole and equivalency concept, chemical laws, reactions, gases, solutions and concentration.								

Course Code:	MAT183	**Course Title:**	Mathematics I					**Semester:**	1
Lecture:	4	**Practice:**	0	**Lab:**	0	**Credit:**	4	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	This course aims at giving students the concept of sets, types of numbers, properties of one variable functions, meaning of limit, continuity and derivative over one variable functions. Explaning how the student use the derivative concept in engineering applications. Constructing the ability of solving maxima-minima problems. Giving the ability of solving engineering problems by using mathematics knowledge.								
Course Content:	This course covers, numbers, absolute value, inequalities, induction, coordinates. The concept of a function and function types. Some kinds of special functions and their domains. Limit and continuity of functions. Properties of continuous functions. The concept of the derivative. Rate of change, the mean value theorem and applications. Finding the maximum and minimum and their applications. Hyperbolic functions and derivatives, implicit and inverse functions and derivatives, parametric equations, their derivation and curve drawing. Polar coordinates								

Course Code:	OTM105	**Course Title:**	Computer Aided Technical Drawing I					**Semester:**	1
Lecture:	3	**Practice:**	1	**Lab:**	0	**Credit:**	4	**ECTS:**	6
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aims of this course are to teach the basic principles and equipments about technical drawing, to gain the capability to draw and read manufacturing drawing of a part and to perform the technical drawing in CAD software platform.								
Course Content:	Definitions and terms of technical drawing, technical drawing equipments, preperation of technical drawing sheets, standard fonts and heights of fonts, line types, properties and usage places of line types, drawing rules, geometrical drawings. Scales, scales of enlargement and reduction, methods and planes of projection, views; auxiliary, special, rotated and local views. Perspective views. Terms and rules of dimensioning, sections and applications of sections, surface treatment symbols, surface quality, indication of surface conditions. Definition of CAD system, operating CAD software, sample applications. Line drawing on computer media, arraying, conditional drawing, trimming, drawing circle and arc, adjusting view settings. Drawing ellipse, polygon, polyline,spline, rectangular. Moving, rearranging and scaling of drawings. Dimensioning, obtaining section view, hatching, texting, filleting, chamfering, extending, stretching, making block, replacing block, forming table and letterhead. Calculating distance and area.								

2. Semester

Course Code:	AIT182	**Course Title:**	Atatürk's Principles and History of Revolutions II					**Semester:**	2
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	This course provides the Turkish youth with consciousness about Ataturk's Principles and Revolutions and educates them in accordance with Kemalism.								
Course Content:	Political Reforms, Legal Reforms, Educational and Cultural Reforms, Economic Reforms, Social Reforms, Atatürk's Principles, Atatürk's Foreign Policy, Turkey in the World War II, The concept of Jeopolitics and Jeopolitics of Turkey.								

Course Code:	TUR182	**Course Title:**	Turkish Language II					**Semester:**	2
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	This course aims at comprehending elements of sentences and their functions to form sentences; introducing and applying types of written and spoken expressions, differentiating and correcting the mistakes in language exercises; getting acquainted with the rules regarding the preperation of research articles; and developing students' writing and speaking skills via texts chosen from Turkish and World literature, and history of thought.								
Course Content:	This course is designed to teach the definition of sentence and elements of sentence; sentence analysis and examples of sentence analysis; types of sentences; composition skills; planning of written composition; types of written and oral expression and examples; means of expression and brainstorming in forming paragraphs; ambiguities in sentences; and the rules applied in the conduction of reseach articles.								

Course Code:	YDL182	**Course Title:**	Foreign Language II					**Semester:**	2
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of this course is to improve the students' fluency and comprehension skills in the target language, to teach the students to use the grammar points correctly, to understand the passage they read and to make sentences using tenses and the other grammar items.								
Course Content:	This course is designed to teach adjectives and adverbs, relative clauses, adverbial clauses, pronouns, nouns, quantifiers, articles, causatives, tag questions, prepositions.								

Course Code:	BLM182	**Course Title:**	Computer Programming					**Semester:**	2
Lecture:	2	**Practice:**	2	**Lab:**	0	**Credit:**	3	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	This course teaches the fundamental concepts of programming, algorithm for the solution of a problem and writing programme for it.								
Course Content:	Introduction to programming languages, Algorithm design and flow chart, Data types and variables, operators (arithmetic, relational and logical), control structure (if, while, for), User defined function, arrays and strings, pointers, recursion, searching algorithms, sorting algorithms, file operations.								

Course Code:	FIZ186	**Course Title:**	General Physics II					**Semester:**	2
Lecture:	4	**Practice:**	0	**Lab:**	0	**Credit:**	4	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The application of the electrical and magnetic interaction to static and mobile charges and the related fundamental laws and principles.								
Course Content:	Electric charge and electric fields, Gauss's law, Electric potential, Capacitance and dielectrics, Current, resistance and electromotive force, Direct-current circuits, Magnetic fields and magnetic forces, Source of the magnetic field, Electromagnetic induction and Faraday's law, Inductance, Alternating current, Electromagnetic waves.								

Course Code:	MAT186	**Course Title:**	Mathematics II					**Semester:**	2
Lecture:	4	**Practice:**	0	**Lab:**	0	**Credit:**	4	**ECTS:**	4
Course Level:	ASc - Associate of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To make students competent in mathematical field in their work life. To be able to use mathematical concept in practice, to use mathematics for developping solutions.								
Course Content:	Functions, trigomometry, linear equation systems and matrices, limit and continuity, derivation, integral, differential equations, statistics.								

Course Code:	MAT192	**Course Title:**	Lineer Algebra					**Semester:**	2
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	3
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of this course is to introduce the concepts of matrices, determinant, vector spaces and inner products.								
Course Content:	Matrix Algebra, Elementary Row Operations on Matrices and Solution of Linear Equations, Special Types of Matrices, Elementary Matrices, Equivalent Matrices, nxn Determinants, properties of Determinants, Vector Spaces, Subspaces, Linear Independence, Basis and Dimension. Linear Transformation and matrix of a Linear Transformation, Eigenvalues and Eigenvectors, Diagonalization Inner Product Spaces.								

Course Code:	MCE102	**Course Title:**	Statics					**Semester:**	2
Lecture:	4	**Practice:**	0	**Lab:**	0	**Credit:**	4	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The purpose of this course is to introduce a clear understanding of the principles of rigid body mechanics and the assumptions and idealizations and then to give students the knowledge about equilibrium and internal force concepts, related applications.								
Course Content:	Statics of particles: forces in plane, forces in space, equilibrium. Moment of a force, moment of a couple. Equivalent systems of forces on rigid bodies. Equilibrium in two dimensions. Equilibrium in three dimensions. Distributed forces: centroids and center of gravity. Analysis of structures: trusses, frames and machines. Internal forces in beams and cables. Friction. Moments of inertia of areas, moments of inertia of masses. Method of virtual work.								

Course Code:	OTM106	**Course Title:**	Computer Aided Technical Drawing II					**Semester:**	2
Lecture:	3	**Practice:**	1	**Lab:**	0	**Credit:**	4	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aims of this course are to gain in students the capability to create technical drawing and 3D designing the single or multi machinery systems on PC media, to make animation of 3D assembly models.								
Course Content:	Intruduction to assembly drawing, the basic principles of design in assembly modelling. Drawing the manufacturing drawing of machine part and assembly: assembly letterhead, surface texture symbols, dimensioning and geometric tolerances,create to 2D manufacturing drawing from 3D model. Drawing principles of standard machine elements. Section views on assembly modelling and applications. 3D solid modeling methods with a current 3D design software. User interface, tool bars, file save and copy, file delete, opening of multiple file and windows. View control. Solid feature modeling: Primitive features. Secondary features. Feature modify, feature processes. Parametric modelling. Create to work planes. Surface modeling, interactive surface modeling. Assembly, Assembly-Part processes. 3D Part and assembly modelling. Assembly animation, views,section views processes, dimensioning, surface texture symbols, size and geometric tolerances. Printing processes on technical drawing papers. Industrial design applications.								

3. Semester

Course Code:	EEM261	**Course Title:**	Electrical-Electronics					**Semester:**	3
Lecture:	2	**Practice:**	1	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The objective of this course is to introduce the basic electrical definitions and electrical measurment instruments, basic electrical laws and circuit analysis, circuit components and to gain the practicing abilities of the circuits.								
Course Content:	Fundamentals of electricity. Electrical and electronic components. Measuring instruments. Direct current circuits. Circuit analysis. Electronic circuit applications.								

Course Code:	MAT283	**Course Title:**	Differantial Equations					**Semester:**	3
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The main aims of this course are provide the student general knowledge about the usage of natural languace of mathematics for modeling, formulating and solving of engineering problems.								
Course Content:	Classification of differential equations, obtaining of differential equations, first order differential equations, higher order linear differantial equations, Laplace transform.								

Course Code:	MCE215	**Course Title:**	Dynamics					**Semester:**	3
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The objectives of the lecture are to predict the effects of force and motion. In lectures, different applications of engineering systems are solved in order that students understand subjects and apply his knowledge rapidly.								
Course Content:	Kinematics of particles; velocity and acceleration in rectangular, cylindrical, spherical and normal and tangential coordinates. Rectilinear motion. Relative motion. Kinetics of particles; Newton's law of motion. Equation of motion. Work. Impulse. Momentum. Principle of work and energy, principle of impulse and momentum. Angular momentum, angular impulse and momentum principle. Kinetics of systems of particles. Planar kinematics of rigid bodies, instantaneous center of rotation. Planar kinetics of rigid bodies. Three dimensional kinematics of rigid bodies. Three dimensional kinetics of rigid bodies.								

Course Code:	MCE223	**Course Title:**	Strength of Materials					**Semester:**	3
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The purposes of this course are to introduce the basic principles of stress analysis and application of strenght theory by connecting the internal force and moment with the stresses on basic elements under simple loading conditions.								
Course Content:	Support types of structures and reaction forces, internal forces and section method. Introduction to Strength of Materials. Stress: Normal, shear and bearing stresses. Strain: Hooke's law and modulus of elasticity. Deflections of axially loaded bars, strain measurement and strain gages. Stress transformations: Mohr circle, failure theories. Stresses in thin-walled pressure vessels. Moments of areas: First moment of an area, second moment of an area (Moment of inertia). Torsion. Pure bending. Beams under transverse loading: Internal shear force, normal force and bending moment in beams. Shear force and bending moment diagrams. Stresses in beams, deflections of beams and elastic curve: Double integration method, superposition method, moment area method. Statically indeterminate beams.								

Course Code:	MKM221	**Course Title:**	Thermodynamics I					**Semester:**	3
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	1. To teach basic principles of clasical thermodynamics. 2. To give basic concepts of thermal system design based on first law. 3. To introduce basic principles of energy conversion.								
Course Content:	Basic concepts and definitions: System, boundary, surrounding, property, equilibrium, state and process, cycle. Properties of a pure substance. Equations of state, the state for ideal gas, specific heat. Energy (by heat and work) interactions between system and surrounding. Closed and open systems. First law of thermodynamics. Internal energy and enthalpy. Second law of thermodynamics, reversibility and irreversibility, Carnot cycle.								

Course Code:	MMM261	**Course Title:**	Materials Science					**Semester:**	3
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	1. Teach the general purpose of the Materials Science. 2. Teach atomic structure of materials. 3. Explain the general physical properties of materials. 4. Establish the relationship between the product's features with the atomic structure of materials. 5. Classify advanced technological materials, to teach their usage fields. 6. Demonstrate the required important points for their usage areas and manufacturing, quality and the structure of the functional materials in engineering field are aimed.								
Course Content:	Classification of materials, metals, semiconductors, plastics, ceramics, composites, metals and alloys, Crystal structure and defects, Types of chemical bonding, energy levels and band structures, Solid solutions, atomic diffusion, Phase transformations and phase diagrams, Ferro alloys, iron and steel production, Non-ferrous alloys, Polymers, Ceramics, Semiconductors, Composites, Mechanical properties of materials, Thermal and electrical properties of materials, Material characterization methods, the selection of high quality materials.								

Course Code:	OTM201	**Course Title:**	Engine Technology					**Semester:**	3
Lecture:	3	**Practice:**	1	**Lab:**	0	**Credit:**	4	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Aims of this course are to; 1. Introduce the engine types and their operating systems. 2. Give engine disassemble and assemble skills.								
Course Content:	The history of the engines. Classification. Cycles. Combustion, efficiency, power. Engine parts. The starter system. The ignition system. Fuel systems. Lubrication systems. Cooling systems. Engine failures. Engine revision. Revision preparation of reports.								

Course Code:	YDL281	**Course Title:**	Technical Foreign Language 1					**Semester:**	3
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	This course teaches engineering terminology in English and develops text comprehension, writing, reading and listening skills								
Course Content:	The Concept and Basic definitions of science, technology, engineering, engineer. History of engineering. The methodology of engineering work The concept and steps of scientific method. The concept and steps of engineering design process. Problem solving techniques in engineering. Seven steps to problem solving in engineering. Fields of engineering: Aerospace Engineering,Biological Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Engineering Science, Financial Engineering,Industrial Engineering, Meterial Engineering, Mechanical Engineering,Military Engineering, Nuclear Engineering, Ocean Engineering,Petroleum Engineering, Reverse Engineering, Geoengineering,Textile Engineering, Safety Engineering								

4. Semester

Course Code:	ATE204	**Course Title:**	Computer Aided Design					**Semester:**	4
Lecture:	2	**Practice:**	1	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Aims of this course are to; 1.Teach the computer aided drawing principles, 2.Give the surface and solid modelling ability.								
Course Content:	3D solid modeling design software with a current 3D methods. The Software user interface, toolbars. File storage and backup creating, deleting files, opening multiple files and window shifting. Appearance Mode. Mouse Gestures for Object Orientation Process. Solid Modeling Elements: Basic elements, Secondary elements. Correction factors, element operations. Surface modeling, interactive surface design. Assembly, assembly-track operations. Technical drawing, measurement classification, surface roughness, size and geometric tolerance signs, creation of manufacturing drawing file. Industrial applications.								

Course Code:	CAL282	**Course Title:**	Numerical Analysis					**Semester:**	4
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The goal of numerical analysis is to find acceptable solutions when certain solutions are either impossible or very difficult and time consuming, and when designing alternative solutions that are more appropriate for the capabilities of computers.								
Course Content:	Error analysis elements, real roots of an equation, closed methods, open methods, finite difference and least squares polynomial approximation methods, interpolation, numerical solution of ordinary differential equations and numerical solutions of linear equation systems. Numerical differentiation and integral, Expression of numbers by computer programming. Curve fitting.								

Course Code:	ENM260	**Course Title:**	Engineering Statistics					**Semester:**	4
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	3
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To introduce the importance and place of statistics in engineering applications. To teach the techniques used for summation, summarization and statistical inference of statistical data (point and interval estimation, hypothesis tests).								
Course Content:	Data analysis methods, the teories and techniques of numerical data examining, economic indices, interpretation of the economic parameters, information of the possibility distributions and use of this informations in economics and business.								

Course Code:	MKM218	**Course Title:**	Termodynamics II					**Semester:**	4
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	1- To teach basic terms related second law such as energy quality, entropy and exergy. 2- To give second law analysis. 3- To introduce application of thermodynamic laws to power and refrigeration cycles. Basic principles of energy conversion.								
Course Content:	Clausius inequality and definition of entropy, Principle of the increase of entropy, Entropy balance for closed and open systems. Adiabatic efficiencies. Entropy change of pure substances, liquids and solids, ideal gases. Exergy, second law analizi. Gas power cycle (Otto, Diesel, Stirling, Ericsson, Brayton), Vapor power cycle (Rankine), Cogeneration, binary vapor cycle, combined gas-vapor power cycle. Refrigeration cycles (vapor –compression, gas, absorption, and thermoelectric), heat pumps.								

Course Code:	MKM222	**Course Title:**	Manufacturing Processes					**Semester:**	4
Lecture:	3	**Practice:**	1	**Lab:**	0	**Credit:**	4	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To develop in students the capability to understand, analyze, design, and/or select the processes of metal casting, powder metallurgy, joining, sheet metal forming processes, metal removal processes, non-traditional manufacturing methods and plastic components for the production of metallic and polymer components.								
Course Content:	Technical properties of engineering materials. Material selection in machinery manufacturing. Metal Casting Processes: Sand casting, Moulding machines, Melting furnaces, Investment casting, Metal casting, Ceramic mould casting, Pressure die casting, Centrifugal casting, Continuous casting. Powder metallurgy: Compaction of powders, stages of sintering, secondary processes. Joining Processes: Electric arc welding, Types of Gas welding, Electrodes, Friction welding, Resistance welding, Submerged arc welding, Weld defects, Soldering process. Bulk Deformation Processes: Hot working and cold working of metals, Forging, Rolling, Rod and wire drawing, Types and Principles of Extrusion. Sheet Metal Processes: Typical shearing operations, Bending, Drawing operations, Stretch forming operations, Hydro-mechanical forming, Metal spinning. Manufacturing of Plastic Components: Injection moulding, Transfer moulding, Blow moulding, Rotational moulding, Extrusion. Introduction to material removal processes. Theory of metal cutting. Cutting tool materials. Turning, Special attachments. Shaper, planer and slotter. Hole making and boring. Reaming. Milling processes. Threading processes. Sawing. Broaching. Grinding processes: Cylindrical grinding. Surface grinding. Honing, Lapping, polishing and buffing. Safety measures about the manufacturing processes. Abrasive jet machining. Electro Discharge Machining. Wire Electro Discharge Machining. Advantage manufacturing systems and automation. Rapid prototyping. Reverse engineering.								

Course Code:	MKM262	**Course Title:**	Measurement Techniques					**Semester:**	4
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	3
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Purposes of this course are to; 1.Teach the measurement technique principles to students, 2.Give the measurement ability to students.								
Course Content:	The measurement and control. The measurement techniques. Measurement of the size, angle and area. Classic measuring and control devices. Caliper, micrometer, marking gauge, comparator, indicator, gage. Surface roughness. Hardness measurement techniques. Coordinate measuring. Measurement of viscosity, speed, torque, power and vibration. Pressure, flow and temperature measuring. Energy productivity. Uncertainty analysis. Design and report of the experiments.								

Course Code:	OTM202	**Course Title:**	Fuel Injection in Engines					**Semester:**	4
Lecture:	2	**Practice:**	1	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To familiarize students to the fuel injection systems of Otto and Diesel engines, and to gain knowledge and skills for maintenance and repairs.								
Course Content:	Combustion, speed and load control of Otto and diesel engines. The general structure of diesel engine fuel injection system. The conventional diesel engine fuel injection systems. The electronic controlled diesel engine fuel injection systems. Supercaharged diesel and Otto engines. The maintenance and repair of conventional diesel engine fuel injection system. The maintenance and repair of electronically controlled diesel engine fuel systems. Carburetored fuel system of Otto engine. Multi-point gasoline injection systems. Single-point gasoline injection systems. Otto engine with LPG fuel systems. Otto engine fuel injection systems maintenance and repair.								

Course Code:	YDL282	**Course Title:**	Technical Foreign Language II					**Semester:**	4
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To be able to search the sources in the international publications of the developments that are currently being renewed in engineering and related disciplines, to develop the skills of translation to Turkish, to be aware of technological developments.								
Course Content:	Basic technical terms of industrial engineering, systems engineering, operations research, computer engineering, hardware and network software engineering, metallurgical engineering, iron and steel casting, ceramic engineering, mechanical engineering, mechatronics and mechanic,electrical engineering, automotive engineering in English.								

5. Semester

Course Code:	OTM399	**Course Title:**	Industrial Practice I					**Semester:**	5
Lecture:	0	**Practice:**	0	**Lab:**	0	**Credit:**	0	**ECTS:**	6
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Students recognize factories and learn factory production processes, so they gain practical information.								
Course Content:	Students are required to make a summer internship for at least four weeks (twenty-four working days) in a suitable workshop plant. Students can make engineering measurements, machining, foundry work, metal forming, welding, non-traditional machining, heat treatment, excellence and so on. applications, such as manufacturing processes. Report on the work done by the student should be prepared.								

Course Code:	MKM305	**Course Title:**	Heat Transfer					**Semester:**	5
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	3
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	This course is designed to teach students fundamentals of conduction, convection and radiation heat transfer. Students are informed about the analysys and solution of basic heat transfer problems with analitical solution techniques, practical tables and charts given.								
Course Content:	General laws of heat transfer, steady one-dimensional heat conduction, differential equation of heat conduction, unsteady heat conduction, an overview of the convection heat transfer. Heat transfer in internal and external flows. Heat transfer by radiation.								

Course Code:	MKM325	**Course Title:**	Machine Elements I					**Semester:**	5
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	3
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	1. To introduce the analysis phase and machine elements in mechanical design. 2. To develop mathematical models for functional analysis and stress calculation of machine elements by using engineering sciences. By using the available experimental models determine the input and output values of the machine system elements. 3. To use the standards and design criteria. 4. To improve the goal recognition, creativity and intuition and also to enable the students to gain experience in machine design.								
Course Content:	The importance of construction activity and knowledge of machine elements in this activity. Voltage analysis. Calculation, shaping and usage principles of machine elements. Elastic elongation. Charring. Shaft, pins, pernions, springs, miller and axles, concepts, oil and lubrication theory, sliding and rolling bearings, speed reduction mechanisms overview, welding, soldering, riveting, rivet connections, shaft and hub connections, bolt connections and screw mechanisms, gear wheel kinematics and geometry.								

Course Code:	OTM301	**Course Title:**	Microcomputer System Design					**Semester:**	5
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To introduce the basic programming language required for designing micro-computerized system, to gain the programming abilities.								
Course Content:	Microcontroller and microcontroller concepts, microcontroller languages, microcontroller architectures and usage areas, program development, analysis methods. Introduction to closed loop control systems and applications, Basic communication protocols using microcontroller. Teaching of sensors and actuators.								

Course Code:	OTM303	**Course Title:**	Vehicle Technologies					**Semester:**	5
Lecture:	3	**Practice:**	1	**Lab:**	0	**Credit:**	4	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Purpose of this course is to describe structure, to operate and design of power transmission and to learn the calculation and analysis of the forces in power transmission systems.								
Course Content:	Occupational healty and safety, vehicle clasification, clutches, manual gearboxes, shafts and joints, differential and axles, steering systems, brake systems, suspension systems								

Course Code:	YDL381	**Course Title:**	Speaking and Reading Tech. at Foreign Language					**Semester:**	5
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	This course is aimed to improve speaking skill of english in both acedemic and social environment, to have effective communication skill, to provide proficiency in using English.								
Course Content:	The weighted subject is speaking skill. It consists of computer and internet source scanning, making academic presentations on topics related to their profession, vocational field presentation in English, group work, bilingual activities, role-playing activities, speaking English, speaking, but also the ability to express themselves on a foreign level in everyday life.								

Course Code:	ATE307	**Course Title:**	Engine Dynamics					**Semester:**	5
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	3
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aims of the course are to solve problems about kinematics and dynamics of piston engines using graphical and analytical methods.								
Course Content:	Kinematics of piston motors, inertial forces, linear and rotary forces, gas forces and torque, torque variation with crank angle, force and moment analysis affecting engine balance.								

Course Code:	MCE309	**Course Title:**	Hydraulics and Pneumatics					**Semester:**	5
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	3
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To introduce principles of hydraulic and pneumatic systems, to illustrate hydraulic and pneumatic system design, to gain analysis abilities of hydraulic and pneumatic system in automotive engineering.								
Course Content:	Introduction to hydraulics and pneumatics; Principles of power hydraulics and pneumatics; Hydraulic and pneumatic elements; Hydraulic and pneumatic piping and sealing; Hydraulic circuits and symbolic presentation; Circuits design;Design of vehicle hydraulic and pneumatic systems.								

Course Code:	MCE325	**Course Title:**	Fluid Mechanics					**Semester:**	5
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	3
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	This course introduces the student to knowledge of the basic concepts of fluid mechanics and the basic equations of hydrostatics and hydrodynamics.								
Course Content:	Basic concepts and definitions. Fluid statics. Manometers and pressure measurements. Hydrostatic forces on immersed bodies. Forces on immersed and floating bodies.Fluid as Rijid body translation and rotation. Differential analysis of fluid motion.Continuity, momentum and energy equations. Incompressible viscous flow. Dimensional analysis and similarity.Incompressible viscous flow. Laminar and turbulent boundary layer flow. Flow around immersed bodies. Introduction to compressible flow.								

Course Code:	DEG301	**Course Title:**	Values Education					**Semester:**	5
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Value education and the basic concepts of the framework and requirements and importance of value education in educational institutions, examination of the world and Turkey values education studies.								
Course Content:	Concepts of value and basic concepts of values education. Sociological, psychological and philosophical values. Value types and properties of values.								

Course Code:	MSD301	**Course Title:**	Labor Law					**Semester:**	5
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Teaching basic knowledge of business law. To teach the rights of workers and employers. Teaching the basic characteristics of unionism, collective bargaining, strike, lockout concepts.								
Course Content:	Individual Labour law: Concept of Labour Law, Sections of labour law, sources of labour law, Basics of labour law: employee, employer relationships, workplace, plant, Labor contracts and kinds, labour contracts making.								

Course Code:	MSD303	**Course Title:**	Patent and Industrial Design					**Semester:**	5
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	This course explores intellectual property rights, patent application for the industrial design and its examination, rights derived from industrial patents, protection of the rights of designer and patent owners, and international agreements. This course is to train student's capacity in the thinking, method, and skill in industrial design. It is expected that the students will be able to understand and grasp the logic of design process for industrial artefacts.								
Course Content:	Introduction to intellectual property rights. Product design and development. Industrial design. General provisions. Patent application for the industrial design and its examination. Industrial design patent. Rights derived from industrial patents. Industrial design use. Protection of the rights of designer and patent owners. International agreements. Examination of sample patents. Preparation of a sample patent.								

Course Code:	MSD305	**Course Title:**	Entrepreneurship					**Semester:**	5
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To introduce set-up and development as well as knowledge of entrepreneurship on the historical and society level. The course offers students a good arena to understand what entrepreneurship is and if it is something for them.								
Course Content:	Understanding the dynamic role of entrepreneurship and small businesses, Organizing and Managing a Small Business, Financial Planning and Control, Forms of Ownership for Small Business, Strategic Marketing Planning, New Product or Service Development, Business Plan Creation								

Course Code:	MSD307	**Course Title:**	Communication Skills					**Semester:**	5
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To teach base business concepts of behavioral sciences and relationships between individual, environment individuality, culture, attitude.								
Course Content:	Theories and Methods in Social Psychology, Understanding Social Environment, Percepting People, Self Concept, Attitudes and Attitude Change.								

Course Code:	MSD309	**Course Title:**	International Communication					**Semester:**	5
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of this lecture is to educate students how to communicate in the conditions of globalizing world.								
Course Content:	Definiton of international communication, Purpose and Progress of International communication, a short history of international communication. Relationship between international communication to basic definitions such as economy, culture, politics. The relevance of the communication process with the process of globalization, international, technology, raw material, organization, and the transfer of the law.								

Course Code:	MSD311	**Course Title:**	Critical Analytical Thinking Techniques					**Semester:**	5
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Students will learn the basic features of critical-analytical thinking and the management of thinking about their criteria.								
Course Content:	Concepts and Definitions, Brain as Thinking Body, Grouping of Thinking, Unintentional Thinking and its Properties, Independent Thinking, Characteristics of Selfish Thinking, Methods of Selfish Thinking, Critical and Analytical Thinking.								

6. Semester

Course Code:	ENM360	**Course Title:**	Engineering Economy					**Semester:**	6
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	3
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Aim of this course is systematic study of net project investments as a result of investments and expenditures in works and enterprises in relation to engineering.								
Course Content:	Determination and formulation of the engineering problem, Analyzing the problem, Investigating alternative solutions for the problem, Determination of the alternatives to be chosen, Economically decision making for the chosen alternative.								

Course Code:	MKM330	**Course Title:**	Machine Elements II					**Semester:**	6
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	3
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To teach the sizing, strength calculations and design of machine elements encountered in engineering applications.								
Course Content:	Spur Gears, Helical Gears, Conical Gears, Worm Gears, Roller Bearings, Bushings, Miller, Wedge, Pin, Pin, Coupling, Brake and Flywheel, Shaft and Shaft Components. Belt and Chain Connections, Bolt Connections, Welding and Assembling.								

Course Code:	OTM302	**Course Title:**	Automotive Electrical Systems					**Semester:**	6
Lecture:	2	**Practice:**	1	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The objective of this course is to introduce the fundamentals of automotive electrical systems and to gain practicing abilities in automotive electrical systems.								
Course Content:	Basic electric principles. Electrical systems of vehicles. Batteries. Battery selection. Starting systems. Charging systems. Ignition systems. Lighting systems. Indicators. Automotive warning systems.								

Course Code:	OTM304	**Course Title:**	Automotive Mechatronics					**Semester:**	6
Lecture:	2	**Practice:**	1	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To give the concept of Mechatronic, to present the mechatronic systems and their components, to show the control structures, to give to Automotive applications of mechatronic systems.								
Course Content:	Introduction to mechatronics, analog and digital circuits, mechatronic systems, sensors-Microcontroller-transducers, Automotive mechatronic systems.								

Course Code:	YDL382	**Course Title:**	Foreign Language For Business					**Semester:**	6
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of this course is to teach Business English to students.								
Course Content:	Job application to various institutions and companies, project application, writing articles to establish commercial relations, job interviews with companies, talking on the phone, Working in English-dominated work environment, preparation of documents such as the application, request, response, report forms etc.								

Course Code:	ATE306	**Course Title:**	Internal Combustion Engines					**Semester:**	6
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aims of the course is to provide essential knowledge on structure, operating and cycles of Internal Combustion Engine.								
Course Content:	Working principles of engines. Thermodynamic cycles of internal combustion engines, engine performance parameters, frictional force and lubrication system, combustion in engines, alternative fuels, mixture formation. Emissions on engines. Engine tests, engine characteristics, new technologies. Thermal losses in the engines.								

Course Code:	ATE308	**Course Title:**	Vehicle Dynamics					**Semester:**	6
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Aims of this course are to; 1. Teach the vehicle dynamics principles. 2. Give the ability of dynamic and kinematic analysis .								
Course Content:	Motor characteristic curves. Vehicle performance calculations, Power transmission systems. Maximum Speed and Acceleration Performance, Clutch Dynamics. Vehicle resistances. Rolling, air, slope and acceleration resistances. Fuel consumption. Driving nightlife. Road holding and driving comfort, Lateral and longitudinal vehicle dynamics, Stability Analysis, Yalpa Center Approach One dimensional vehicle dynamics. Suspension systems. Brake systems. Vehicle vibrations.								

Course Code:	ATE310	**Course Title:**	Vehicle Ergonomics					**Semester:**	6
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Aims of this course are to; 1. Introduce the ergonomics rules. 2. Give the knowledge about the vehicle ergonomics and vehicle comfort.								
Course Content:	Introduction to vehicle ergonomics. Basic concepts. Anthropometry and arrival distances. Human comfort in vehicle design. Physical factors; noise, vibration, lighting, colors, air-conditioning and visual clarity. Cabin design. Human-equipment interface. Seat, pedals, steering wheel, mirrors, gear lever, control panel, display. Passanger-vehicle interface. Service systems and accessories.								

Course Code:	MSD302	**Course Title:**	Research and Presentation Technics					**Semester:**	6
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of this course is to teach scientific research and analysizing techniques and to teach the use of obtaining data and presentation of obtaining data.								
Course Content:	1. Scientific research and analysis techniques. 2. Data collecting and data analyisis according to scientific research techniques. 3. Reporting the results of researchs according to report writing techniques. 4. Presentation of research subjects. 5. The use of presentation equipments and technologies.								

Course Code:	MSD304	**Course Title:**	Human Resources Management					**Semester:**	6
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To be able to comprehend the policies and practices of an organization regarding human resources management.								
Course Content:	Human Resource Management, Human Resources Planning, Finding Human Resources, Selection and Orientation, Training and Development of Human Resources, Evaluation and Charging of Human Resources (Methods of Success Assessment and Pricing), Business Relations, Establishing Effective Business Relations continuation.								

Course Code:	MSD306	**Course Title:**	Management Systems					**Semester:**	6
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To teach scientific knowledge and abilities for managing production and service systems.								
Course Content:	Definition of management. Historical development of management concept. Definition, and types of organization. Organization charts. Managemant of information, learning, culture, structure, continuity, power and politics in organizations. Management etics. Gender and management. Management functions (planning, organising, carrying out, coordination, auditing). New management techniques. Management with objectives. Management according to exceptions. Quality control chambers. Benchmarking. Management of change. Strategic management. Relationships between organizations.								

Course Code:	MSD308	**Course Title:**	Occupational Health and Safety					**Semester:**	6
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of this course is to introduce importance of work safety and healthy and to emphasize work safety and healty in terms of employee and employer.								
Course Content:	Basic concepts of occupational safety and health. Basic working areas of ergonomics. Reasons of work accidents. Avoidance models. Calculation of costs. Investigation and reporting. Occupational illness, its types and avoidance methods. Occupational safety methods at workshop and laboratuaries. Personel and machine protective equipments. Fire and explosion prevention methods. Principals and objectives of first aid. OHS legislation.								

Course Code:	MSD310	**Course Title:**	Institutive Behavior					**Semester:**	6
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of this course is to introduce technical and humanistic aspects of industrial R&D and R&D management and to explain importance of technology, impacts of technology and permanent development of technology.								
Course Content:	Configuration of technology and industry. Adventages of technology and competition. Technologic options, strategies and analitic tools. Partnerships and strategic agreements. Technology and structure. Technology and process. Technology and culture. Technology and total quality. Technology transfers. R&D management. R&D productivity. National politics and and R&D. Technoparks and innovational organizastions. University-industry R&D association. Patents and legal regulations. R&D trends.								

Course Code:	MSD312	**Course Title:**	Standardizasyon					**Semester:**	6
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To teach the principles and practices of standardization in national and international areas.								
Course Content:	Principles of standardization, standardization in Turkey, International Trade Relations for Standardization, Application of Standards which is compulsory in Turkey								

7. Semester

Course Code:	OTM499	**Course Title:**	Industrial Practice II					**Semester:**	7
Lecture:	0	**Practice:**	0	**Lab:**	0	**Credit:**	0	**ECTS:**	6
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Students recognize factories and learn factory production processes, so they gain practical information.								
Course Content:	Students are required to make a summer internship for at least four weeks (twenty-four working days) in a suitable workshop plant. Students can make engineering measurements, machining, foundry work, metal forming, welding, non-traditional machining, heat treatment, excellence and so on. applications, such as manufacturing processes. Report on the work done by the student should be prepared.								

Course Code:	OTM401	**Course Title:**	Vehicle Diagnostic					**Semester:**	7
Lecture:	2	**Practice:**	1	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Purposes of this course are to; 1. Introduce the fault diagnosis devices to students. 2. Give the fault diagnosis ability to students.								
Course Content:	The occupational safety in automotive laboratories. The fault diagnosis in engines. The fault diagnosis devices. Fuel injection system in gasoline and diesel engines. Fault diagnosis in battery. Fault diagnosis in systems of fuel, ignition, starting and charging. Fault diagnosis in systems of air bag, ABS brake, steering and suspension. Compression test.								

Course Code:	OTM403	**Course Title:**	Electric and Hybrid Vehicles					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aims of this course are to; 1. Teach the advantages of electric vehicles to other vehicles. 2. Introduce the systems which compose electric vehicle.								
Course Content:	Electrical vehicles. Environmental effects of electrical vehicles. Electrical vehicle types. Energy storage systems. Battery and battery modeling. Flywheel and supercapacitor. Electrical machinery and control systems. Brushed and bruchless DC motor. Electrical machines for hybrid vehicles. Electrical vehicle design. Electrical vehicle conversion.								

Course Code:	OTM409	**Course Title:**	Automotive Computer Applications					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The purpose of this course is to give knowledge about design and analysis computer programmes used in automotive industry.								
Course Content:	General logic structures of various package programs, application areas that can be used, capacity and limitations, examples. Programs specifically used in automotive. Extraction of flow diagrams for solution of various problems using the current knowledge infra of the learners.								

Course Code:	OTM411	**Course Title:**	System Dynamics and Controls					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of the course is to give students the basic concepts of system dynamics. To gain students the basic concepts of classical control systems .								
Course Content:	Physical systems modeling. Energy gates. One and two door elements. Mechanical, electrical, fluid and thermal system elements. Linear graphs. Dynamic equations can be found. Purification of non-staff model. Linear integration. Condition variables. System equations in the form of A-matrix. Physical, canonical and phase variables. Transfer functions and block diagrams. Basic concepts of Automatic control.								

Course Code:	OTM413	**Course Title:**	Construction and Industrial Machinery					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The purposes of this course are to; 1.Introduce the construction and industrial machines to students. 2. Indicate the differences between construction machines with other vehicles. 3. Give the knowledge about the construction machinery systems.								
Course Content:	Construction and industrial machines. Occupational safety in construction machines. Classifications of construction and industrial machines. Engines for construction machines. Power transmission systems. Hydraulic systems. Brake systems. Undercarriage systems. Efficency calculation in construction machines.Exhaust emissions standards for off-road construction machines. Maintenance and repair of construction machines.								

Course Code:	OTM415	**Course Title:**	Turbo Systems in Vehicles					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To teach the students the purpose of supercharging, methods and cycle analysis of a supercharged engine.								
Course Content:	The purpose of supercharging in the internal combustion engines. Supercharging methods. Mechanical supercharging. Supercharging with a turbocharger. supercharging with the effect of the pressure wave. Supercharging engine cycles: constant pressure system. Pulse charging system. Compressor and turbine power analysis.Example problems for mechanically supercharged engines. Example problems for turbocharged engine. Exhaust manifold arrangements for pulse charging.								

Course Code:	OTM417	**Course Title:**	Traffic Management					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aims of the course are to; 1. Teach the structure of urban transportation systems. 2. Give the public transport system design ability.								
Course Content:	Urban transport, economic and environmental analysis, road interchanges design, intersections demand management, public transport systems, traffic signal control systems.								

Course Code:	OTM419	**Course Title:**	Alternative Fuels					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Give sufficient informations about the principles of thermodynamics of converting energy into mechanical work, the fields of use of alternative energy sources, the alternative energy types and modes of use that can be used in internal combustion engines, the working principles of hybrid motors and fuel pellets, the working principles of external heat engines and the energy sources.								
Course Content:	Energy, energy types, energy conversion, work, 1st law of thermodynamics, 2nd law of thermodynamics, efficiency, usability. Renewable energy sources (solar energy, plant based fuels, wind energy), nuclear energy, fossil based energy sources, geothermal energy. Alternative energy types used in gas engines, gas fuels (hydrogen, LPG, natural gas, biogas), liquid fuels alcohol, methyl alcohol), alternative fuels used in diesel engines.								

Course Code:	OTM421	**Course Title:**	Automatic Transmissions					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Purpose of this course is to advance knowledge the students about automatic transmissions								
Course Content:	Hydraulic friction clutch, torque converters, planet gear systems, mechanical circuit of automatic transmissions, calculation of gear ratios, hydraulic circuits, electrical and mechanical control circuits, operation principles of circuits, application examples								

Course Code:	OTM423	**Course Title:**	Sensors and Converters in Vehicles					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Teaching basic operating principles of sensors used in vehicles.								
Course Content:	Computer aided measurement. A / C and C / A conversion. Acceleration and braking assistants: linear and angular position, velocity and acceleration and measurements. Engine management sensors (pressure, speed, flow, temperature measurement sensors). Advanced service measurement definitions. Problems and danger warning systems. Distance and relative velocity measurement relative to other instruments and obstacles. Sensors for traffic navigation and guidance systems.								

Course Code:	OTM425	**Course Title:**	Automotive Service Management					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The objective of this course is to teach to students management and organization of service. On the other hand they will be introduced basic administrative relations such as Planning-Organizing-Managing-coordinate.								
Course Content:	Service management and organization, management concepts and explanations, management functions, organizations, customer relationship, productivity, sales and marketing.								

Course Code:	OTM427	**Course Title:**	Gas Turbines					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To ensure the understanding of students these the historical development of gas turbines, operation principles combustion in engines and energy conversion, exhaust emissions, aviation applications and latest technological developments and to reinforce the knowledges about these issues.								
Course Content:	Historical development of gas turbines, classification, classification of stream processing. Theoretical cycles, theoretical stirling cycle, theoretical Brayton cycle, regeneration, gas turbines with intercooler and interheater, closed system gas turbines. Actual cycles, stagnation values, compressor and turbine efficiency, pressure losses, regenerator efficiency, mechanical losses, the air / fuel ratio and combustion efficiency, performance, work and air ratios. Aviation gas turbines, performance criteria, efficiencies. Compressors; centrifugal compressors, axial compressors, the speed diagrams of the compressor stages, characteristic of stage. Combustion chambers, ensure of fuel, type of combustion chamber, combustion characteristics, gas turbine fuels, emissions. Turbines, turbine stage, velocity diagrams, impulse and reaction, fins parameters. Recent developments, fuel economy, weight and dimensions, transmission needs materials, comparison.								

Course Code:	OTM429	**Course Title:**	Railway Vehicles					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Development of rail transport in Turkey and around the world. Urban rail mass transit systems. Rails and wheels, Drive systems (Steamed locomotiv es, diesel locomotiv es, electric locomotives), Rail vehicle dynamics, Types of rotary train (bogie). Brake systems								
Course Content:	Historical review and comparison with highways. New methods of public transport. Road, rail and wheel geometry . Rail and wheel force transmission. Dynamic of rail vehicle: sinus and turning movement. Comfort on vibration and semi-dynamic motion. Navigational safety . Wheel team structure and the spring-loaded wheels. Rotary train construction. Harnesses. Drive and motion resistance. Drive with Electrical and Diesel. Brake event and equipments.								

Course Code:	OTM431	**Course Title:**	Vehicle Damage Analysis					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of this course is to teach the mechanics of car damage using the basic numerical methods, impulse, momentum and energy principles.								
Course Content:	Impact and kinematics characteristics of the impact, the impact estimated by the method of winding, the main effect and drive model, numerical methods, the estimated response, impulse, momentum and energy of the impact, significance and re-construction.								

Course Code:	OTM433	**Course Title:**	Factory Organization					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Students during the study , management and organization could provide information about the benefit, the person will meet the demands of the market organization is to achieve level.								
Course Content:	Plant and factory definition, classification and organization phase, a new factory in the planning, feasibility report preparation, data collection and evaluation, industrial buildings and land selection, plant lay out problems, time and cost calculations, technical reports, preparation of general management and administration								

Course Code:	OTM435	**Course Title:**	Project Management					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The purposes of this lecture are to teach the importance of project management, and give the knowledge about the main methodological concepts in the project management.								
Course Content:	Entering project management, the management of contents and integration in projects, time management,cost management, quality management, human resource and communication management, risk management, supply management.								

Course Code:	OTM437	**Course Title:**	German I					**Semester:**	7
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To give the students the opportunity to start learning German language as their second or third foreign language and introduce them to the four skills: listening, speaking, reading and writing.								
Course Content:	Greetings, dating. Declaration sentences, who, what questions alphabet. State-asking how to report requests, phone number, address expression. Numbers, decide questions. Shopping. Artikel certain-uncertain, personal pronouns. Certain times of the day and daily events. Separable verbs and period of time. Repeats. Chapter 5: Shopping dialogues . Plural;-i version. Family, date of birth right. Conversations. Possessive pronouns and the past tense story. Presentation.								

Course Code:	ATE405	**Course Title:**	Computer Aided Engine Design					**Semester:**	7
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Purposes of this course are to; 1. Introduce the engine design parameters, 2. Give the engine design and modelling ability.								
Course Content:	Discussing the engine concepts to start examination of engines thermodynamicly. Problems encountered during the engine design process. Specification of an engine according to the needs with the desired properties. Drawing after the calculation of the motionless and moving parts of the engine, like cylinder block, cylinder head, pistons, connecting rod, crankshaft, flywheel, camshaft and valve mechanisms. Selection of the engine materials according to the working conditions. System optimization. The preparation of report.								

Course Code:	ATE407	**Course Title:**	Vehicle Aerodynamics					**Semester:**	7
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Aims of this course are to; 1. Give the knowledge about vehicle aerodynamics. 2. Give the ability to compute aerodynamic forces.								
Course Content:	Importance of aerodynamics and historical development. Summarizing fluid mechanics. External flow: Boundary layers, vortex, seperating stream lines, impact of floor. Aerodynamical resistance, pressure center, aerodynamical forces, moments and instability of the vehicle.								

Course Code:	MCE413	**Course Title:**	Computer Aided Manufacturing					**Semester:**	7
Lecture:	3	**Practice:**	0	**Lab:**	0	**Credit:**	3	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Aims of the this course is; 1.To teach the necessary machining operations using CAM programme for turning and milling parts. 2.To make the toolpath of cutting tools on turning and milling. 3.To teach convert the toolpath to NC code. 4.To choose the available cutting tool and machine.								
Course Content:	Manufacturing model creation by any type of CAD part format. Operation step organizing for special machine center. Tool and fixture setting CNC manufacturing for specific 3d model. Milling, drilling and turning operations. Cutter location data creation, inspection, simulation and post processing.								

8. Semester

Course Code:	OTM400	**Course Title:**	Graduation Thesis					**Semester:**	8
Lecture:	0	**Practice:**	2	**Lab:**	0	**Credit:**	1	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of the thesis is to make the thesis students who wish to specialize in one area, individually or in groups, from the perspective of a scientific theoretical and/or practical and to teach thesis preparation, presentation, prepare for working life.								
Course Content:	Graduation thesis topic selection, team work, a machine, a system or a process design, thesis preparation, implementation, completion of all the stages.								

Course Code:	MUH402	**Course Title:**	Engineering Ethics					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	2
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The main aim of the course is to educate students about the knowledge about engineering ethics and to do business in accordance with ethical values in business life.								
Course Content:	Introduction to ethical concepts. Professionalism and professional ethics codes. Ethics in design. Rights and responsibilities in business life. Techniques of solution of ethical problems. Risk, safety and accident. Responsibility for scientific research. Responsibility for experimental work. Authorities and responsibilities in publishing and publishing research results.								

Course Code:	OTM404	**Course Title:**	Automotive Engineering Laboratory					**Semester:**	8
Lecture:	3	**Practice:**	1	**Lab:**	0	**Credit:**	4	**ECTS:**	4
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Compulsory	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aims of the course are to; 1. Introduce the engine and vehicle test devices. 2. Give the engine and vehicle test ability.								
Course Content:	The occupational safety in automotive laboratories. Engine characteristics. Dynamometers. Engine tests. Engine performance parameters. Friction power. Measurement of engine vibration. Indicators. Measurement of cylinder pressure. Heat balance in engines. Work principles of vehicle test machines (chassis dynamometers). Vehicle tests. Measurement of vehicle brake forces. Determination of vehicle fuel economy. Prepare of technical report.								

Course Code:	OTM412	**Course Title:**	Safety and Comfort Systems of Vehicles					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To recognize the types of vehicle safety and comfort systems, and their importance.								
Course Content:	Introduction to vehicle safety and comfort systems. Driving safety, suspension (ESS, ASS), routing, and security of the braking systems (ABS, EBD). Security depending on the circumstances, vibration, noise, and climate conditions. Depending on the senses security, lighting and light warning, audio warning, directly or indirectly opinion. User security is controlled and located in accordance with the design elements. Vehicle body deformation behavior. The external form of the body of the vehicle, surface smoothness, cabin resistance, internal impact areas. Seatbelt pre-tensioners. Airbag. Safe distance control systems between vehicles. The steering system (EPS). Occupant rescue and fire protection. Comfort systems used in motor vehicles, electronic adjustable seat system. Electronically-controlled heating, ventilation and air conditioning system.								

Course Code:	OTM414	**Course Title:**	Vehicle Manufacturing Systems					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The purposes of this lecture are to teach mass production in automotive industry, develop the capabilities, and make analysis of different production systems.								
Course Content:	Vehicle overview of production systems. Automotive industry, mass production, the value added chain principles, analysis of different systems (Toyoto, mercedes, etc.). Car body design. Pressing, Dyeing, Kaplama.Kabin, chassis and engine assembly. Components manufacturing systems; electrical and electronic systems, power transmission components.								

Course Code:	OTM416	**Course Title:**	Fuel Cells and Hydrogen Technology					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Purpose of this course is to inform to students about electric production with fuel cell, fuel cell types which used automotive sector, Fuel cell thermodynamic and energy equilibrium, hydrogen energy and hydrogen storage.								
Course Content:	Fuel cell thermodynamic and electrochemical principles. Efficiency and open circuit voltage.Fuel cell voltage losses.Types of fuel cell.Phosphoric Acid, Solid Oxide, Molten Carbonate Fuel Cells. Polymer electrolyte, alkaline fuel cells. Fuels of fuel cell. Specifications of hydrogen and methanol. Fuel storage in vehicles. Fuel cell modelling.Techniques of production and material. Fuel cell vehicle simulations.Advantage and disadvantage of fuel cell vehicles. Development perspectives of fuel cell vehicle.								

Course Code:	OTM418	**Course Title:**	Computer Aided Vehicle Design					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Aims of this course are to; 1. Introduce the vehicle design parameters. 2. Gain the vehicle design ability.								
Course Content:	Vehicle design principles, computer-aided design and analysis techniques, vehicle dynamics and motion resistance, the use of computers in the stages of vehicle design, vehicle components modeling, analysis with the computer aided engineering, vehicle design project with computer aided engineering.								

Course Code:	OTM420	**Course Title:**	New Technologies on Vehicles					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	Aims of this course are to introduce technologies applied to hybrid and electric vehicles, to inform the students about electric mobility and electric motors applied to automotive and to show smart-car technologies and strategies								
Course Content:	The various industry and regulatory standards for hybrid vehicle components, batteries, and charging systems. The main hybrid and electric vehicle development considerations and performance requirements for various vehicle system. Technological fundamentals of self-driving vehicle.								

Course Code:	OTM422	**Course Title:**	Fuels and Combustion					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aims of the course are to recognize fuels used in internal combustion engines and have information about combustion and thermo-chemistry.								
Course Content:	Fuels, classification of fuels and specifications, fuels used in internal combustion engines, properties of internal combustion engine fuels, types of combustion and combustion equations.								

Course Code:	OTM424	**Course Title:**	LPG and Natural Gas Applications in Vehicles					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The objectives of this course are to introduce LPG and natural gas systems, to gain the problem solving abilities in automotive gas fuel system.								
Course Content:	Fuel properties of LPG and natural gas. LPG and natural gas utilization in motor vehicles. LPG and natural gas converting process in motor vehicles. Converting system components. Effect of LPG and natural gas on performance and emissions.								

Course Code:	OTM426	**Course Title:**	Analysis of Traffic Accidents					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of this course is to teach these subjects; Mathematical evaluation of traffic accidents, probabilistic approach, accident probability distributions, general characteristics of accidents; types and characteristics of road accidents, crossing accidents, fading accidents, pedestrian accidents; railway accidents types and characteristics, rafting and slipping accidents, technical failures, personnel faults, operating system faults, legal analysis, penal cases, defects assessment, defects of principal and secondary negligence, defects and conscious negligence.								
Course Content:	The mathematical evaluation of traffic accidents, probabilistic approach, probability distributions of the accident, general features of accidents and characteristics of the types of road accidents, intersection accidents, overtaking crashes, pedestrian accidents, railroad accidents and properties, not leave runners on and slip accidents, technical failures, personnel errors, operating system bugs, legal analysis, criminal cases, defect evaluation, primary and secondary negligence, conscious negligence.								

Course Code:	OTM428	**Course Title:**	Marine Machinery					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To have knowledge of the machine, to recognize ship machinery , to have knowledge of electricity on the ship, to learn about the kinds of ship machines								
Course Content:	Introduction to ship machines, types and characteristics of main engines used in ships, diesel engine working principles, characteristics of low-medium high speed diesel engines, main shaft connections, layout designs and main machine and shaft connection combinations, ship machine selection criteria by ship type.								

Course Code:	OTM430	**Course Title:**	Automotive Industry					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of this course is to gain information about the automotive sector and manufacturing systems.								
Course Content:	Historical development of automotive production, major automotive manufacturers, automobile production impact on society . Production systems, reduction of production costs, marketing strategies, fuel consumption, Reducing harm to the environment, increasing comfort and safety, production strategies, industrial relations and strategies of the main-side.								

Course Code:	OTM432	**Course Title:**	Quality Control					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The purposes of this lecture are to teach the quality control and its methods, give the knowledge about the importance of quality control in production and the statistical methods' implementation ability.								
Course Content:	Definition and importance of quality control, statistical quality control concepts and methods, probability distribution, quality problems, seven vehicles, process and machine adequacy, production and acceptance sampling inspection.								

Course Code:	OTM434	**Course Title:**	Agricultural Machinery					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	In this course, agricultural tools and machinery using in agricultural production will be explained as theoretical and applied.								
Course Content:	Agricultural Tractors, mechanization in agriculture, mechanization in basic agricultural processes, physical properties of soil, Soil Tillage Equipment and Machinery, Sowing-Planting and Fertilizing Machinery, Agricultural War, Water ejection, reapingharvest, Seed Cleaning and Classification Machinery, operation costs and applications at the agricultural machinery.								

Course Code:	OTM436	**Course Title:**	Composite Materials and Manufacturing Methods					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To give information about the definition, importance, application and production methods of composite materials.								
Course Content:	General definitions and classification of the composite materials. Analysing of micromechanical and macromechanical behavior of the compozite materials. Applications of the composite materials. Reinforcements in a composite materials. Reinforcements-matrix interface and wetting. Processing of metal matrix composites, ceramic matrix composites and polymer matrix composites. Some commercial metal matrix composites, ceramic matrix composites and polymer matrix composites.								

Course Code:	OTM438	**Course Title:**	Robotics					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To give general information about robotics science, to examine robot mechanics, to teach robot control and advanced control algorithms, to give general information about robot programming languages.								
Course Content:	Giriş, Robotların sınıflandırılması, Robot kolu kinematiği ve dinamiği, Yörünge planlama, Robot kontrolu, Sensörler, Robot programlama dilleri.								

Course Code:	OTM440	**Course Title:**	German II					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	5
Course Level:	BSc - Bachelor of Science	**Language:**	Turkish	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	To continue with the progress of establishing the four skills so that the students begin to use German language at least at elementary level.								
Course Content:	Sentences for Location and space telling. Actual practice, and all the exercises in the book. Domestic ads reading and understanding. Actual practice, and all the exercises in the book. Talking about the events in the past. Actual practice, and all the exercises in the book. Work and talking about jobs. Actual practice, and all the exercises in the book. Body parts in a foreign language. Actual practice, and all the exercises in the book. Talking about travel and buying tickets. Actual practice, and all the exercises in the book. Presentation.								

Course Code:	ATE406	**Course Title:**	Vehicle Body Design					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	6
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The purposes of this course are to teach the today's manufacturing technology in need of automotive engineers and have the ability to use computer-aided systems.								
Course Content:	Concepts in vehicle body design and material selection. Conditions of vehicle development, schedules. Design for bending, torsion, and vibration. Style and ergonomy. Fundamentals of crash mechanics, accident analysis and re-construction. Active and passive safety systems. Topology, material selection, composite materials, packaging and manufacturing constraints. 3-D modeling and finite element analysis.								

Course Code:	ATE408	**Course Title:**	Vehicle Emission and Control					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	6
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The aim of the course is to provide essential knowledge about pollutants from internal combustion engines and control techniques.								
Course Content:	1.Pollutant and their sources. 2.Pollutants from internal combustion engines. 3.Emission control systems. 4.Clean energy fuels, emission factors, control of pollutants from internal combustion engines. 5.Recycling and alternative solutions.								

Course Code:	ATE410	**Course Title:**	Heavy Vehicle Technology					**Semester:**	8
Lecture:	2	**Practice:**	0	**Lab:**	0	**Credit:**	2	**ECTS:**	6
Course Level:	BSc - Bachelor of Science	**Language:**	English	**Course Type:**	Elective	**Mode of Delivery:**		**Work Placement(s):**	
Prerequisites and Co-requisites:									
Course Objectives:	The objectives of this course are to introduce the basics of heavy vehicle technologies and auxiliary systems and to gain the problem solving abilities in heavy vehicle systems.								
Course Content:	Introduction to heavy vehicle technology, driveline components (clutchs, transmissions, differantials), brakes and auxiliary systems, suspension systems, steering systems.								