KEBAN VOCATIONAL SCHOOL DEPARTMENT OF CIVIL

GEOTECHNICAL PROGRAM COURSE CONTENTS

COURSES (I. SEMESTER)	C	T	P	C	ECTS
TRD109 TURKİSH LANGUAGE I	**C**	**2**	**0**	**2**	**2**
Language, languages, Turkish language, grammar, phonetic features of Turkish, phonetic and structural features of Turkish, structural features of Turkish, sentence structure, spelling rules and punctuation marks, application of spelling rules, application of punctuation marks.					
YDİ107 İNGİLİZCE I	**C**	**2**	**0**	**2**	**2**
Verb Be, statements and questions, countries and nationalities, present simple tense, statements, verbs for daily routines, present simple questions, free time activities, verb Have / Has, family tree, there is / there are, places in a town, present continuous tense, rooms and furniture, can / can't, months of the year, present simple tense, present continuous tense, jobs.					
FU101 INTRODUCTION TO UNIVERSITY LIFE	**C**	**2**	**0**	**2**	**2**
Areas of responsibility, introduction to the city and campus, student communities and movements, career center, department chairmanships, campus life, career planning and time management, personal care and hygiene, healthy living and sports, disaster and emergency management, first aid, written and verbal communication, traffic and environmental awareness, academic title ranking and consultancy, domestic and international higher education and student mobility, quality policies, vocational school activities, project information, student projects, student affairs automation, distance education, continuous education center, disciplinary affairs, regulations, directives and senate decisions, grading system, course passing, mobile technologies, short film techniques.					
KİM101 GENERAL CHEMISTRY	**C**	**2**	**0**	**2**	**3**
Material and its distinguishing properties, phase change, mixtures and separation methods, basic laws of chemistry, atomic structure and periodic table, concept of mole, atomic masses and determination of chemical formulas, chemical bonds, calculations related to chemical reactions and reaction equations, radioactivity, qualitative and quantitative analyses, solutions, solutions and concentration, dilution of solutions, titration, acids, bases and pH, gas laws.					
MAT103 GENERAL MATHEMATICS	**C**	**2**	**0**	**2**	**3**
Ability to perform arithmetic and algebraic operations. Ability to calculate the power and root of a real number. Solution of radical, fractional equations and equations that can be transformed into second degree. Real and complex numbers, second degree equations with one unknown. Relationships between root coefficients in second degree equations and solution of inequalities. Ability to solve equations and inequalities. Ability to use trigonometric ratios. Understanding complex numbers. Solution of determinants and linear equations, equation of a line in a plane, vectors, logarithm.					
ENF101 USE OF BASIC INFORMATION TECHNOLOGIES	**C**	**2**	**2**	**3**	**4**
Computer architecture. Motherboard, processor, monitor, keyboard, RAM, ROM, hard disk, printer, serial parallel port, USB. CD ROM, sound card, floppy, concept and types of software; programming languages; operating systems. Ability to perform basic functions in Windows and Linux operating systems. Ability to use office programs at a basic level. Management of electronic mail and use of electronic commerce. Installing, updating, deleting programs. Ability to write technical documents and create graphics. Ability to use office devices and perform format conversion between them. Ability to create formats such as photos, documents, etc. using scanner, fax machine, webcam, etc. Ability to recognize modems, printers, ethernet and SSCI cards, sound cards, and TV cards. Ability to create a new computer by combining all computer hardware. Computer networks and communication, database creation. Creating an email address, sending and receiving mail. Preparing a personal website..					
KGE101 GEOLOGY AND ROCK INFORMATION	**C**	**2**	**2**	**3**	**6**
Physical and chemical properties of minerals, basic mineral groups, rock-forming minerals, usage areas of important minerals, applications of defining important minerals through examples, definition of the structure, composition, and properties of the Earth's crust, concept of rock, basic rock cycle, magma and magmatic rocks, formation and mineral composition of magmatic rocks and their applications, structural and textural properties of magmatic rocks and their applications, concept of metamorphism, stages, types, formation and mineral composition of metamorphic rocks and their applications, structural and textural characteristics of metamorphic rocks, concepts of sedimentary rocks, formation mechanisms, classification and properties of sedimentary rocks, structural, compositional, and textural properties of sedimentary rocks and their applications.					
KGE103 TOPOGRAPHY AND GEOLOGICAL MAP INFORMATION	**C**	**2**	**1**	**3**	**4**
Basic concepts related to geological maps, methods used in preparing geological maps and related applications, definition of geological contour lines and applications related to drawing methods, finding the attitudes of geological structures on geological maps and related applications, preparing horizontal geological sections from geological maps, introduction of geological block diagrams, relationships between geological block diagrams, geological maps, and geological sections, and applications related to transitions between them, preparation of geological block diagrams from geological maps.					
KGE105 HYDROGEOLOGY	**C**	**2**	**0**	**2**	**4**
Subject of hydrogeology and water cycle, distribution and occurrence forms of water underground, flow forms of groundwater and parameters affecting flow, movement of groundwater in porous and fractured media, types of aquifers; provision of pressurized, free, and other types of aquifers, characteristics of various rock aquifers; characteristics of fractured rocks, porous and karstic rocks, Darcy's law: definition of hydrogeological parameters of aquifers, introduction to well hydraulics, well hydraulics in balanced and unbalanced regimes, calculation of well hydraulic parameters, provision of groundwater operation and research methods, field study; conducting and examining well tests at the wellhead.					

COURSES (II. SEMESTER)	C	T	P	C	ECTS
TRD110 TURKİSH LANGUAGE II	**C**	**2**	**0**	**2**	**2**
Reading with comprehension and enjoyment, acquiring reading habits, evaluation of the read text, written expression, delimiting a topic, planning related to this topic, writing sentences as paragraphs, written expression techniques and applications, introduction and application of types of written expression, preparation of scientific examination papers, verbal expression, ways to succeed in verbal narration, forms of verbal expression and applications, varieties of verbal expression and applications.					
YDİ108 ENGLISH II	**C**	**2**	**0**	**2**	**2**
Past simple, verb BE, events and places to go, past simple actions, school subjects, past simple questions, parts of the body, future tense, be + going to, travel, countable and uncountable nouns, foods, clothes, weather, adjectives, comparatives adjectives, superlatives adjectives, geographical features.					
TBİ102 SCIENTIFIC PRINCIPLES OF TECHNOLOGY	**C**	**2**	**0**	**2**	**3**
Unit systems. Vectors. Static forces, Moment, Friction. Motion. Newton's laws of motion. Work, Power, Energy. Momentum, conservation. Hydrostatics, Hydrodynamics.					

KGE102 COMPUTER AIDED DRAWING	**C**	**1**	**2**	**2**	**5**
CAD system, basic information about the CAD system, introduction of the coordinate plane and drawing screen in the CAD system, drawing geometry and explanation of AutoCAD commands, dimensioning settings in the AutoCAD environment, drawing applications in a two-dimensional environment.					
KGE104 STRUCTURAL MECHANICS I (STATICS)	**C**	**2**	**0**	**2**	**4**
Definition of mechanics, analytical examination of vectors, problem solving related to the analytical examination of vectors, force and equilibrium, problem solving related to force and equilibrium, center of gravity, problem solving related to the center of gravity, moment of inertia, problem solving related to the moment of inertia.					
KGE106 INTRODUCTION TO SOIL MECHANICS	**C**	**2**	**0**	**2**	**4**
Problems related to the formation, properties, and calculation of characteristic parameters of soils, index properties, classification, classification systems, groundwater and soil stresses.					
KGE108 MATERIALS SCIENCE	**C**	**2**	**0**	**2**	**3**
Introduction to materials science and classification of the atomic structures of materials, crystal structures and defects, mechanical and physical properties of engineering materials, solid-state diffusion, phase diagrams and solidification, destructive and non-destructive testing of materials, protection from metallic corrosion. Units of measurement for some quantities used in practice, general structural steels and their compositions, general classification of materials, international steel standards, general mechanical properties of materials, Fatigue Test, Bending/Flexure, Torsion/Twisting, Buckling, Creep, Hardness Test, types of hardness measurement of materials, permeability and capillarity tests.					
KGE110 ROCK MECHANICS	**C**	**2**	**1**	**3**	**4**
Geology, rock, rock mechanics, stress, field stress measurement, unit deformation, fresh rock, discontinuities, rock masses, permeability, anisotropy and heterogeneity, testing techniques, rock mass classification, rock dynamics and time-dependent properties, rock mechanics interactions and rock engineering systems, sample engineering applications.					
KGE112 FIELD EXPERIMENTS	**C**	**2**	**0**	**2**	**3**
Definition of geotechnical properties of soils and rocks, basic concepts about field tests, classification of field tests, information about field strength tests, cone penetration test (CPT), standard penetration test (SPT), plate loading test, explanation and classification of permeability tests, pressurized water test, unpressurized water test, transferring tests to forms, reporting tests.					

COURSES (III. SEMESTER)	C/E	T	P	C	ECTS
AİT209 ATATURK'S PRINCIPLES AND REVOLUTION HISTORY I	**C**	**2**	**0**	**2**	**2**
Definitions of revolution and history terms, world revolutions and the place of the Turkish revolution among them, characteristics of the Turkish revolution, Armenians under the administration of the Ottoman Empire, the Ottoman Empire in World War I and the results of the war, the Mondros Armistice and the occupation of the Empire, the beginning of the National Struggle, Atatürk's place and goal in the National Struggle, Amasya Circular, National Congresses, Istanbul-Anatolia relations, opening of the Grand National Assembly of Turkey and its first activities, prevention of internal rebellions, wars on the Eastern Front, national fronts ,Western Front, the first international treaties made by the Grand National Assembly of Turkey, Treaty of Lausanne.					
KGE201 ENGINEERING GEOLOGY	**C**	**3**	**0**	**3**	**4**
Definition of the development of engineering geology, mass properties of rocks and soils, material properties of rocks and soils, weathering of rocks, classification of rocks for engineering purposes, classification of soils for engineering purposes, mass movements, factors affecting the balance of mass movements, landslides, dam geology, dam site selection, tunnel geology, classification of soils in terms of tunnel excavation.					
KGE203 GEOPHYSICS (SEISMIC)	**C**	**3**	**0**	**3**	**4**
Earthquake intensity, magnitude, forces triggering earthquakes, mechanism of earthquake formation, effects of earthquakes on soils and rocks.					
KGE205 SOIL MECHANICS I	**C**	**3**	**0**	**3**	**4**
Settlement of soils, consolidation test, lateral earth pressures, free pressure test, shear box test, triaxial pressure test, calculations related to tests, obtaining graphs, evaluating results, finding cohesion and internal friction angles, retaining walls.					
KGE207 STRUCTURAL MECHANICS II	**C**	**2**	**0**	**2**	**3**
Definition and introduction of strength, internal force calculation of isostatic bar systems and obtaining internal force diagrams, problems related to obtaining internal force diagrams, normal stress condition, calculation of pressure and tensile stress in sections, displacement calculation in bodies under pressure and tensile stresses, modulus of elasticity, shear modulus, stiffness calculation and Hooke's law, safety stress and sizing calculation.					
KGE209 DRILLING TECHNIQUE	**C**	**2**	**2**	**3**	**4**
Definition of drilling, drilling methods and their advantages and disadvantages compared to each other, sample collection and sampling tools, recovery in drilling, reasons for recovery and precautions to be taken, other tools and equipment used in drilling, equipping and developing drilling wells, some drilling applications and processes.					
KGE211 VOCATIONAL PRACTICE	**C**	**0**	**2**	**1**	**6**
Preparing and presenting a presentation related to the internship, examining the prepared internship notebook and evaluating it with questions.					
KGE213 CONCRETE AND PILE TECHNOLOGY	**E**	**2**	**0**	**2**	**3**
Material properties of concrete and steel fiber concrete and related regulations, mixture properties of concrete and steel fiber concrete and related regulations, concrete strength tests and related regulations, laboratory applications of concrete compressive strength and bending strength, pile foundations: steel, concrete, steel fiber concrete, reinforced concrete piles and the concept of load-bearing capacity, pile foundations: measurement and observation techniques, bracing structures and anchoring applications: concepts of geostatic, active and passive lateral earth pressure, bracing structures and anchoring applications: application problems encountered in the field and measurement techniques, field investigation, deformation measuring instrumentation and data collection system usage, obtaining concrete stress unit deformation property with data collection system, obtaining concrete stress unit deformation property with data collection system.					
KGE215 ENTREPRENEURSHIP	**E**	**2**	**0**	**2**	**3**
Information on entrepreneurship, self-awareness of the entrepreneur, testing of entrepreneurial characteristics, innovation and invention, developing business ideas and creativity exercises (brainstorming), starting a business, concept and elements of a business plan (market research, marketing plan, marketing techniques, making promotions with the right tools, production plan, management plan, financial plan), studies aimed at reinforcing the elements of the business plan (market research, marketing plan, production plan, management plan, financial plan), points to consider in writing and presenting the business plan, filling out KOSGEB documents.					

COURSES (IV. SEMESTER)	C/E	T	P	C	ECTS
AİT210 ATATURK'S PRINCIPLES AND REVOLUTION HISTORY II	**C**	**2**	**0**	**2**	**2**
Proclamation of the Republic, the first constitution, Atatürk's principles and revolutions (social, economic, administrative, cultural, and other areas of revolutions), Turkey and world states during the one-party government period, the Republic period, internal rebellions, foreign policy of the Government of the Republic of Turkey, treaties, Eastern and Armenian issues, attempts to transition to a multi-party period, Atatürk's death, World War II and Turkey, developments in Turkey's foreign policy, the Middle East and the Republic of Turkey, principles and goals of Turkey during the rapid progress period.					
KGE202 CONSTRUCTION FOUNDATION STRUCTURES	**C**	**3**	**0**	**3**	**5**
Soil investigation methods, stress increase in the soil, problems related to stress increase in the soil and soil investigation depth, foundation systems: shallow foundations, deep foundations, ultimate bearing capacity of soils, problems related to the ultimate bearing capacity of soils, eccentric loadings.					
KGE204 MATERIAL MECHANICS	**C**	**3**	**0**	**3**	**5**
General concepts, matter, force, moment, inertia, Newton's laws, vectors, rigid body mechanics, elastic body mechanics, structure of solid bodies, mechanical tests of materials, tensile test, compressive test, shear test, bending test, torsion test, buckling test, deformations and fractures of materials under tensile and compressive forces, shear forces, behaviors of materials under torsional and bending stresses, creep of bodies, fatigue of bodies, other mechanical properties of bodies, hardness, wear, impact resistances, machinability.					
KGE206 SOIL MECHANICS II	**C**	**4**	**2**	**5**	**9**
Soil mechanics laboratory experiments; calculations related to experiments, obtaining graphs, evaluating results, and preparing experiment reports.					
KGE208 SOIL IMPROVEMENT METHODS	**C**	**3**	**0**	**3**	**6**
Basic concepts related to soil improvement, compaction theory, soil stabilization with additives, in-situ improvement of soil layer properties, dynamic compaction, vibroflotation, vibrodisplacement, and vibrocompaction methods, preloading and injection methods, use of geosynthetics, behavior and remediation of collapsible soils.					
KGE210 OFFICE AND WORKSITE ORGANIZATION	**E**	**2**	**0**	**2**	**3**
Preparation stages for the structure, learning and designing according to zoning laws and regulations, establishment of the construction site, calculation of entitlements, and acceptance of production.					
KGE212 OCCUPATIONAL HEALTH AND SAFETY	**E**	**2**	**0**	**2**	**3**
Concept of occupational safety, economic importance of occupational safety studies, duties and responsibilities of employers and employees, Occupational Health and Safety Law No. 6331, definition, causes, and prevention methods of occupational accidents, fire and fire extinguishing methods, occupational health and safety in hand tools, physical, chemical, biological risks, hazards and types of hazards, methods and analyses in accident investigations, principles of occupational health and safety practices, appropriate job placement, evaluation of workplace environmental factors, analysis of occupational health and safety risks, periodic control examinations, basic first aid knowledge, occupational diseases and legal responsibilities, emergency plans. Environmental risk assessment methods and calculations.					

NOTE: It is mandatory to complete 30 working days of internship during the summer term of the first year.