Munzur University

International Relations Office

2018-2019 Academic Year

List of Courses

Code/ Credits	Course	Semester Winter/ Spring	Contents	Contact Details of Lecturer	Department
TRD101/2	Turkish Language- I	1st/Winter	Definition and function of language, language - culture relation, age and antiquity of the Turkish Language, chronological development of Turkish language, historical development of the Turkish written language, phonetics, morphology, word types, syntax, word groups, sentence, sentence by the structure, punctuation signs, writing rules, expression defects.	Name-Surname: Lecturer Cemile Şen E-mail: cemila0109@gmail.com Tel: 0090 428 2131794- 2147	Faculty of Literature
TBK101/3	General Chemistry - I	1st/Winter	Uncertainty and significant figures in science. Unit systems basic chemical laws, the presence of chemical formulas, oxidation numbers, squaring the reaction equation. Chemical calculations. The structure of the atom, atomic spectra, the periodic table. Quantum numbers, the structure of the atomic nucleus, nuclear reactions, chemical bonds. Chemical bond theory, molecular geometry. Gases, kinetic theory, liquefaction of gases. Liquids, solids.	Name-Surname: Assoc. Prof. Muharrem İnce E-mail: muharremince@munzur.edu.tr Tel: 0090 428 2131794- 2404	Chemical Engineering
TBK102/2	General Chemistry Lab.	1st/Winter	Preparation of solution. Recognition of substances by their properties. Solid Density determination of liquid and gas. Specific ratios law. Electrolysis. Separation and purification methods. Determination of melting and boiling points of pure substances. Acid-base titrations. Diffusion of gases.	Name-Surname: Assistant Professor Gökhan Önder Ergüven E-mail: gokhanondererguven@gmail.com	Environmental Engineering

				Tel: 0090 428 213-1794 2451	
TBM101/4	General Mathematics – I	1st/Winter	Functions, limits, derivatives and applications, Rolle's theorem, mean value theorem, initiative of the ODT tothe Taylor formula and estimation of approach error, uncertainties, uncertain situations inlimit and rule of L'Hospital, the maximum and minimum problems, examining the sign of the first derivative, maximum and minimum problems and applications, convexity and concavity, asymptotes, curve drawings, indefinite integrals.	Name-Surname: Assoc. Prof. İnan Ünal E-mail: hmbaskonus@gmail.com Tel: 0090 428 2131794- 2476	Computer Engineering
TBF101/4	General Physics – I	1st/Winter	Physics and measurement. Vectors. Motion in one dimension. Two-dimensional motion. The laws of motion. Circular motion and other applications of Newton's laws. Work andkinetical energy. Potential energy and energy conservation. Linear momentum and collisions. Rigid body rotation around a fixed axis. Rolling motion and angular momentum. Static balance and flexibility. Vibration movement. Gravitational force law. Fluid mechanics.	Name-Surname: Assistant Professor Handan Aydın E-mail: haydin@munzur.edu.tr Tel: 0090 428 2131794- 2518	Mechatronic Engineering
CMU101/2	Introduction to Environmental Engineering	1st/Winter	Introducing the academic program of the Environmental Engineering, environmental pollution, pollution of the water sources and basic concepts, water pollution control, solid wastes, air pollution and basic concepts, soil pollution, radioactive contamination, noise pollution, environmental law, related institutions, environmental impact assessment.	Name-Surname: Assoc. Prof. Mehtap Tanyol E-mail: mtanyol@hotmail.com Tel: 0090 428 2131794- 2436	Environmental Engineering
CMU103/2	Technical Drawing	1st/Winter	History of the technical drawing, importance of the technical drawing, drawing equipment, lines and their	Name-Surname: Assistant Professor Yahya Taşgın	Mechanical Engineering

			features, intersections of the lines and connecting of them, plan, section, description of the outlook drawing and performing, dimensioning and dimension lines, scale and scale types, sketch drawings, drawings of a structure's plan, section and outlook.	E-mail: yahyatasgin@munzur.edu.tr Tel: 0090 428 2131794- 2415	
CMU105/3	General Biology	1st/Winter	Definition of biology, some important branches of biology and some biological concepts. Classification of organisms according to their cell structure.The material transitions of cell membrane and plasma membrane, physical - chemical properties of the cytoplasm, organelles in the cytoplasm. Inorganic and organic substances that the cell contains. Nucleus and nucleolus.Cellular energy production (photosynthesis and respiration). Chromosomes.Nucleic acids, the genetic code and protein synthesis.Cell division (amylose division, mitosis and meiosis division), the differences between mitosis and meiosis.	Name-Surname: Assoc. Prof. Nuran Cıkcıkoğlu Yıldırım E-mail: nurancyildirim@gmail.com Tel: 0090 428 2131794- 2427	Environmental Engineering
YDI101/3	Foreign Language(English)– I	1st/Winter	Placement Test, pronunciation (simple daily life dialogues), dictation practices, forming simple sentences, word types and features of them, grammar, regular verbs, oral and written expression activities. Irregular verbs. Widespread terms-idioms. Speaking and listening. Simple essay writings. Grammar practices. Application of the theoretical knowledge using the dictionary. Translations from the target language to the first language.	Name-Surname: Assistant Professor Sema Kayapınar Kaya E-mail: semakayapinar@munzur.edu.tr Tel: 0090 428 2131794- 1810	Industrial Engineering
TRD102/2	Turkish Language– II	2nd/Spring	Incomprehensibility, basic research techniques, formal standards in writing, access to the information resources	Name-Surname: Lecturer Cemile Şen	Faculty of Literature

			and library use, rhetoric, communication and presentation techniques, assessment of reading activities, writing species (official and intellectual writings), fictional writings, subject, main ideas, themes, expression types and forms.	E-mail: cemila0109@gmail.com Tel: 0090 428 2131794- 2147	
TBM102/4	General Mathematics – II	2nd/Spring	Definite integrals and applications, area, volume and arc length calculations, finding the area of a revolving surface, limits accounts with the help of the integral, average value, improper integrals, calculation of mass along a curve, series, power series, series expansion of functions, many variable functions, limit, continuity, partial derivatives, in any direction derivative, exact differential, area conversions, Taylor expansions for multivariate functions, maximum and minimum in the multivariate functions, taking derivatives under the integral sign, double integral and applications, triple integrals and their applications, curvilinear and spherical coordinates, line integrals, Green Theorem.	Name-Surname: Assistant Professor İnan Ünal E-mail: inanunal@munzur.edu.tr Tel: 0090 428 2131794- 2438	Computer Engineering
TBF102/4	General Physics- II	2nd/Spring	Electric fields. Gauss' Law. Electrical potential. Capacitance and dielectrics. Current and resistance. Direct current circuits. Magnetic fields. The magnetic field sources. Faraday's Law. Inductance. Alternative current circuits. Electromagnetic waves.	Name-Surname: Assistant Professor Handan Aydın E-mail: haydin@munzur.edu.tr Tel: 0090 428 2131794- 2518	Environmental Engineering
TBK103/3	General Chemistry - II	2nd/Spring	Solutions, deviation from Raoult's Law, electrolytic solution, colligative properties of solutions, chemical kinetics, reaction mechanisms. Chemical equilibrium. Acids, bases,	Name-Surname: Assoc. Prof. Muharrem İnce E-mail: muharreminc@munzur.edu.tr	Chemical Engineering

			aqueous solution reactions, buffer solutions. Solubility and precipitation, ionic equilibrium.Chemical thermodynamics, thermodynamic laws, some thermodynamic functions. Electrochemistry, electrolysis, standard electrode potential, commercial batteries. Metals and non-metals. Organic chemistry.	Tel: 0090 428 2131794- 2404	
ENF102/3	Basic Information Technologies	2nd/Spring	Basic computer data, operating systems, Microsoft Word, Microsoft Excel, Microsoft Powerpoint, internet usage.	Name-Surname: Assistant Professor Faruk Serin E-mail: fserin@munzur.edu.tr Tel: 0090 428 2131794- 1831	Computer Engineering
CMU102/3	Statics and Strength	2nd/Spring	Equilibrium of the substantial point, force systems, the concept of the moment, friction, carrier systems, support reactions and diagrams of the internal force, combined trusses, solid body systems, center of the gravity, moments of inertia, analysis of the internal force and tension, metamorphosis, connections between tension and metamorphosis,mechanic properties of the rigid bodies, factor of safety and tension of safety, principles of the barstrength, simple strengthstates (normal force, shearing force, deflection moment and torsional moment).	Name-Surname: Assistant Professor Şule Tatar E-mail: sytatar@munzur.edu.tr Tel: 0090 428 2131794- 2451	Environmental Engineering
YDI102/3	Foreign Language (English) – II	2nd/Spring	There is/there are. Was/were. Past simple. Can/can't. Requests and offers. Directions. Months of the year. Want, like, would like. Present continuous. Question words.	Name-Surname: Lecturer Hasan Şahin Yıldırım E-mail: hsyildirim@munzur.edu.tr	Foreign Languages Department

				Tel: 0090 428 2131794-2184	
CMU201/3	Engineering Mathematics	3rd/Winter	Introduction to engineering mathematics, formulation of the engineering problems, vector differential mathematics, first order ordinary differential equations, second order linear homogeneous differential equations with constant coefficientsand solving methods, high level homogeneous and inhomogeneous linear differential equationswith fixed coefficients, systems of the differential equation, derivative and geometric equivalent, derivatives of the algebraic functions, differential and geometric equivalents, line, surface, volume integrals and integral theorems, modelling of the problems special to environmental engineering.	Name-Surname: Assoc. Prof. Mehtap Tanyol E-mail: mtanyol@hotmail.com Tel: 0090 428 2131794- 2436	Environmental Engineering
CMU203/3	Environmental Chemistry – I	3rd/Winter	Introduction, sampling, sample preparation and storage methods. Techniques used during the analysis (pH, conductivity measurement, density, solubility determination etc.). Gravimetric analysis. Volumetric analysis. Spectrophotometric analysis. Organic chemistry. Thermodynamics.	Name-Surname: Assistant Professor Şule Tatar E-mail: sytatar@munzur.edu.tr Tel: 0090 428 2131794- 2451	Environmental Engineering
CMU205/3	Engineering Statistics	3rd/Winter	The importance of the statistics for engineering, basic concepts and operations, classification of the data, averages of the grouped data, relation between the averages, frequency analysis of simple examples, standard deviation and calculating variance of the classified and unclassified data, properties	Name-Surname: Assistant Professor Şule Tatar E-mail: sytatar@munzur.edu.tr Tel: 0090 428 2131794- 2451	Environmental Engineering

			of the standard deviation, probability theory, conditional probability, total probability theorem and Bayes' Law, important probability distribution functions, coefficient of correlation, regression analysis, variance analysis, factorial experimental designs, F Test, Chi Square Test.		
CMU207/4	Fluid Mechanics	3rd/Winter	Basic concepts, fluid statistics, fluid kinematics, basic equation of one-dimensional flow, one-dimensional and two-dimensional currents of the ideal and real fluids, dimensional analysis.	Name-Surname: Assoc. Prof. Murat Topal E-mail: murattopal@munzur.edu.tr Tel: 0090 428 2131794- 2518	Environmental Engineering
CMU209/4	Microbiology	3rd/Winter	Definition, history and branches of the microbiology, Prokaryotic and Eukaryotic cells, microorganism groups and their basic features, classification of the microorganisms according to their heat and oxygen needs and shapes, nutrition and growth kinetics of the microorganisms, microbial metabolism-enzymes and generation of energy, microbial genetics. Work rules in the microbiology laboratory, introducing the use of tools and materials, introduction of the microscope, examination of prokaryotic and eukaryotic microorganisms under the microscope, dyes and staining methods (simple painting methods, gram staining methods), media varieties, preparation of solid and liquid mediums for the production of microorganisms, methods of cultivation and culture, determination of coliform	Name-Surname: Prof. Numan Yıldırım E-mail: numanyildirim44@gmail.com Tel: 0090 428 2131794- 2443	Environmental Engineering

			bacteria with multiple tube fermentation method, bacteria count methods, sterilization and autoclaveoperation, todetermine sizeof microorganisms.		
AIT201/2	Principles of Ataturk and Revolution History - I	3rd/Winter	Definition of the terms; 'revolution' and 'history', revolutions in the world and the place of the Turkish Revolution among them, characteristics of the Turkish Revolution, Armenians at the Ottoman time, Ottoman Empire at the First World War and results of the war, Mondros Armistice Agreement and occupation of the empire, start of the independence war, status and objective of Atatürk at Independence War, Amasya Memorandum-National Congresses, relations between İstanbul and Anatolia, foundation of Grand National Assembly of Turkey (GNAT) and its initial studies, prevention of domestic rebellions, Eastern Front Wars, National Fronts (Turkish Revolutionaries), Western Front, early international agreements signed by the GNAT, Lausanne Peace Treaty.	Name-Surname: Lecturer Tahsin Hazırbulan E-mail: tahsinhazirbulan @munzur.edu.tr Tel: 0090 428 2131794- 2469	History Section
CMU211/2	Worker's Health and Safety	3rd/Winter	Historical development of workers' health and safety,general information, the concept of job safety, the definition of work-related accidents, causes and methods of prevention, the importance of safety in terms oflabor productivity, economic importance of the safety study, formation and classification of occupational accidents, hazards and dangers varieties, methods and solutions in the accident investigation.	Name-Surname: Assoc. Prof. Nuran Cıkcıkoğlu Yıldırım E-mail: nurancyildirim @gmail.com Tel: 0090 428 2131794- 2427	Environmental Engineering
CMU 213/2	Soil Mechanics	3rd/Winter	Soil index properties and classification, effective	Name-Surname:	Environmental Engineering

			regression concept, properties of the ground hydraulic, slip resistance of the ground (unconfined compressive strength, shear box, triaxial tests, consolidation), consolidation theory, compaction theory, plastic equilibrium states of the soil (soil effect, soil resistance-rigid and flexible resistance structures and their detailed calculations), calculating the stabilization of the side slopes and slopes by the abac scale, permeation problems.	Assoc. Prof. Mehtap Tanyol E-mail: mtanyol@hotmail.com Tel: 0090 428 2131794- 2436	
CMU 215/2	Environmental Pollution Control	3rd/Winter	Atmospheric pollution and ozone layer, nitrogen oxides, hydrocarbons, and halocarbons, sulfur oxides, particles, determination of air quality, greenhouse effect, water quality and pollution, detergent and water pollution, wastewater treatment, toxic metals, oil and environmental pollution.	Name-Surname: Assoc. Prof. Nuran Cıkcıkoğlu Yıldırım E-mail: nurancyildirim@gmail.com Tel: 0090 428 2131794- 2427	Environmental Engineering
CMU 217/2	Planning of Environmental Resources	3rd/Winter	Environmental policy and planning of environmental resources, planning criteria, engineering and planning, methods used in the planning of the environmental impact, zone and river basin planning, planning of land resources, the EIA directive and applications, environmental impact detection methods, urban planning concepts, management and supervision principles of environmental resources planning.	Name-Surname:	Environmental Engineering
CMU219/2	Membrane Physiology	3rd/Winter	Membrane biophysics and ion channels, cell signaling and signal transduction, cell reproduction, cancer problem, biophysical properties of body fluids, molecular interactions in living systems, molecular structure, biological	Name-Surname: Prof. Numan Yıldırım E-mail: numanyildirim44@gmail.com Tel:	Environmental Engineering

			membranes, transport systems.	0090 428 213 2443	
CMU 220/2	Urbanization and Environmental Problems	3rd/Winter	Basic concepts of urbanization and environmental problems, urbanization in Turkey, urbanization theories, urban and regional planning, urban security, housing policy, slum policy, coastal management and policy, urban and metropolitan governance, the environment and human relations, environmental problems, environmental management.	Name-Surname: Assoc. Prof. Mehmet Yavuz Paksoy E-mail: mypaksoy@gmail.com Tel: 0090 428 2131794- 2435	Environmental Engineering
CMU221/2	Organic and Inorganic Pollutants	3rd/Winter	Environmental risks they create on living ecosystems and properties of organic pollutants such as dyes, pesticides, polyaromatic hydrocarbons, endocrine disruptors.Environmental risks they create on the live ecosystemsand properties of inorganic pollutants in the soil and water.	Name-Surname: Prof. Numan Yıldırım E-mail: numanyildirim44@gmail.com Tel: 0090 428 2131794- 2443	Environmental Engineering
CMU202/2	Computer Assisted Drawing	4th/Spring	Definition of AutoCAD programme, general problem and solutions, drawing preparation, block diagrams, curve drawing, geometric structures, using two dimensions in drawing orthographic shape, drawings, formats, blocks, connections and design centre, sizing and tolerance, drawing plan and cross-section, isometric drawing, drawing samples.	Name-Surname: Assistant Professor Nihan Gülmez E-mail: nihangulmez@munzur.edu.tr Tel: 0090 428 213 2418	Civil Engineering
CMU204/3	Environmental Chemistry – II	4th/Spring	General characteristics of water and water quality parameters, pH of water, acidity, alkalinity, turbidity, colour, hardness of water, chloride, dissolved oxygen and carbon dioxide, BOD , COD, organic substance analysis, iron-manganese, nitrogen and phosphor compounds, sulphate, heavy metals. Determination of acidity, determination of alkalinity,	Name-Surname: Assoc. Prof. Murat Topal E-mail: murattopal@munzur.edu.tr Tel: 0090 428 2131794- 2518	Environmental Engineering

			determination of free CO_2, determination of hardness, determination of dissolved oxygen, determination of chemical oxygen demand and biological oxygen demand, determination of chloride in water, ion exchange, the determination of the anionic surfactants in water, phosphate analysis, chemical phosphate removal.		
CMU206/3	Ecology	4th/Spring	Introducing ecosystems and characteristics, substance cycle in ecosystems, definition of ecology and environment sciences, some theories and concepts in ecology, freshwater ecosystem, marine ecosystem, territorial ecology, carriage capacity, demographic characteristics, the effects of pollution over ecosystems, energy in ecosystems, population ecology, population and its structural characteristics, microbial ecology, individual's ecology, community and characteristics, protection of the nature, sustainable development, protection of biologic variety.	Name-Surname: Assoc. Prof. Nuran Cıkcıkoğlu Yıldırım E-mail: nurancyildirim @gmail.com Tel: 0090 428 2131794- 2427	Environmental Engineering
CMU208/2	Environmental Geology	4th/Spring	Introduction to environmental geology, rocks and minerals, soil and environment, earthquakes and environmental impacts, landslides and environmental impacts, surface and groundwater contamination, mining activities and environmental impacts, energy resources and environmental impacts, waste and environmental impacts, medical geology and environmental health,soil use planning and geology, landfill selection and geology.	Name-Surname: Assoc. Prof. Mehmet Yavuz Paksoy E-mail: mypaksoy@gm ail.com Tel: 0090 428 2131794- 2435	Environmental Engineering
CMU210/3	Hydraulic	4th/Spring	Stream through pipes, stream through open channels,	Name-Surname:	Environmental Engineering

			uniform stream,non-uniform stream, local transforms on water surface, channel controls, model theory, solid substance movements in open channels and streams.	Assoc. Prof. Mehtap Tanyol E-mail: mtanyol@hotmail.com Tel: 0090 428 2131794- 2436	
CMU212/4	Environmental Microbiology	4th/Spring	Concepts of environment and ecology, basic information over microorganisms, soil and air microbiology, food microbiology, water microbiology, photosynthesis, nitrification, denitrification, microorganisms on treatment technology. Pathogen, parasite and indicator microorganisms in water and wastewater, the functions of microorganisms in ecosystems, the role of microorganisms in biogeochemical cycles (carbon, nitrogen, phosphor and sulphur).Microorganisms in active mud systems, oxidation pools, and trickling filters. Microorganisms in anaerobic filtering and decaying operations. Mud microbiology, treatmentsolid wastewith microorganisms (composting), biological warfare in the agricultural protection, microorganism used for microbial metal extraction. Some important tools and materials used in the laboratory, some mediums and solvents used in the production and identification of microorganisms, dyes and staining methods, the control of microorganisms, sterilization of microbiological materials and mediums, microorganisms cultivation (culture) and counting methods, sampling and	Name-Surname: Prof. Numan Yıldırım E-mail: numanyildirim44@gmail.com Tel: 0090 428 2131794- 2443	Environmental Engineering

			protection , microbiological analysis of drinking, potable, and wastewater.		
CMU214/3	Surveying	4th/Spring	Introduction,error calculation, measurement of the horizontal angle, coordinate accounts, polygon accounts, triangulation calculations, measurement of height (levelling), tacheometric surveying method, the application, drawing, levelling curve, map extraction.	Name-Surname: Assoc. Prof. Murat Topal E-mail: murattopal@munzur.edu.tr Tel: 0090 428 2131794- 2518	Environmental Engineering
AIT202/2	Principles of Ataturk and Revolution History – II	4th/Spring	The proclamation of the Republic, the first constitution, Atatürk's principles and reforms (social, economic, administrative, cultural and reforms in other areas), during the single-party governments Turkey and world states, the republican period of internal revolts, the foreign policy of the Republic of Turkey, treaties, orientand Armenian issue, essays for the transition to multiparty era, Ataturk's death, world War II and Turkey, the developments in Turkey's foreign policy, the Middle East and the Republic of Turkey, Turkey's principles and objectives in the rapid progress period.	Name-Surname: Lecturer Tahsin Hazırbulan E-mail: tahsinhazirbulan@munzur.edu.tr Tel: 0090 428 2131794- 2469	History Section
CMU216/1	Principles of Scientific Explanation	4th/Spring	To explain with asimple and easy understandable language and typical examples of international written and oral scientific expression principles that generally accepted and applied in the science world. Written and oral scientific expression principles that need to be successful in the field of written and oral presentation. Various types of scientific written and oral presentations, and all the details and concrete examples that should be considered in the preparation	Name-Surname: Assoc. Prof. Nuran Cıkcıkoğlu Yıldırım E-mail: nurancyildirim@gmail.com Tel: 0090 428 2131794- 2427	Environmental Engineering

			of these presentations. Preparation and submission of the evaluation report based on the research literature.		
CMU218/2	Clean and Renewable Energy Sources	4th/Spring	Demand for energy, energy generation resources, fossil based fuels and environmental effects, clean and renewable energy sources and their importance, solar energy, wind energy, geothermal energy, biomass and biogas, hydroelectric energy, nuclear energy, energy derived from sea.	Name-Surname: Assoc. Prof. Mehmet Yavuz Paksoy E-mail: mypaksoy@gmail.com Tel: 0090 428 2131794- 2435	Environmental Engineering
CMU220/2	Environmental Stressors	4th/Spring	Environmental stressors (noise, smell, visual pollution, temperature, humidity, etc.) and their effects on humans and animals.	Name-Surname: Assoc. Prof. Nuran Cıkcıkoğlu Yıldırım E-mail: nurancyildirim@gmail.com Tel: 0090 428 2131794- 2427	Environmental Engineering
CMU222/2	Water and Wastewater Microbiology	4th/Spring	Drinking and potable water, purification of drinking and process water, the disease through water, microorganisms affecting the quality of water, water pollution and importance, standards-related water microbiology, wastewater microbiology, microorganisms used in the treatment, sweet and salty water microbiology.	Name-Surname: Prof. Numan Yıldırım E-mail: numanyildirim44@gmail.com Tel: 0090 428 2131794- 2443	Environmental Engineering
CMU224/2	Environmental Health and Safety	4th/Spring	Introduction to environmental health issues, communicable diseases, transport and ways of contamination, poisoning, water supply, recreation areas, beaches, swimming pools, temporary settlements, wastewater treatment and disposal, solid waste, radiation and health effects caused by micro-pollutants, hazards and disease control,	Name-Surname: Assoc. Prof. Nuran Cıkcıkoğlu Yıldırım E-mail: nurancyildirim@gmail.com Tel: 0090 428 2131794- 2427	Environmental Engineering

			public health protection activities, introduction to occupational safety, occupational diseases, care to provide occupational health and safety. Human ecology, drinking and potable water, pollution and waste, noise pollution, air pollution, soil pollution, radiation pollution, food sanitation, non-health organizations, environmental impact assessment, legislation relating to environmental health, Turkey's environmental problems and solutions,environmental pollution on the formation of cancer and.		
CMU301/3	Air Pollution and Control	5th/Winter	Causes and effects of air pollution, pollutants, pollution sources, air pollution measurement techniques and analysis methods, pollution-meteorology and modeling, structure and control of particle pollutants, control of volatile organic compounds, the control of sulfur oxide, the control of nitrogen oxide, vehicle problems, air pollution and global climate, legal regulations related to air pollution, air pollution measurement and analysis methods related laboratory work.	Name-Surname: Assistant Professor Şule Tatar E-mail: sytatar@munzur.edu.tr Tel: 0090 428 2131794- 2451	Environmental Engineering
CMU303/3	Environmental Engineering Unit Operations	5th/Winter	Basic processes in water and wastewater treatment, regulation of flow and concentration, mechanical separation systems, ventilation and gas transfer, precipitation types and principles, flotation, filtration and principles, the head loss in the filter, determination solid and volatile substances, granular deposition, rewinding precipitation, localized precipitation, determination of gas transfer coefficient, determining the	Name-Surname: Assistant Professor Gökhan Önder Ergüven E-mail: gokhanondererguven@gmail.com Tel: 0090 428 213 1794-2451	Environmental Engineering

			specific oxygen consumption rate, the filter media characterization (sieve analysis-particle density-porosity), determination of the specific filtration resistance, determination of sludge volume index and other basic operations tests.		
CMU305/2	Water Quality Control	5th/Winter	Definition of water quality and pollution, natural water environments and hydrologic cycle, physical, chemical and biological characteristics of water, water quality changes and environmental impacts, nitrification and denitrification, drinking and irrigation water quality criteria, river pollution and control, lake and sea pollution and control, eutrophication and modelling studies, changes in groundwater quality, protection of water quality and modelling studies, measures to protect water quality, water quality standards, regulations.	Name-Surname: Prof. Numan Yıldırım E-mail: numanyildirim44@gmail.com Tel: 0090 428 2131794- 2443	Environmental Engineering
CMU307/3	Water Supply	5th/Winter	Water quality and environmental health, population growth models, identify the needs of water, flow characteristics, the collection of surface water, the collection of groundwater, soil conditions and conservation area boundaries, artificial recharge of groundwater, conduction of water, pump selection, calculation of detected masses, accumulation of water, accounts and forms of water supply, economic analysis of the water supply.	Name-Surname: Assoc. Prof. Mehtap Tanyol E-mail: mtanyol@hotmail.com Tel: 0090 428 2131794- 2436	Environmental Engineering
CMU309/2	Engineering Hydrology	5th/Winter	Definition, scope, hydrological cycle, definition and characteristics of the drainage (basin), precipitation formation, rain gauges, rainfall upgrade relations, the calculation of	Name-Surname: Assistant Professor Şule Tatar	Environmental Engineering

			areal average rainfall of the basin, measuring the amount of evaporation - perspiration and computational techniques, infiltration, infiltration capacity and seepage index, current measurement methods of river flow, hydrograph, statistical methods in hydrology.	E-mail: sytatar@munzur .edu.tr Tel: 0090 428 2131794- 2451	
CMU311/2	Soil Pollution and Control	5th/Winter	Definition of soil, soil physical, chemical and biological characteristics, soil formation, soil classification.Soil pollution: importance,sources, and factors that cause the pollution, solutions, precautions, methods of analysis of soil pollution, the rehabilitation methods of polluted soil.	Name-Surname: Assistant Professor Gökhan Önder Ergüven E-mail: gokhanondererguven@gmail.com Tel: 0090 428 213 2451	Environmental Engineering
CMU313/3	Material Science	5th/Winter	Internal Structure: The bonds between atoms. The internal structure of matter. Crystal structures and cages. The main material classes: metals, ceramics, polymers, composites. Properties of matter: elasticity, plasticity, viscosity (model objects, creep, relaxation). Mechanical tests. Fracture. Physical properties: resistance to external influences, the properties of multiphase materials. Material selection and use.	Name-Surname: Assistant Professor Şule Tatar E-mail: sytatar@munzur .edu.tr Tel: 0090 428 2131794- 2451	Environmental Engineering
CMU315/0	Professional Practice – I (Summer Internship)	5th/Winter	ApplingStudent's basic engineering intelligence in the areas which are related to job (laboratory, workshop, factory, company, terrain, engineering serving departments) under the control of expert people, and presenting their traineeship content in front of the jury, and evaluating the traineeship document	Name-Surname: Assoc. Prof. Nuran Cıkcıkoğlu Yıldırım Assoc. Prof. Mehmet Yavuz Paksoy E-mail: nurancyildirim	Environmental Engineering

			together with traineeship documents.	@gmail.com mypaksoy@gmail.com Tel: 0090 428 2131794- 2427	
CMU317/2	Professional Foreign Language (English)	5th/Winter	Professional turning on scientific issues and research articles in English, listening, reading and comprehension.	Name-Surname: Prof. Numan Yıldırım E-mail: numanyildirim44@gmail.com Tel: 0090 428 2131794- 2443	Environmental Engineering
CMU319/2	Land Treatment	5th/Winter	Methods applied in the field of wastewater land treatment, factors affecting land treatment of wastewater, irrigation systems, rapid infiltration systems, drainage systems on land, floating plant systems, rooted plant systems, submerged plant systems, design principles.	Name-Surname: Assoc. Prof. Mehtap Tanyol E-mail: mtanyol@hotmail.com Tel: 0090 428 2131794- 2436	Environmental Engineering
CMU321/2	Marine Pollution and Control	5th/Winter	Sea water chemistry and pollution parameters, offshore oil pollution and cleaning of the sea, the metal pollution and cleaning, bacteriological marine pollution, chemistry of sea harmful microalgae growth, radioactive pollution, marine pollution from ships, international agreements.		Environmental Engineering
CMU323/2	Biogas Production Technologies	5th/Winter	Sources of organic waste, characteristics, biogas mixture, properties of methane gas, biological process of methane production, principles and systems, storage, transportation, use and problems, optimization of methane production, recent developments in production.		Environmental Engineering
CMU325/2	Fungal Improving of Wastewater	5th/Winter	Classification of organisms, fungi, general characteristics and systematics, cell wall	Name-Surname: Prof. Numan Yıldırım	Environmental Engineering

			structure of the fungi, fungal physiology, reproduction in fungi forms, fungi cultivation, the fungal biotechnology applications and the importance of biotechnology, the sorption studies with fungi, degradation work with fungi.	E-mail: numanyildirim44@gmail.com Tel: 0090 428 213 1794-2443	
CMU327/2	Ecotoxicology	5th/Winter	Introduction of ecotoxicology and definitions.Pollutants and effects on ecosystems. Pollutants classification.The effects of toxic substances.Pesticides, heavy metals, PCBs, insecticides, andchemical distribution. BioaccumulationBiomagnification.Biological concentration.Biological transformation.Biological monitoring. Photosynthetic organisms and eutrophication.	Name-Surname: Assoc. Prof. Nuran Cıkcıkoğlu Yıldırım E-mail: nurancyildirim@gmail.com Tel: 0090 428 213 2427	Environmental Engineering
CMU329/2	Groundwater Pollution	5th/Winter	Porosity, permeability concepts, groundwater movement, Darcy law, hydraulic tests, the transfer of chemicals in groundwater, chemical reactions occurring in groundwater, mathematical modeling of mass transfer of the contaminated groundwater, process and parameter analysis, the study of groundwater treatment systems, groundwater pollution control and impurity removal methods, water resource protection areas, salinization problems and control systems in coastal aquifers.		Environmental Engineering
CMU331/2	Global Climate Change	5th/Winter	Human activities and global climate change, greenhouse gases and aerosols, changes observed in global climate and sea level, climate scenarios,the effects of climate change, ozone depletion in the stratosphere, protection of the global climate system, statistical	Name-Surname: Assoc. Prof. Mehmet Yavuz Paksoy E-mail: mypaksoy@gmail.com Tel:	Environmental Engineering

			analysis of climate observation series.	0090 428 2131794- 2435	
CMU333/2	Biomonitoring	5th/Winter	Changes in the ecosystem's biotic and abiotic conditions, monitoring of the changes, biological monitoring methods and applications, chemical methods used in the evaluation criteria.	Name-Surname: Assoc. Prof. Mehtap Tanyol E-mail: mtanyol@hotmail.com Tel: 0090 428 2131794- 2436	Environmental Engineering
CMU335/2	Aquatic Toxicology	5th/Winter	Introduction to toxicology, new concepts and approaches in toxicology, water chemistry, bioaccumulation of water borne contaminants,toxic metals in the water and effects, chronic and sub-chronic exposure of fish, acute exposure of fish, physiological effects of nitrogen compounds to fish and crustaceans, potential effects of estrogenic substances in water, in vitro toxicology of water pollutants, pesticides in water.	Name-Surname: Assoc. Prof. Nuran Cıkcıkoğlu Yıldırım E-mail: nurancyildirim@gmail.com 0090 428 213 1794-2427	Environmental Engineering
CMU302/3	Removal of Wastewater	6th/Spring	Collection of wastewater, account of wastewater channel systems, account of rainwater stream, account of rainwater channels, account of united system channels, account of special structures of channel network (full sluice, reverse flush, collection containers of rainwater), planning lift centres, applications of channel project designing, cost estimate.	Name-Surname: Assistant Professor Gökhan Önder Ergüven E-mail: gokhanondererguven@gmail.com Tel: 0090 428 213 1794-2451	Environmental Engineering
CMU304/3	Treatment of Industrial Wastewater	6th/Spring	Definition of the industry, characteristics of industrial wastewater, pollution view, process view, pollution load and population equivalent concepts, methods applied in the control of industrial environmental pollution, industrial pollution and pollution prevention policies in Turkey, pollution	Name-Surname: Assoc. Prof. Mehtap Tanyol E-mail: mtanyol@hotmail.com Tel: 0090 428 213 1794-2436	Environmental Engineering

			prevention and mitigation technical standards in the industry, balancing, neutralization, flotation, grease removal unit design, slaughterhouse and integrated meat industry wastewater treatment, adsorption and chemical treatment unit design, anaerobic treatment information, discharge of industrial wastewater to the urban sewage systems, pre-treatment standards, industrial pre-treatment and pre-treatment example, treatment of leather industry wastewater, pulp and paper wastewater treatment plants, oil industry wastewater treatment, cotton textile wastewater treatment.		
CMU306/4	Chemical Processes	6th/Spring	Chemical kinetic, the design of reactor, neutralization, chemical oxidation, disinfection, chemical precipitation, chemical coagulation and flocculation, adsorption, ion exchange, determination of reaction rate, catalysis, Fe (II) oxidation, residual chlorine determination, breakpoint chlorination, chemical phosphate removal, lime-soda method, neutralization.	Name-Surname: Assistant Professor Gökhan Önder Ergüven E-mail: gokhanondererguven@gmail.com Tel: 0090 428 213 1794-2451	Environmental Engineering
CMU308/4	Biological Processes	6th/Spring	The metabolism of microorganisms, metabolic process, stoichiometry of aerobic systems, anoxic respiration, the parameters defining substrate and biomass, reproduction kinetic in aerobic systems, suspended growth systems, batch systems, non return activated continuous systems, return activated systems, the determination of kinetic and stoichiometric coefficients , active sludge systems, the parameters, used in the design and operation, oxidation tanks, biofilm	Name-Surname: Assoc. Prof. Murat Topal E-mail: murattopal@munzur.edu.tr Tel: 0090 428 213 1794-2518	Environmental Engineering

			systems ,fluidized bed, rotary disc, anaerobic process, the metabolism of anaerobic process: process stoichiometry and kinetic.Sludge stabilization. Wastewater characterizationbased on biological treatability, distribution of COD fractions in the wastewater(particle and dissolved COD), determination of organic matter composition, conversion rate, the maximum growth rate, death rate and the use of respirometric measurement in determining the easy dissociate organic matter.		
CMU310/2	Solid Waste Engineering	6th/Spring	Site selection of domestic and industrial solid waste storage area, isolate the landfill, planning (storage over the structure, business type, equipment, personnel requirements), the dimensioning of the leakage water and account the leachate treatment facilities, gas formation in the landfill, control and evaluation, reclamation of the landfill, improvement and stabilization of closed landfills.	Name-Surname: Assistant Professor Gökhan Önder Ergüven E-mail: gokhanondererguven@gmail.com Tel: 0090 428 213 1794-2451	Environmental Engineering
CMU312/2	Building Technology	6th/Spring	The definition of structure, classification of structures, loads, calculation of isostatic system, difficult diagrams, indeterminate systems, principles of design of structures, basic principles of reinforced concrete, dimensioning and equipping of reinforced concrete structures, design of steel structural members, building systems used in environmental engineering applications.		Environmental Engineering
CMU314/2	Stabilization of Polluted Soil	6th/Spring	The definition of soil, the physical, chemical and biological characteristics of soils, classification of soil.	Name-Surname: Assoc. Prof. Mehmet Yavuz Paksoy	Environmental Engineering

			Soil pollution: the significance, sources of pollution, and the factors causing soil Pollution and solution offers, precautions. Analysis methods of soil pollution. Amendment methods of polluted soil.	E-mail: mypaksoy@gmail.com Tel: 0090 428 213 1794-2435	
CMU316/2	Fundamentals of Environmental Biotechnology	6th/Spring	The definition of biotechnology, industrial fermentation and stages, bioreactors and stages, types of biotechnology, environmental biotechnology, food and fermentation biotechnology, genetic engineering, recent studies on environmental biotechnology.		Environmental Engineering
CMU318/2	Enzymology in Environmental Engineering	6th/Spring	The common characteristics of enzymes, enzyme-substrate interaction, vitamins, the differences of enzymes from normal catalyzer matters, the chemical structures of enzymes, cofactor and coenzymes, the important coenzymes and the groups they transferred, the follow and measurement of enzyme activity, active center, the factors affecting enzyme activity, the kinetic of enzyme, conformation changes in enzymes' specificity, allosteric enzymes, activator and inhibitors, competitive inhibition, non-competitive inhibition, the classification of enzymes.	Name-Surname: Assoc. Prof. Nuran Cıkcıkoğlu Yıldırım E-mail: nurancyildirim@gmail.com 0090 428 213 1794-2427	Environmental Engineering
CMU320/2	Sustainable Environmental Policy and Development	6th/Spring	Relations between sustainable development and environment, the concept of development, obstacles in front of the development, significant discrepancies in public policy for economic development, basic development theories, stages of growth, necessaryfactors for economic and social planning, sustainable	Name-Surname: Assoc. Prof. Mehmet Yavuz Paksoy E-mail: mypaksoy@gmail.com Tel: 0090 428 2131794- 2435	Environmental Engineering

			development, dependency approaches, the main factor for development, capital accumulation, natural resources, population and human capital, income distribution, technology, various variables on basic issues such as employment policy, and balanced - unbalanced growth.		
CMU322/2	Lake Pollution and Control	6th/Spring	Polluter sources, the spread essences of polluters in water and running water, the degradation of organic wastes, biochemical oxygen's change in time, the essences of discharge into lakes, the pollution control studies, lake and reservoirs, physical and hydrologic characteristics, finite dimensional section model, water quality, DO analysis, legislation.	Name-Surname: Assoc. Prof. Mehmet Yavuz Paksoy E-mail: mypaksoy@gmail.com Tel: 0090 428 2131794- 2435	Environmental Engineering
CMU324/2	Control and Automation in Environmental Engineering	6th/Spring	Definition of automatic control and purpose, control size, control system, block diagram, feedback control loops, control unit design, transfer functions and definitions, delayed systems, PI and PID control, control valves. Applications: located temperature in the treatment system, pH and flow control units.		Environmental Engineering
CMU326/2	Environmental Modeling	6th/Spring	Mathematical modeling concepts in Environmental Engineering, objectives and importance of macroscopic and microscopic mass balance, exploitation of this equivalence, the application of various biological systems and analytical solutions, necessary momentum and energy balances for environmental engineers, extraction of equivalence and solutions.		Environmental Engineering
CMU328/2	Environmental Policies in EU and Turkey	6th/Spring	Turkey's environmental policy: national policy, responsibilities at the international level,		Environmental Engineering

			environment in the regional development policy, structural and institutional embodiment developments. European Union's environmental policies: policy approaches, action programs, environment in the enlargement policy, developments in the field of environment in Turkey in the process of harmonization of the European Union, applications in the environmental field and Turkey's EU accession issues.		
CMU330/2	Radiation Pollution	6th/Spring	Uranium and thorium chemistry, major principles of natural radioactivity, geochemical perspective on distribution of radioactive substances in water and rocks, radioactive minerals distribution in igneous-sedimentary-metamorphic rocks, classification of radioactive minerals, important radioactive minerals, oxides and complex oxides, hydrated oxides, carbonates, sulfates, phosphates, hydrated and no hydrated phosphates, arsenates, vanadates, molybdates, silicates and hydrated and no hydrated silicates, a small amount of uranium and thorium containing minerals, uranium and thorium containing minerals in case of impurities, radioactive raw minerals in bed, radiation pollution in Turkey, radiation effects on health.		Environmental Engineering
CMU401/4	Treatment of Wastewater and its Project	7th/Winter	Mechanical treatment methods, grids, sand catcher, sedimentation pond, biological treatment methods, activated sludge processes and dimensioning,	Name-Surname: Assoc. Prof. Murat Topal E-mail: murattopal@munzur.edu.tr	Environmental Engineering

			trickling filters, oxidation pond and ditches, mechanical ventilated tanks, sludge dewatering process, treatment plant hydraulic profile, package treatment plants.	Tel: 0090 428 2131794- 2518	
CMU403/1	Graduation Project – I	7th/Winter	Research project prepared in the field of water pollution control, air pollution, elimination of waste water, treatment of drinking water, purification of industrial waste water, removal of waste water and use for in the field irrigation, solid waste collection, evaluation and optimization of collection, noise, environmental impact assessment and environmental impact report, water supply and sewerage, soil pollution and misuse of agricultural areas, alternative-clean and renewable energy sources, etc.	Name-Surname: Prof. Numan Yıldırım Assistant Professor Gökhan Önder Ergüven E-mail: numanyildirim44@gmail.com gokhanondererguven@gmail.com Tel: 0090 428 2131794- 2451	Environmental Engineering
CMU405/1	Scientific Research Methods	7th/Winter	Principles of scientific research, path to follow in scientific research, research tools and resources, choosing the appropriate research methods, techniques of data collection and data analysis methods.	Name-Surname: Assoc. Prof. Nuran Cıkcıkoğlu Yıldırım E-mail: nurancyildirim@gmail.com 0090 428 2131794- 2427	Environmental Engineering
CMU409/2	Anaerobic Treatment Technologies	7th/Winter	Significance of anaerobic treatment, present applications and its future, stages of anaerobic treatment, parameters that affecting treatment, microorganisms functioning in anaerobic environments, growth systems in single stage suspension, up flow anaerobic sludge bed (UASB), hybrid systems, anaerobic lagoons, anaerobic membrane reactors,	Name-Surname: Assoc. Prof. Mehtap Tanyol E-mail: mtanyol@hotmail.com Tel: 0090 428 2131794- 2436	Environmental Engineering

			sequential bed systems, anaerobic filters and contact reactors, up flow and down flow anaerobic filters, rolling anaerobic discs and others.		
CMU411/2	Solid Waste Recovery Technology	7th/Winter	Introduction, recycling technologies of waste, the basic nutrient content and compostable solid waste. Air and airless composting: basic principles, microbiology, biochemistry. Operating parameters: ventilation, water content, temperature, grain size, nutrient elements, C / N ratio, pH, additives. Pneumatic and airless composting systems: simple systems, mechanical systems, process kinetics. Use of compost in agricultural areas and environmental impacts, legislation.	Name-Surname: Assistant Professor Gökhan Önder Ergüven E-mail: gokhanondererguven@gmail.com Tel: 0090 428 2131794- 2451	Environmental Engineering
CMU413/2	Control and Management of Hazardous Waste	7th/Winter	The definition of hazardous waste and classification, fundamental principles of collection and storage, elimination methods, identification of existing legislation, medical waste management, legislation concerning medical waste, hazardous waste definition, basic concepts, the reduction of hazardous waste, hazardous waste treatment and disposal methods, legal regulations.	Name-Surname: Assoc. Prof. Mehtap Tanyol E-mail: mtanyol@hotmail.com Tel: 0090 428 2131794- 2436	Environmental Engineering
CMU415/2	Noise and its Management	7th/Winter	Vibration, sound waves, voice sources, their characteristics, noise, spread of noise, measurement techniques, control of noise, standards of noise, environmental effects of noise, prevention of noise in industry, control of traffic noise, precautions to take in buildings against noise.	Name-Surname: Assoc. Prof. Mehmet Yavuz Paksoy E-mail: mypaksoy@gmail.com Tel: 0090 428 213 1794-2435	Environmental Engineering
CMU417/2	Advanced Treatment Methods	7th/Winter	Advanced treatment systems, advanced biological treatment systems, nitrogen removal (nitrification-		Environmental Engineering

			denitrification), phosphorus removal, membrane technology, removal of metals by biosorption method, cyanide removal, sulfur and sulfate removal, detergent removal, oil and grease removal, phenol and odor removal, color removal, desalination, chemical and photochemical oxidation, advanced treatment processes such as ozonation.		
CMU419/2	Molecular Environmental Biotechnology	7th/Winter	Microbiological basic concepts, biomass vigor and activity, biochemical oxidation kinetics of biological growth (discrete and growth kinetics of continuous culture), enzymes, enzyme kinetics, enzyme inhibition, chemostat culture, growth inhibition and features in chemostat culture, applications in treatment systems, activated sludge process, bioconversion of harmful waste, biosorption of metal ions, the anaerobic microbiology.		Environmental Engineering
CMU425/2	Environmental and Mineralogy	7th/Winter	Environmental problems resulting from processing of the industrial raw minerals and metallic minerals, environmental impacts of mineral beneficiation method, environmental risks created by natural minerals, eco-friendly natural minerals and uses, links between natural minerals and human health, mineral water and health.		Environmental Engineering
CMU427/2	Biological Recovery of Agricultural Waste	7th/Winter	Solid wastes, agricultural wastes, agricultural waste potential and environmental impact in Turkey, the recovery path of agricultural waste, removal of lignin from agricultural waste, compost production from the agricultural waste.	Name-Surname: Prof. Numan Yıldırım E-mail: numanyildirim44@gmail.com Tel: 0090 428 2131794- 2443	Environmental Engineering

CMU429/2	Professional English	7th/Winter	Professional turning on scientific issues and research articles in English. Listening, reading and comprehension.	Name-Surname: Assoc. Prof. Nuran Cıkcıkoğlu Yıldırım E-mail: nurancyildirim @gmail.com 0090 428 2131794- 2427	Environmental Engineering
CMU431/2	Environmental Problems and Policies	7th/Winter	Environmental law and management concepts, ethical responsibility, management of natural resources, the importance of winning the international level environment, international organisations and environmental protection, European Community and environment protection policy of some countries, environmental problems in Turkey, legislation, administrative-political building, environmental protection duties of the ministry, specially protected area management in Turkey, cultural and natural heritage protected areas in Turkey, wildlife protection areas in Turkey, National Parks.	Name-Surname: Assoc. Prof. Mehmet Yavuz Paksoy E-mail: mypaksoy@gmail.com Tel: 0090 428 213 1794-2435	Environmental Engineering
CMU433/2	Lake Pollution	7th/Winter	Water's importance and the hydrological cycle, general information about the lake, geological structure of the lake, the morphology of the lake, the physical properties of water, water chemical properties, classification of lakes, organisms in water, food chain in lakes, the evolution of eutrophication and control, analysis of the factors which cause pollution in lakes, examining the factors causing pollution in lakes, student presentations.	Name-Surname: Assoc. Prof. Mehmet Yavuz Paksoy E-mail: mypaksoy@gmail.com Tel: 0090 428 2131794- 2435	Environmental Engineering
CMU435/2	Sustainable Living and	7th/Winter	Development, sustainable development, problems	Name-Surname: Assoc. Prof.	Environmental Engineering

	Environment		related to global environmental issues, the role of human factor in environmental change, interaction process of development and environment, environmental policy of Turkey and sustainable development.	Nuran Cıkcıkoğlu Yıldırım E-mail: nurancyildirim @gmail.com 0090 428 2131794- 2427	
CMU437/2	Pesticide Chemistry	7th/Winter	Pesticide applications. Key environmental issues arising from the use of pesticides. Polluting levels of pesticides. Permanent features of pesticides. Biological concentration of pesticide residues. Pesticides in soil resources. The degradation pathways of pesticides. Effects of pesticides on microorganisms.	Name-Surname: Assoc. Prof. Nuran Cıkcıkoğlu Yıldırım E-mail: nurancyildirim @gmail.com 0090 428 213 1794-2427	Environmental Engineering
CMU402/1	Graduation Project – II	8th/Spring	Research project prepared in the field of water pollution control, air pollution, elimination of waste water, treatment of drinking water, purification of industrial waste water, removal of waste water and use for in the field irrigation, solid waste collection, evaluation and optimization of collection, noise, environmental impact assessment and environmental impact report, water supply and sewerage, soil pollution and misuse of agricultural areas, alternative-clean and renewable energy sources, etc.	Name-Surname: Prof. Numan Yıldırım E-mail: numanyildirim44@gmail.com Tel: 0090 428 2131794- 2443	Environmental Engineering
CMU404/2	Environmental Economics	8th/Spring	Basic concepts, price theory, social accounting, revenue, equipment, stock, macro types of income, value added, supply, demand, consumption, savings, investment, national income balance, the national income of player agents, employment, money,	Name-Surname: Assistant Professor Şule Tatar E-mail: sytatar@munzur.edu.tr	Environmental Engineering

			banking, credit, inflation international economic relations. Economic analysis of environmental pollution, the cost of environmental protection facilities, preparation of feasibility report. Project concept and project management. Market research and market forecasting techniques. Selection of location and choice of capacity. Choice of technology. Investment cost. Project financing, credit resources of international financial institutions, project evaluation (feasibility), project monitoring.	Tel: 0090 428 2131794- 2451	
CMU407/0	Professional Practice – II (Summer Internship)	8th/Spring	Appling Student's basic engineering intelligence in the areas which are related to job (laboratory, workshop, factory, company, terrain, engineering serving departments) under the control of expert people, and presenting their traineeship content in front of the jury, and evaluating the traineeship document together with traineeship documents.	Name-Surname: Assoc. Prof. Mehmet Yavuz Paksoy E-mail: mypaksoy@gmail.com Tel: 0090 428 2131794- 2435	Environmental Engineering
CMU421/3	Treatment of Drinking Water	8th/Spring	Introduction to water treatment, the characteristics of drinking water, the choice of treatment method, treatment flow sheets, storage reservoirs, ventilation, rapid mixing and flocculation, rapid mixing and flocculation, account and constitute the pool, settling ponds, calculation and dimensioning of the settling ponds, calculation of filtration and filtration systems, membrane systems.	Name-Surname: Assoc. Prof. Mehtap Tanyol E-mail: mtanyol@hotmail.com Tel: 0090 428 213 1794-2436	Environmental Engineering
CMU423/3	Environmental Impact Assessment (EIA)	8th/Spring	Environmental Impact Assessment (EIA) principles and stages of the process. The management of the EIA process. EIA Regulations. Steps in the EIA process. Selection screening process.	Name-Surname: Assistant Professor Gökhan Önder Ergüven E-mail:	Environmental Engineering

			Getting the public opinion and participation. Conduct scoping process. Evaluation of Impact. The preparation of the EIA report. Monitoring and supervision of the implementation of EIA results. Sample Reports investigation.	gokhanondererguven@gmail.com Tel: 0090 428 2131794- 2451	
CMU408/2	Control of Sewage Sludge	8th/Spring	Sewage sludge physical, chemical and biological properties, characteristics of the sludge, solid liquid separation mechanisms, intensification of sludge, sludge stabilization, sludge dewatering, sludge dewatering methods.	Name-Surname: Assoc. Prof. Mehtap Tanyol E-mail: mtanyol@hotmail.com Tel: 0090 428 213 1794-2436	Environmental Engineering
CMU410/2	Equipment of Treatment Plants	8th/Spring	Grids, sieves, pumps, bridges, sludge scrapers, mixers, valves, chlorination devices, syringes, aerators, blowers, gearboxes, presses, belt conveyors, measurement and control systems, control variables, control rooms, process control systems, the design of the piping and instrument diagrams in treatment plants.	Name-Surname: Assoc. Prof. Murat Topal E-mail: murattopal@munzur.edu.tr Tel: 0090 428 213 1794-2518	Environmental Engineering
CMU412/2	Industrial Solid Waste	8th/Spring	The type and quantity of solid waste that occurs depending on the diversity of industrial production, determination of specifications, recycling techniques, their storage.		Environmental Engineering
CMU414/2	Marine Discharge	8th/Spring	Properties of sea water, waves, currents, basic principles of wastewater discharges, the environmental impact of the discharge into the sea, site selection, dilution calculations, hydraulic calculations on the pipe and distributor, the sea placement methods of discharge line.	Name-Surname: Assistant Professor Şule Tatar E-mail: sytatar@munzur.edu.tr Tel: 0090 428 2131794- 2451	Environmental Engineering
CMU416/2	Industrial Microbiology	8th/Spring	Industry-microorganism relationship, microorganisms widely used in the industry and the products they produce, products used in	Name-Surname: Prof. Numan Yıldırım E-mail:	Environmental Engineering

			fermentation technology.	numanyildirim44@gmail.com Tel: 0090 428 2131794- 2443	
CMU418/2	Modeling of Drinking Water Treatment Plants	8th/Spring	Basic operations used in the drinking water treatment and process overview, treatment design, deposition, air conditioning unit design, stilling basin design, coagulation - flocculation unit design, slow sand filter design, rapid sand filter design, disinfection unit design.	Name-Surname: Assistant Professor Şule Tatar E-mail: sytatar@munzur.edu.tr Tel: 0090 428 2131794- 2451	Environmental Engineering
CMU420/2	Treatment and Control of Solid Waste Leachate	8th/Spring	The history of the landfills, waste types, fragmentation degree, physical degradation of waste, space for leachate control, design and construction characteristics, limiting the leachate transport, impermeable layer design, leachate collection, transmission to wastewater treatment plants, physical, chemical and biological treatment, treatment and discharge in the land, leachate recycling.	Name-Surname: Assoc. Prof. Mehtap Tanyol E-mail: mtanyol@hotmail.com Tel: 0090 428 2131794- 2436	Environmental Engineering
CMU422/2	Management and Control of Agricultural Waste	8th/Spring	Agricultural and animal waste resources, waste water, solid waste and agricultural waste characteristics, the role of soil and vegetation on waste management, the importance of geology and groundwater, the planning phase, the design of waste management equipment. Special products system design for manufacturing, compost and industrial material production from agricultural waste, animal industry and their impact on the environment, processing of animal waste and technologies for treatment, biogas production from agricultural and animal waste, low-solids anaerobic	Name-Surname: Prof. Numan Yıldırım E-mail: numanyildirim44@gmail.com Tel: 0090 428 213 1794-2443	Environmental Engineering

			digestion, high solids anaerobic digestion, odor control in stables and set, management, monitoring and security, products derived from agricultural waste, use and economy, legislation and evaluation in terms of environmental quality criteria.		
CMU424/2	Ecosystem Improvement	8th/Spring	Process and techniques regarding the improvement and repairing of destroyed or damaged ecosystems (mining, urban-industrial areas, erosion, and landslides in sensitive areas, wetlands, sand dunes, forests, nature conservation areas, etc.). Importance of ecological engineering practices. Examples of national and international ecosystem rehabilitation. Laws and regulations.	Name-Surname: Prof. Numan Yıldırım E-mail: numanyildirim44@gmail.com Tel: 0090 428 2131794- 2443	Environmental Engineering
CMU426/2	Renewable Energy Technologies	8th/Spring	Wind energy, electricity generation from wind energy, the use of wind energy, solar energy, solar cells and power generation, geothermal energy, use of heat of geothermal energy, electricity generation, the use of geothermal energy, agriculture and tourism, bio-energy, bio-fuels and energy production, hydro power, small power plants to be installed in rivers without dams, energy production from waste, incineration of municipal solid waste, bio-diesel.	Name-Surname: Assoc. Prof. Mehmet Yavuz Paksoy E-mail: mypaksoy@gmail.com Tel: 0090 428 2131794- 2435	
CMU428/2	Operation of Treatment Facilities	8th/Spring	Staff needs and characteristics of the wastewater treatment plant, Sampling from wastewater. Plant control, flow and pressure measurements. Operational problems of the pumps. Grid, the operation of the primary settling tanks and grit chambers. Activated sludge, trickling filters, etc. Stabilization of the pond.	Name-Surname: Assoc. Prof. Murat Topal E-mail: murattopal@munzur.edu.tr Tel: 0090 428 2131794- 2518	Environmental Engineering

			Operational problems. Data collection and laboratory controls. Planned maintenance programs. Operational problems and maintenance programs of sludge and anaerobic digesters. Plant operation and maintenance cost analysis.		
CMU430/2	Renewable Natural Resources and Conservation	8th/Spring	Energy sources: Definition and types of energy, energy dynamics and rules. Renewable energy sources: coal, oil, and natural gas, nuclear energy. Renewable sources: solar energy, natural collection system, technological collection systems. The energy of the Earth. Energy capture of the planet. Hydrogen energy. Energy sources in Turkey. The use of energy sources. Energy-saving.	Name-Surname: Assoc. Prof. Mehmet Yavuz Paksoy E-mail: mypaksoy@gmail.com Tel: 0090 428 2131794- 2435	Environmental Engineering
CMU432/2	Advanced Professional Foreign Language	8th/Spring	English comprehension in the Environmental Engineering, examination for reading and writing, translation from English to Turkish, translation from Turkish to English, writing of scientific studies.	Name-Surname: Prof. Numan Yıldırım E-mail: numanyildirim44@gmail.com Tel: 0090 428 213 1794-2443	Environmental Engineering
CMU434/2	Environmental Law	8th/Spring	Environmental pollution impact on the social structure, general legal knowledge, social relations, constitutional provisions and evaluation related to environmental law, implementation of the laws, regulations, environmental research techniques in law, environmental law enforcement, international environmental law and practices.	Name-Surname: Assistant Professor Gökhan Önder Ergüven E-mail: gokhanondererguven@gmail.com Tel: 0090 428 213 1794-2451	Environmental Engineering
CMU436/2	Engineering Ethic	8th/Spring	Importance of Ethic's universal and individual freedom dimension, understandingvalues ofuniversal ethical principles,	Name-Surname: Assoc. Prof. Nuran Cıkcıkoğlu Yıldırım	Environmental Engineering

			learning the principles of engineering ethics and examining and evaluating them on the basis of professional dilemma.	E-mail: nurancyildirim @gmail.com 0090 428 213 2427	