Munzur University
International Relations Office
Civil Engineering Department
2018-2019 Academic Year
Bologna List of Course

Code/ Credits	Course	Semester Winter / Spring	Contents	Department
TBF101 /5	Physics-I	1.Semester Winter	Measurement and units. Vectors. Kinematics. Relative motion. Force and momentum. Equilibrium. Work and energy. Simple harmonic motion. Rotational kinematics of rigid bodies. (Service-course)	Civil Engineering
IMU105 /6	Technical Drawings	1.Semester Winter	The use of drawing instruments, lettering, Dimensioning and symbols. Orthographic, isometric, oblique projections. Sketching and sectioning. Introduction to descriptive geometry, conics, perspective drawing and applications in civil engineering: flat formwork and foundation plans of buildings; Reinforced concrete, timber and steel drawings; maps, transverse and longitudinal sections.	Civil Engineering
TBM101 /5	Calculus I	1.Semester Winter	Real numbers, inequalities, algebra of sets, functions, graphs, limits, continuity, the derivative, maxima-minima and other applications, the differential, the definite integral, mean-value theorem, the indefinite integral, the Antiderivative, the fundamental theorem of calculus, techniques of integration, inverse	Computer Engineering

			functions.	
TBK101 /4	General Chemistry	1.Semester Winter	Stoichiometry of chemical reactions. Atomic structure and the periodic table. Chemical bonding and molecular structure. Thermochemistry Gases, solids and liquids. Properties of solutions.	Metallurgy and Materials Engineering
TRD101 /2	Turkish Language 1	1.Semester Winter	History and basic rules of Turkish language, reading exemplary literary and scientific texts.	
İMÜ103 /2	Introductıon to Civil Engineerıng	1.Semester Winter	To provide information on the profession of civil engineering in order that the student will be able to have an overview of his/her future vocation before they embark on four year journey towards a degree in civil engineering; to stimulate them towards choosing a 'pet' subject among the five branches of civil engineering in order that he/she will decide on a field of specialization and perhaps even look forward to a graduate degree. Historical background, present status and future challenges of civil engineering profession. Written and oral communication. Invited speakers.	Civil Engineering
YDI101 /3	Freshman English I	1.Semester Winter	This course is designed to consolidate the student's working knowledge of the English language through reinforcement of reading	Foreign Language Dept.

			comprehension, listening and writing skills in academic English.	
ENF101 /3	Basic Information Technology	1.Semester Winter	Word, Excel, Powerpoint Point, How to prepare a presentation, how to prepare a word document, settings and how to prepare a CV.	Civil Engineering
DOY111/3	Digital Literacy	1.Semester Winter		Civil Engineering
TBM102 /4	Calculus II	2.Semester Winter	Numerical integration, polar coordinates, vector algebra, arclenght. curvature, area of a surface of revolution, the plane, linear algebra, partial differentiation, the gradient, directional derivatives, normals to surfaces, maxima, minima, double and triple integrals with applications. Improper integrals. Taylor's Formula. Sequences, infinite series, power series, Taylor series.	Computer Engineering
TBF102 /5	Physics-II	2.Semester Winter	The objective of this course is to engage the engineering students with the fundamental concept and principles of electric physics and to provide them with its theory and applications, in clear, understandable presentation. To help accomplish this aim, the concept of physics is introduced with familiar examples involving in engineering, chemistry, mathematics and medicine.	Metallurgy and Materials Engineering
İMÜ102 /6	Computer-Aided Design	2.Semester Winter	Introduction of Allplan program and interface, access to command, create a project and file and their modify, Basic	Civil Engineering

			modules; Draw, modify, object snaps and view commands, modification of objects, Layers, Library, Hatch, Object properties, Text, Dimension styles and dimension, File input from other computer programs, File transfer to other computer programs, Arcitectural Module; Drawing of walls, columns, beams, slabs, roofs, stairs and foundations, create surfaces, horizontal and vertical interfaces, top, front and profile views, Civil Engineering Module; Reinforcing bars drawing and their modifications, quantity survey, 3D solids modelling, plot.	
İMÜ104 /6	Statics	2.Semester Winter	Introduction to the principles and problems of mechanics of rigid bodies; force and displacement. Force systems; concurrent/non-concurrent systems, moment, couple, resultant, equivalent force systems. Equilibrium of force systems (static equilibrium). Free-body diagrams. Simple structures; the concept of structural analysis, analysis of trusses, beams and frames, hinged systems, chains and cables. Distributed forces. Virtual work. Stability. Friction.	Civil Engineering
İMÜ106 /4	Engineering Geology	2.Semester Winter	Structure of the earth, geological cycles, minerals and rocks. Magmatic, sedimentary and metamorphic	Civil Engineering

			rocks. Geologic structure and its importance in civil engineering. Geologic maps and cross-sections. Dams and reservoir geology. Geological concepts in landslides, hydrogeology and tunnels. Quarries and dimension stone. External processes on land and in the sea. Internal processes including deformation of rocks and earthquakes	
TRD102 /2	Turkish Language II	2.Semester Winter	Reading sample literary and contemporary texts. Oral and written expression	
YDI102 /3	Freshman English II	2.Semester Winter	Academic reading comprehension skills are further reinforced through and intensive reading of both scientific and academic texts and techniques of writing are further developed with emphasis on the usage of technical vocabulary	Foreign Language Dept.
TBM203/ 4	Linear Algebra	3.Semester Winter		Computer Engineering
İMÜ201 /4	Material Science	3.Semester Winter	Structure of substances. Formation of materials, phase transformations. Properties of materials, electrical, mechanical, thermal and other properties of materials. Corrosion. Engineering materials: metals, plastics, ceramics and composites in general. Mechanical and physical testing methods.	Civil Engineering
İMÜ203 /4	Solid Mechanics-I	3.Semester Winter	Introduction, Basic Principles/Internal Forces and State of Stress/State of Strain/ Kinematical	Civil Engineering

			Relations/Stress-Strain Relations (Hooke's Law)/Strain Energy/ Allowable Stresses/Fundamentals of Strength of Bars, Stress Resultants, Equivalence Relations/Axial Normal Force/Shear Force/Bending/Torsion/ Theories of Failure.	
İMÜ205 /4	Dynamics	3.Semester Winter	Kinematics of particles and rigid bodies; absolute motion, relative motion. Kinetics of particles; equation of motion, work-energy and impulse-momentum. Systems of particles. Kinetics of rigid bodies: Euler\'s equations; plane motion of rigid bodies. Kinetic energy of rigid bodies. Introduction to the dynamics of vibrating systems.	Civil Engineering
İMÜ207 /3	Structural Elements	3.Semester Winter	Principles of mix design. Statistical concepts for quality control. Inspection and testing of materials. Special concreting methods. Cold and hot weather concreting, pumped concrete, ready-mixed concrete, shotcrete. Fly-ash, silica fume; super-plasticizers. Special types of concrete: architectural concrete, mass concrete, rollcrete, high-density concrete, light-weight concrete, airport runway concrete	Civil Engineering
İMÜ209 /3	Probability and Statistics	3.Semester Winter	Descriptive statistics, histograms, central tendency,	Industry Engineering

			dispersion, and correlation measures. Basic probability concepts, random variables, probability density function and mass function. Hypotheses testing, analysis of variance, confidence intervals. Law of large numbers and Central limit theorem. Regression analysis. Applications in civil engineering. Reliability and hazard functions. Structural and mechanical reliability.	
İMÜ211 /3	Computer Programming	3.Semester Winter	Introduction to organization and characteristic of computers. Number systems, algorithms and flow charts. Programming in FORTRAN, control statements and loops, arrays and variables, formatted input /output, subprograms. Applications to civil engineering problems. Introduction to computer capabilities and to some package programs	Civil Engineering
AİT201/2	Atatürk's Principle and The History of the Turkish Renovation I	3.Semester Winter	Basic political, economic, social and cultural facts of the historical period beginning by the classical age of the	

			Ottoman Empire and ending by the signing of Lausanne Treaty in 1923 - the fundamental academic interpretations on them.	
İMÜ213 /3	Intellectual and Industrial Property Rights	3.Semester Winter	The aim of this course is to teach the fundamentals of intellectual and industrial property rights. As a result of this course, students have knowledge about intellectual property rights system and Law of 5846 Intellectual and Artistic Works, industrial property rights system and 6769 Industrial Property Law, international agreements, copyright, software registration, patent registration, trademark registration, design registration and incentives in this field. It will be. Within the scope of the course, each student will prepare a report on their registration process and read at least one book on intellectual property rights and / or entrepreneurship.	Civil Engineering
TBM204 /4	Differential Equations	4.Semester Winter	What is differential equation? How do they arise? First order differential equations. Orthogonal trajectories. Linear differential equations of arbitrary order. Approximate methods of solution of D.E., Power series solutions of D.E., Laplace transforms. Systems of linear D.E. Introduction to partial differential equation.	Computer Engineering
İMÜ202 /3	Health and Safety	4.Semester Winter	Objectives and content of the course, outlines	Civil Engineering

			of the course, the aim of health and safety, Basic concepts of health and safety such as injuries at work, occupational disease, historical development of health and safety, health and safety applications in Turkey and all over the world, ,Health and safety legislations ,Occupational health and safety standard: Ohsas 1800 ,Organization of health and safety, duties and responsibilities of the ones who are responsible for health and safety ,Responsibilities of government, employers and workers ,types of Incident and accident , occupational disease, prevention methods of diseases and accidents	
İMÜ204 /4	Construction Material	4.Semester Winter	Production types used in construction, properties and related tests for the following materials are covered: Feorrous metals, bituminous materials, clay products, timber, building stones, mineral aggregates, lime gypsum, hydraulic cements and concrete. Constituents, theories of mix design, principals steps in production, physical and mechanical properties of concrete.	Civil Engineering
İMÜ206 4/	Structural Analysis I	4.Semester Winter	Introduction, classification of structural systems, loads, assumptions and idealizations, force systems, forces,	Civil Engineering

			reactions, internal forces, equilibrium equations, analysis of plane systems under dead loads, statically determinate plane systems; beams, indirect systems, statically determinate plane trusses, analysis of plane systems under live loads, introduction to influence lines	
İMÜ208/5	Solid Mechanics-II	4.Semester Winter	Combined Loading States, Normal Force with Bending/ Core, Materials not Resistant to Tension under the Effect of Eccentric Normal Force/ Determination of Stresses and Strains in the Case of Bending Moments with Shearing Force/ Design in the Case of Bending Moments and Shearing Force. Directions of Principal Stresses/ Study of Elastic Curve by Various Methods, Analysis of Statically Indeterminate Systems/ Bending with Torsion/ Energy Methods/ Elastic Stability.	Civil Engineering
İMÜ210 /4	Railway and Earthwork	4.Semester Winter	General information, types and properties of soils, structure of soils, highway preparation of cross-sections, retaining walls, splitting and filling volumes, Diagram of masses and optimum soil distribution, platform creation, excavation methods, excavation vehicles, dampers, compression and compression tools, Introduction to railway engineering, gravity, geometric and physical standards, manufacture	Civil Engineering

			of slopes, curves, transition curves, routes, superstructures, superstructures	
İMÜ212 /4	Land Survey	4.Semester Winter	Description of the measure. Use ofthe geodetic measuring device. Distance measurement, problem-solving methods and sources of error in measuring distance Angle measurement tools and angle measurements. Coordinate and field measurement methods. Definition of height systems.Levelling principles and techniques.	Civil Engineering
AİT202/2	Atatürk's Principle and The History of the Turkish Renovation II	4.Semester Winter	Basic political, economic, social and cultural facts of the historical period beginning from 1923 to the present; fundamental academic interpretations on them	
İMÜ301 /5	Fluid Mechanics	5.Semester Winter	Definitions, physical properties, hydrostatics. Buoyancy. Rate of deformation. Steady and unsteady flows. Principles of conservation of mass and conservation of momentum. Bernoulli theorem and fluid energy. Application to pumps and turbines hydraulics. Introduction to similarity laws. Incompressible flow regimes; viscous flow. The flow of viscous fluids in ducts	Civil Engineering
İMÜ303 /5	Structural Analysis II	5.Semester Winter	Concept of elastic strain, energy theorems, calculation of displacements and rotations using energy methods, analysis of	Civil Engineering

			statically indeterminate structures, force method, calculation of displacements in statically indeterminate structures, displacement method, cross-moment distribution method, influence lines and load combinations.	
İMÜ305 /5	Soil Mechanics	5.Semester Winter	Engineering problems involving soils. Index properties and classification of soils. Phase relationships. Compaction. Permeability. Seepage and flow nets. Total and effective stress, hydrostatic and excess pore pressures. Shear strength of soils. Stresses and displacements. Lateral earth pressure at rest, active and passive earth pressures; Rankine's theory and Coulomb's wedge theory. Earth-retaining structures. Compressibility of soils. One-dimensional consolidation; determination of coefficients of compressibility and consolidation. Principles of foundation design; analysis of settlements, bearing capacity of foundations	Civil Engineering
İMÜ307 /5	Engineering Hydrology	5.Semester Winter	İntroduction: hydrologic cycle, engineering point of view. Weather and hydrology: dominant hydro meteorological	Civil Engineering

			factors. Precipitation: formation, measurement and analysis of data. Snowpack and snowmelt. Streamflow: watershed system, measurement. Evaporation and evapotranspiration. Surface water interactions. Hydrograph analysis and synthesis; Flood routing. Probability in hydrology; introduction to stochastic hydrology and simulation methods.	
İMÜ309 /5	Highway Engineering and Design	5.Semester Winter	Elements of Highway, characteristics of road users, vehicle movements and general characteristics of road traffic, capacity of roads, highway classification and selection of geometric standards, crossing and plan, Horizontal curves, longitudinal section and vertical curves, infrastructure, drainage of roads, pavement and hot mix asphalt, Drawing the zero polygon, drawing the route, calculation of horizontal curves, passing the red line, making the cross-section readings, making the superelevation calculation, drawing of the cross sections, preparing the volume table, drawing the Brucner curve, the preparation of the footage of the infrastructure and superstructure works and the summary of the discovery	Civil Engineering

İMÜ311/3	Numerical Analysis	5.Semester Winter	Error Analysis, Solution Methods of Nonlinear Equations, Solution Methods of Linear Set of Equations, Interpolation and Curve Fitting, Numerical Derivation, Numerical Integration, Numerical Solution Methods of Ordinary Differential Equations	Civil Engineering
İMÜ399 /2	Professional Practice-I (Internship)	5.Semester Winter	Internship presentation, investigation of the internship notebook	Civil Engineering
İMÜ302 /5	Steel Structures	6.Semester Winter	Behaviour of steel structures. Tension members and compression members. Beams. Combined bending and compression. Types and behaviour of connections : riveted, bolted, and welded.	Civil Engineering
İMÜ304 /5	Reinforced Concrete I	6.Semester Winter	Design of reinforced concrete members according to limit states. Adherence and development. Behavior of reinforced concrete and ultimate strength design. Analysis and design of beams under pure bending. Reinforced concrete members under shear. Analysis and design of columns subjected to axial loads. Analysis and design of columns subjected to combined axial load and bending. Analysis and design of biaxially loaded columns. Serviceability limit states of reinforced concrete members	Civil Engineering
İMÜ306 /5	Construction Management	6.Semester Winter	Construction machinery; engineering	Civil Engineering

			fundamentals. Description, types, selection criteria and output analysis of basic construction equipment. Contracting law; Bidding law No.2886; general specifications for public works. Profile of the construction sector, company and site organisation, construction planning; stock control, quality assurance, cost control, value engineering, financing. Safety engineering. Human relationships. Quantitative methods.	
İMÜ308 /5	Engineering Hydraulics	6.Semester Winter	Units. Dimensions. Dimensional homogeneity. Dimensional analysis. Buckingham theorem. Interpretation of various dimensionless quantities in fluid flow; similitude, principle of modelling. Laminar flows. Poiseuille flow; turbulent flows. Reynolds frictional losses. Moody chart. Generalised Bernoulli theorem. Branching pipes. Open channel flow: definition and classification, pressure distribution, uniform flow computation. Normal, composite, compound cross-sections. Specific head Knock, parabola. Introduction to gradually varied flow and rapidly varied flow	Civil Engineering
/3	Technıcal Electıve I	6.Semester Winter		
İMÜ310 /5	Foundation Engineering	6.Semester Winter	Subsurface exploration. Boring and sampling methods. Field load test. Types of loads on	Civil Engineering

			foundations. Allowable settlement of structures. Soil structure interaction. Open excavations. Bracing of open cuts. Spread foundations. Individual column footing. Wall footings. Cantilever footings. Combined footings and raft foundations. Rigid and elastic design methods. Introduction to pile foundations.	
İMÜ312 /2	Engineering Economy	6.Semester Winter	Introduction to engineering economics / Cost and its usage in decision making / Market conditions, supply-demand equilibrium / Economic systems, macro and micro economy concepts, income distribution / Interest and time value of money, cash flow / Methods of calculating interest: simple, compound, nominal and effective interest; effect of varying interest rate / Rational comparison of economic alternatives with various methods / Depreciation concept and analysis methods / Investment amount, determination of revenue and costs / Inflation concept, its types and effect on economical parameters	Industry Engineering
İMÜ401 /6	Reinforced Concrete II	7.Semester Winter	Slabs: introduction, types of Slabs, one-way slabs, two-way slabs, ribbed slabs, punching shear; footings: introduction, types of	Civil Engineering

			footings, wall footings, single-column footings, combined footings, continuous footings.	
İMÜ405/3	Entrepreneurship	7.Semester Winter	Introduction of the basic issues in entrepreneurship and management of small enterprises. The course "Entrepreneurship" will be conducted mainly in the form of lectures, discussions with guest managers from the sector and presentation of business plans. Within the scope of the course, students are obliged to prepare and present their business plans for the passing of a new business idea to the end of the semester.	Industry Engineering
İMÜ 403 /5	Water Resources	7.Semester Winter	River Morphology / Sediment transportation in rivers / Drop structures, diversion weirs, gated diversion weirs / Dams, types of dams/ Reservoir of dams / Water intakes structures from river / Outlet works of dam, spillways/ Energy dissipation basin/ River improvements / Flood control structures	Civil Engineering
İMÜ497 /3	Professional Practice-II (Internship)	7.Semester Winter	Internship presentation, investigation of the internship notebook	
/5	Technıcal Electıve II	7.Semester Winter		
/5	Technıcal Electıve II	7.Semester Winter		
İMÜ407/3	Project Management	7.Semester Winter	Introduction to project and project management Knowledge fields in project management Starting the project	Industry Engineering

			Project planning, I - time management, project team building Project planning II- Estimation of costs, budgeting and planning of risk management Implementation of the project-CPM and PERT Project monitoring and control Project closure	
	Social Elective	7.Semester Winter		
İMÜ402/4	Water Supply and Environmental Health	8.Semester Winter	Design of water distribution network by dead point method/ Design of waste water sewer systems/ Design of storm water sewer systems	Civil Engineering
İMÜ404 /4	Introductions to Earthquake Engineering	8. Semester Winter	Earthquake conceptions in seismological, geotechnical and structural aspects. Content includes: Earthquake characteristics and mechanism, soil properties under earthquakes, soil-structure interactions, earthquake damage, earthquake design codes, design principles under earthquake loadings	Civil Engineering
İMÜ406 /6	Reinforced Concrete Structure Design	8.Semester Winter	Slab design, preliminary design of beams and columns, static analysis under vertical loads, analysis under earthquake load, superposition of the internal forces, design of the beams, design of the columns, design of the footings, drawings: floor plans, footings plans, column detailing, beam detailing, footing	Civil Engineering

			Detailing.	
İMÜ499 /6	Graduation Study	8.Semester Winter	Each student will choose a project topic with his/her Advisor, will write a final report and will defend it against a jury	Civil Engineering
/5	Technıcal Electıve IV	8.Semester Winter		
/3	Technıcal Electıve V	8.Semester Winter		
	Social Elective	8.Semester Winter		