Curriculum		T	P	ECTS
1 st Semester				
CMPE102	Computer Programming	2	2	4
ENG101	English For Academic Purposes I	4	0	3,5
HIST101	Principles of Atatürk and History of Turkish Revolution I	2	0	2
MATH151	Calculus I	4	2	7
PHYS101	General Physics I	3	2	6
CE101	Engineering Fundamentals	1	0	2,5
CHE105	General Chemistry	3	2	5
2 nd Semester				
CE110	Engineering Graphics and Design	1	3	4,5
ENG102	English for Academic Purposes II	4	0	3,5
HIST102	Principles of Atatürk and History of Turkish Revolution II	2	0	2
HIST221	History of Civilization	3	0	3
MATH152	Calculus II	4	2	7
PHYS102	General Physics II	3	2	6
	General Elective	3	0	4
3 rd Semester				
CE201	Basic Mechanics I-Statics	4	0	7
MATE207	Introduction to Materials Engineering	3	0	5
ENG201	English for Academic Purposes III	3	0	3
IE220	Probability and Statistics	3	0	5
MATH275	Linear Algebra	4	0	6
	General Elective	3	0	4
4 th Semester				
ENG202	English for Academic Purposes IV	3	0	3
MATH276	Differential Equations	4	0	6
MATH380	Numerical Methods for Engineers	3	1	5
CE202	Basic Mechanics II-Dynamics	3	0	5
CE204	Mechanics of Materials	3	0	5
CE210	Civil Engineering Materials	3	2	6

5 th Semester

CE321	Structural Analysis	3	0	5
CE335	Transportation Engineering	3	0	5
ENG301	English for Occupational Purposes I	3	0	3
CE307	Fluid Mechanics	3	2	5,5
CE309	Geology and Surveying	2	2	6
CE311	Soil Mechanics	3	2	5,5
CE399	Summer Practice I	0	0	10

6 th Semester

CE310	Hydraulic Engineering	3	0	5,5
CE344	Fundamentals of Steel Design	3	0	5,5
ENG302	English for Occupational Purposes II	3	0	3
CE328	Foundation Engineering	3	0	5,5
CE342	Reinforced Concrete Fundamentals	3	0	5,5
IE305	Engineering Economy	2	0	5

7 th Semester

TURK401	Turkish Language I	2	0	2
CE499	Summer Practice II	0	0	10
	Area Elective (1)	3	0	6
	Area Elective (2)	3	0	6
	Area Elective (3)	3	0	6
	Area Elective (4)	3	0	6
	General Elective	3	0	4

8 th Semester

CE402	Hydrology and Water Resources	3	0	5,5
CE450	Civil Engineering Seminars	0	2	2
CE490	Civil Engineering Design Project	1	4	9
TURK402	Turkish Language II	2	0	2
CE430	Construction Engineering and Management	3	0	5,5
	Area Elective (5)	3	0	6

(1) CE491, CE493, CE423, CE466, CE479, CE439, CE411, CE416, CE417, CE418, CE420, CE425, CE429, CE433, CE434, CE438, CE443, CE444, CE405, CE406, CE407, CE408, CE410, CE421, CE424, CE431, CE440, CE442, CE447, CE454, CE456, CE463, CE464, CE468, CE470, CE471, CE473, CE488, CE498, CE404, CE472, CE475, AET306, AET307, AET316, AET317, AET326, AET346, AET356, AET366, AET376, AET386, AET396, AET406, AET416, AET426, AET436, AET336, CE419, CE437, CE441, CE449,

(2) CE491, CE423, CE466, CE472, CE479, CE439, CE404, CE405, CE406, CE407, CE408, CE410, CE411, CE416, CE417, CE418, CE420, CE421, CE424, CE425, CE429, CE431, CE433, CE434, CE438, CE440, CE442, CE443, CE444, CE447, CE454, CE456, CE463, CE464, CE468, CE470, CE471, CE473, CE488, CE498, CE441, CE475, AET306, AET307, AET316, AET317, AET326, AET336, AET346, AET356, AET366, AET376, AET386, AET396, AET406, AET416, AET426, AET436, CE449, CE493, CE419, CE437,

(3) CE491, CE493, CE423, CE466, CE479, CE439, CE407, CE410, CE416, CE411, CE417, CE420, CE425, CE431, CE433, CE440, CE454, CE464, CE468, CE470, CE471, CE473, CE488, CE498, CE404, CE405, CE406, CE408, CE418, CE421, CE424, CE429, CE434, CE438, CE442, CE443, CE444, CE447, CE456, CE463, CE472, CE475, AET306, AET307, AET316, AET317, AET326, AET336, AET346, AET356, AET366, AET376, AET386, AET396, AET406, AET416, AET426, AET436, CE419, CE437, CE441, CE449,

(4) CE493, CE491, CE423, CE466, CE472, CE479, CE439, CE433, CE405, CE406, CE407, CE408, CE411, CE417, CE420, CE421, CE424, CE431, CE434, CE438, CE442, CE444, CE456, CE463, CE471, CE498, CE416, CE425, CE440, CE443, CE447, CE454, CE464, CE468, CE470, CE473, CE488, CE410, CE418, CE404, CE429, CE419, CE441, CE475, AET306, AET307, AET316, AET317, AET326, AET336, AET346, AET356, AET366, AET376, AET386, AET396, AET406, AET416, AET426, AET436, CE437, CE449,

(5) CE493, CE491, CE423, CE466, CE479, CE439, CE434, CE438, CE443, CE404, CE405, CE407, CE408, CE411, CE416, CE417, CE418, CE421, CE424, CE425, CE429, CE431, CE433, CE444, CE447, CE464, CE470, CE420, CE406, CE410, CE440, CE442, CE454, CE456, CE463, CE468, CE471, CE473, CE498, CE488, CE441, CE472, CE475, AET306, AET307, AET316, AET317, AET326, AET336, AET346, AET356, AET366, AET376, AET386, AET396, AET406, AET416, AET426, AET436, CE419, CE437, CE449,

General Electives

ECON442, IR423, HUM320, HUM212, ART265, ART287, KOR201, ART227, HUM323, ENG395, HUM319, HUM321, HUM331, HUM360, ART282, ART284, ART263, HUM312, HUM316, SPAN302, ECON318, ART266, KOR301, HUM310, ART226, HUM202, ART262, ART264, ART267, MAN313, MAN408, PR419, ART228, PR491, MAN415, ART202, ART235, ART293, ART294, CHIN202, CHIN201, CHIN301, PR492, MAN409, MAN428, LAW250, CHIN302, ART289, HUM203, MAN374, KOR202, HUM291, ART295, ART261, ART268, ART298, HUM412, HUM105, GET304, GET305, GET306, GET307, GET314, GET315, GET316, GET317, GET324, GET325, GET326, GET334, GET335, GET336, GET344, GET345, GET346, GET354, GET355, GET364, GET374, GET384, GET394, GET404, GET405, GET406, GET414, GET415, GET416, GET424, GET425, GET426, GET434, GET436, ART271, ART201, ART221, ART222, ART223, ART224, ART225, ART251, ART252, ART291, ART292, FRE201, FRE202, FRE301, FRE302, FRE401, FRE402, GER201, GER202, GER301, GER302, GER401, GER402, HUM201, HUM211, JAP201, JAP202, JAP301, JAP302, RUS201, RUS202, RUS301, RUS302, SPAN201, SPAN202, SPAN301, ECON325, PR414, SPAN402, RUS402, CE495, ART285, ART286, RUS401, SPAN401, ART288, ART297, HUM204, ART270, ART269, MAN328, MAN414, MAN412, MAN437,

Area Elective Course List

AET 306	Area Elective Course	(0-0)6
AET 307	Area Elective Course	(0-0)7
AET 316	Area Elective Course	(0-0)6
AET 317	Area Elective Course	(0-0)7
AET 326	Area Elective Course	(0-0)6
AET 336	Area Elective Course	(0-0)6

AET 346	Area Elective Course	(0-0)6
AET 356	Area Elective Course	(0-0)6
AET 366	Area Elective Course	(0-0)6
AET 376	Area Elective Course	(0-0)6
AET 386	Area Elective Course	(0-0)6
AET 396	Area Elective Course	(0-0)6
AET 406	Area Elective Course	(0-0)6
AET 416	Area Elective Course	(0-0)6
AET 426	Area Elective Course	(0-0)6
AET 436	Area Elective Course	(0-0)6
CE 404	Occupational Safety and Health	(3-0)6
CE 405	Design of Dams	(3-0)6
CE 406	Urban Hydraulics	(3-0)6
CE 407	Highway Materials and Mixture Design	(3-0)6
CE 408	Computer Aided Highway Design	(3-0)6
CE 410	Advanced Structural Steel Design	(3-0)6
CE 411	Design and Construction of Transportation Facilities	(3-0)6
CE 416	Geotechnical Site Characterization	(3-0)6
CE 417	Rock Mechanics	(3-0)6
CE 418	Slope Stability	(3-0)6
CE 419	Deep Excavations and Retaining Structures	(3-0)6
CE 420	Tunnelling	(3-0)6
CE 421	Applied Solid Mechanics	(3-0)6
CE 423	Structural Optimization	(3-0)6
CE 424	Structural Systems	(3-0)6
CE 425	Construction Planning and Cost Estimating	(3-0)6
CE 429	Irrigation and Drainage	(3-0)6
CE 431	Computer Applications in Structural Engineering	(3-0)6
CE 433	Design of Coastal Structures	(3-0)6
CE 434	Advanced Transportation Engineering	(3-0)6
CE 437	Structural Dynamics	(3-0)6

CE 438	Prestressed Concrete Fundamentals	(3-0)6
CE 439	Introduction to Pavement Design	(3-0)6
CE 440	Earthquake Engineering	(3-0)6
CE 441	Earthquake Resistant Design	(3-0)6
CE 442	Advanced Materials of Construction	(3-0)6
CE 443	Advanced Concrete Materials	(3-0)6
CE 444	Analysis of Framed Structures	(3-0)6
CE 447	Computer Aided Analysis and Design in Structural Engineering	(3-0)6
CE 449	Computer Aided Analysis and Design of Reinforced Concrete Structural Members	(3-0)6
CE 454	Computer Applications in Geotechnical Engineering	(3-0)6
CE 456	Design and Construction of Tall Building Systems	(3-0)6
CE 463	International Construction Contracts	(3-0)6
CE 464	Construction Scheduling and Cost Control	(3-0)6
CE 466	Construction and Design of Renewable Energy Projects	(3-0)6
CE 468	Emerging Technologies in Civil Engineering	(3-0)6
CE 470	Open Channel Hydraulics	(3-0)6
CE 471	Integrated Coastal Zone Management	(3-0)6
CE 472	Dimensional Analysis and Hydraulic Modeling	(3-0)6
CE 473	Coastal Hydraulics	(3-0)6
CE 475	Porous Media Flow	(3-0)6
CE 479	Applied Water Resources Engineering	(3-0)6
CE 488	Airport Planning and Design	(3-0)6
CE 491	CO_OP Practice I	(3-0)6
CE 493	CO_OP Practice II	(3-0)6
CE 498	Undergraduate Research Project	(3-0)6

Course Descriptions

CE 101 Engineering Fundamentals (1-0)2.5

Introduction, historical development of science, engineering and industry, definitions and methodologies of engineering and science, functions of engineers, roles and types of engineers, engineering, society and environment, engineering and mathematics, safety in engineering, design and applications in engineering, research in

CE 110 Engineering Graphics and Design (1-3)4.5

Introduction to engineering drawing, CAD systems and CAD software, geometrical constructions, orthographic projections, first and third angle projections of principal views from 3D models, orthographic projections: projections of the third principal view from two given principal, auxiliary and detail viewing techniques.

CE 201 Basic Mechanics I-Statics (4-0)7

General introduction, statics of particles, statics of rigid bodies, equivalent force systems, equilibrium, analysis of trusses, analysis of beams, friction, and geometric properties of surfaces.

CE 202 Basic Mechanics II-Dynamics (3-0)5

Kinematics of particles, kinetics of particles and system of particles, kinematics of rigid bodies, mass moments of inertia, kinetics of rigid bodies, and mechanical vibrations.

CE 204 Mechanics of Materials (3-0)5

Analysis of stress and strain, equations of equilibrium and compatibility, stress-strain laws, torsion of bars, simple bending of beams, shearing stresses in beams, deflection of beams, combined stresses due to bending, torsion, shear and axial load, Mohr`s circle, statically indeterminate beams.

CE 210 Civil Engineering Materials (3-2)6

Physical, mechanical and durability properties of concrete, metals, building stones, clay products, timber, gypsum, lime, aggregates, pozzolans, cements; production types, uses in construction of these materials; constituents, theories of mix design, principal steps in production and relevant properties of concrete.

CE 307 Fluid Mechanics (3-2)5.5

Fluid properties, hydrostatics, kinematics, system and control volume approach, Reynolds transport theorem, principles of conservation of mass, momentum and energy, pipe flow: laminar and turbulent flows, flow in smooth and rough pipes, frictional losses, minor losses, computation of flow in single pipes, simple pipe systems, turbines and pumps.

CE 309 Geology and Surveying (2-2)6

Introduction to surveying, distance measurements, angle measurements, differential leveling, area computations, horizontal curves, coordinates and coordinate computations; How did the earth form; evolution, natural construction materials, route location of linear engineering structures, formation of the natural disasters.

CE 310 Hydraulic Engineering (3-0)5.5

Uniform flow in closed conduits, nonuniform flow in closed conduits, uniform flow in open channels, nonuniform flow in open channels, open channel design.

CE 311 Soil Mechanics (3-2)5.5

Site investigations and subsurface explorations, origin of soil and grain size soil formation, weight-volume relationships, plasticity and structure of soil, engineering classification of soil, analysis of deformation and settlement, soil compaction, permeability, seepage, in situ stresses, stresses in a soil mass.

CE 321 Structural Analysis (3-0)5

Equations of static equilibrium, stability and determinacy of structure, planar and space trusses and planar, shear and bending moment diagrams for planar frames, double integration, virtual work and Castigliano`s Theorem (energy) methods for computing deflections, force method of analysis, slope deflection method, direct stiffness method.

CE 328 Foundation Engineering (3-0)5.5

Geotechnical properties of soils, subsurface investigations, shallow foundations, mat foundations, lateral earth pressures, retaining structures, sheet piles, braced cuts, pile foundations, drilled shafts and soil improvement.

CE 335 Transportation Engineering (3-0)5

Highway engineering, highway economy, highway geometric elements, horizontal and vertical design; traffic engineering, traffic stream variables, capacity and level of service concepts on rural highways and intersections.

CE 342 Reinforced Concrete Fundamentals (3-0)5.5

Properties of materials, structural design concepts, axially-loaded members, flexural members, shear, combined flexure and axial load.

CE 344 Fundamentals of Steel Design (3-0)5.5

Properties of structural steel, structural design concepts and design loads, tension members, compression members, flexural members, beam-columns, connections.

CE 399 Summer Practice I (0-0)10

Following the construction procedures at a site for a period of 30 days, preparing a report and making a presentation.

CE 402 Hydrology and Water Resources (3-0)5.5

Principles of hydrology, water resources planning for design and analysis of systems concerned with the use and control of water, storage, water transmission.

CE 404 Occupational Safety and Health (3-0)6

Introduction to safety management, hazard analysis and control, hazard communication program, job hazard analysis, safety supervision and leadership, accident investigation, personal protective equipment, ergonomics, confined space entry, fall protection, preventing workplace violence, electrical safety, fire prevention.

CE 405 Design of Dams (3-0)6

Introduction to soil and rock type, earth-fill dams, seepage through dams, rock-fill dams, RCC, arch dams, membrane-faced dams, design of grout curtain, spillways, diversion tunnels and slope stability of dams.

CE 406 Urban Hydraulics (3-0)6

Summary of both pipe and open channel flows, municipal water demands and components, analysis and design of water supply systems, analysis and design of sewerage systems, the storm flow analysis and

design of elements of surface drainage systems, detention ponds.

CE 407 Highway Materials and Mixture Design (3-0)6

Physical and chemical properties of asphalts, tests on asphalts, granular materials, sieve analysis and specific gravity of coarse and fine aggregates, Marshall mix design method.

CE 408 Computer Aided Highway Design (3-0)6

Introduction to MicroStation CAD platform, introduction to InRoads platform, digital terrain model and point types symbology and feature creation for DTM, horizontal alignment and profile extraction, vertical alignment, typical cross sections, roadway modeling, superelevation.

CE 410 Advanced Structural Steel Design (3-0)6

LRFD design of structural steel members, built-up compression members, composite flexural members, seismic design.

CE 411 Design and Construction of Transportation Facilities (3-0)6

Transportation systems, geometric design of transportation facilities based on operational capacity, site constraints, and safety considerations, pavement design and rehabilitation, terminals as components of transportation systems engineering, operations planning and construction of transportation systems.

CE 416 Geotechnical Site Characterization (3-0)6

The sub-surface investigation, standard penetration test, cone penetration test, dilatometer test , Vane shear test, resistivity.

CE 417 Rock Mechanics (3-0)6

Stress and strain analysis, introductory elasticity, mechanical behaviour of rock and rock masses, rock testing, discontinuity deformation and slip, failure, in-situ state of stress, stresses around underground openings, rock mass classification, support design.

CE 418 Slope Stability (3-0)6

Overview of slopes and stability concepts, examples of slope failure, causes of slope failures, review of soil mechanics principles and shear strength of soil: drained and undrained conditions, total and effective stress, drained and undrained shear strength, laboratory and field Testing of earth materials for slope stability.

CE 419 Deep Excavations and Retaining Structures (3-0)6

Introduction to type of retaining walls; importance of site investigations for deep excavations; active and passive pressures acting on the retaining wall; type of support systems like ground anchors, strutted excavations, anchor bulkheads; monitoring of deep excavations; limitations for lateral and vertical displacement of the retaining structures.

CE 420 Tunnelling (3-0)6

Introduction to tunneling: art and engineering; geological aspects of tunneling; tunneling methods: soft ground, rock or adverse ground conditions; ground treatment in tunneling; stresses and displacements associated with excavation of tunnels; design and support of tunnels; application of numerical analysis

codes for tunneling.

CE 421 Applied Solid Mechanics (3-0)6

Analysis of stress and strain, stress-strain relation, plane strain and plane stress problems, yield and failure criteria, unsymmetrical bending of beams, energy methods; buckling of columns; plastic behavior of structural members.

CE 423 Structural Optimization (3-0)6

Formulation of structural optimization problems, graphical solution procedure, sizing, geometry, and topology optimization, steepest-descent method, Newton?s method, branch and bound method, multi-objective structural optimization, evolutionary algorithms, sensitivity analysis techniques, and practical applications.

CE 424 Structural Systems (3-0)6

The classifications of structural systems, loads acting on structural system, structural requirements, reinforced concrete structures, steel structures, masonry structures, timber structures, composite structures.

CE 425 Construction Planning and Cost Estimating (3-0)6

Introduction to construction project management, tendering process, public procurement law, public procurement contract law, tender documents, cost engineering and quantity surveying, contractor`s bid price, progress payments, and taking-over and performance certificates.

CE 429 Irrigation and Drainage (3-0)6

Determination of irrigation module for the irrigation field, determination of irrigation water discharge, uniform flow in open canals, uniform flow in pipeline, open canal design, pipe irrigation system design.

CE 430 Construction Engineering and Management (3-0)5.5

Contracting and biding, planning and scheduling, estimating and project control, productivity models and construction econometric and an introduction to construction machinery engineering fundamentals description, types, selection criteria and output cost analysis of basic construction equipment.

CE 431 Computer Applications in Structural Engineering (3-0)6

Overview of computer systems, computer programming, numerical solution of differential equations, finite difference method, introduction to finite element analysis, package programs for modeling of structures.

CE 433 Design of Coastal Structures (3-0)6

Introduction to coastal engineering, wave parameters and classification, wave transformation, wave generation and statistical analysis, design wave selection, wave-structure interactions, design of harbor structures, coastal sedimentation, design of shore protection structures, planning and design of coastal structures in Turkey.

CE 434 Advanced Transportation Engineering (3-0)6

Safe road design principles, blackspot analysis, safety auditing on planned projects and on existing roads, the conflict technique.

CE 437 Structural Dynamics (3-0)6

Dynamics of lumped mass systems (single- and multi-degree of freedom systems); free vibration; response to harmonic and periodic excitations; response to impulsive excitations; response to general dynamic loading; earthquake response of linear elastic and inelastic structures; generalized single-degree-of-freedom systems; modal analysis; response history analysis; response spectrum analysis.

CE 438 Prestressed Concrete Fundamentals (3-0)6

Introduction to prestressing, prestress losses, flexural analysis and design, composite construction, shear, torsion, deflections.

CE 439 Introduction to Pavement Design (3-0)6

Structural and functional performance of pavements,Serviceability measures,Types of distresses inflexible and rigid pavements,Structural design of flexible and rigid pavements

CE 440 Earthquake Engineering (3-0)6

Seismic ground motion, introduction to earthquakes, causes of earthquake, seismic waves, factors affecting earthquake motion at a site, prediction of motion at a site, recording and processing of earthquake ground motion; single degree of freedom systems, formulation of the equation of motion, free vibration analysis.

CE 441 Earthquake Resistant Design (3-0)6

Introduction to earthquake engineering and seismology; dynamics of lumped mass systems (single- and multi-degree of freedom systems); earthquake response of linear elastic and inelastic structures; modal analysis; response history analysis; response spectrum analysis; seismic codes; earthquake resistant design of reinforced concrete structures; earthquake resistant design of steel structures.

CE 442 Advanced Materials of Construction (3-0)6

Mechanical and durability properties of construction materials, properties and microstructure of concrete in fresh and hardened state, microstructure, types and various aspects of steel, plastics and composites in construction, innovative materials of construction and the interaction of construction materials with the environment.

CE 443 Advanced Concrete Materials (3-0)6

Cement, aggregates and admixtures for concrete, properties of concrete in fresh and hardened state, types and various aspects of concrete, durability characteristics of concrete, future of concrete studies and the interaction of concrete with the environment.

CE 444 Analysis of Framed Structures (3-0)6

Analysis of discrete member systems, displacement and force methods of analysis, direct stiffness method, static and kinematic condensation, substructure analysis.

CE 447 Computer Aided Analysis and Design in Structural Engineering (3-0)6

Introduction to Excel and Visual Basic, introduction to Excel and Visual Basic programming, programming in excel, design of reinforced concrete beams, design of reinforced concrete columns, deflection of reinforced concrete beams, design of steel beams, design of steel columns, introduction to SAP2000, use of Excel and SAP2000 simultaneously.

CE 449 Computer Aided Analysis and Design of Reinforced Concrete Structural Members (3-0)6

Material properties, moment curvature relationships of beams, serviceability, ductility of beams, slender columns, two-way slabs, biaxial bending of columns, punching shear, behavior under shear and torsion, seismic design principles.

CE 450 Civil Engineering Seminars (0-2)2

Discussion of ethical and professional aspects of Civil Engineering practice; a series of presentations by industry experts and faculty members.

CE 454 Computer Applications in Geotechnical Engineering (3-0)6

Definition geotechnical problems, preliminary studies and design consideration in geotechnic, FEM, Plaxis, exercises and case studies are based on the Plaxis computer programs, preparation of on geotechnical problems solving project by Plaxis.

CE 456 Design and Construction of Tall Building Systems (3-0)6

Overview of design philosophy and selection of the structural systems for tall buildings; criteria and loadings; structural modeling and analysis; structural and foundation design; fire safety engineering; construction planning and management of tall building projects.

CE 463 International Construction Contracts (3-0)6

Legal and contractual terminology in construction contracts, EPC and PC contracts, structure and breakdown of standard construction contracts, contractual documents, standard provisions as to the time of contract, cost of contract and advanced payment, provisions regarding the quality and acceptance of construction work completed.

CE 464 Construction Scheduling and Cost Control (3-0)6

Introduction and some advanced studies in a computer application like MS Project, extensively used for construction scheduling and cost control; time extension clauses in international construction contracts; cause-effect relationship to prove construction claims.

CE 466 Construction and Design of Renewable Energy Projects (3-0)6

The importance of renewable energy in the energy market and Turkey?s renewable energy potential; renewable energy resources; basic design principles, structure types, construction techniques and applications of renewable energy projects; conditions of renewable energy market in Turkey and worldwide; government agencies, laws and permissions related with renewable energy in Turkey; case study of a real renewable energy project investment in Turkey.

CE 468 Emerging Technologies in Civil Engineering (3-0)6

3D BIM software, 3D BIM stages, PIMSS software and general cloud based systems, internet of things, hardware and software systems for data collection, recording and analyses, 3D scanning systems.

CE 470 Open Channel Hydraulics (3-0)6

Uniform flow in open channel, gradually varied flow in open channels, rapidly varied flow in open channels, sediment transport in open channels.

CE 471 Integrated Coastal Zone Management (3-0)6

Definition of coastal zone and its physical and ecological properties, coastal landforms, the global ocean and the climate system, coastal processes, coastal structures, pressures on the coast, coastal pollution, sustainability, integrated coastal zone management (ICZM) and ICZM in Turkey.

CE 472 Dimensional Analysis and Hydraulic Modeling (3-0)6

Fundamental principles of dimensional analysis, dimensional homogeneity, Buckingham ?-theorem, complete set of dimensionless products in fluid mechanics, geometric, kinematic, dynamic similarities, complete and incomplete similarities, distorted modeling, modeling of closed-conduit and free surface flows.

CE 473 Coastal Hydraulics (3-0)6

Small amplitude wave theory, non-linear wave theories (Stokes, Cnoidal), the solitary wave theory, water particle kinematics, wave transformations, wave height distribution and wave spectrum.

CE 475 Porous Media Flow (3-0)6

Physcical properties and principles of groundwater systems, Definitions of confined and unconfined aquifers. Introducing compressibility and effective stresses of water and porous media, definition of transmissivity and storativity of the system, mathematical formulations of groundwater flow. Graphical analysis by flow nets, and well hydraulics for different cases.

CE 479 Applied Water Resources Engineering (3-0)6

Introduction to water resources projects and most commonly used hydraulic structures, reservoirs, capacity determination of reservoirs, planning and construction of dams, dam types, design of dams, stability analysis of dams, spillway types, stilling basin types, hydroelectric power plant types, hydroelectric power/energy calculation, turbines.

CE 488 Airport Planning and Design (3-0)6

Air transportation, planning of physical elements of airport, design principles, airport planning types, airport economics, environmental impacts of airports, ownership and management types.

CE 490 Civil Engineering Design Project (1-4)9

A design project to be performed by groups of students, depending on the types of projects chosen, the students will be given lectures of several specific topics by members of the civil engineering faculty.

CE 491 CO_OP Practice I (3-0)6

Oral presentation with the purpose of evaluating the duties and responsibilities given in technical and administrative terms with the aim of preparing an interim and final report under the supervision of at least one engineer authorized within an organizational structure defined in an institution for the design and application of civil engineering engineering.

CE 493 CO_OP Practice II (3-0)6

Oral presentation with the purpose of evaluating the duties and responsibilities given in technical and administrative terms with the aim of preparing an interim and final report under the supervision of at least one engineer authorized within an organizational structure defined in an institution for the design and application of civil engineering engineering.

CE 498 Undergraduate Research Project (3-0)6

Rigorous scholarly research, research methodologies, review of background knowledge, academic reading.

CE 499 Summer Practice II (0-0)10

Following the procedures used during the design phase of various types of civil engineering projects for a period of 30 days and preparing a report at the end of this period.

CHE 105 General Chemistry (3-2)5

Matter and measurement, atoms, molecules and ions, stoichiometry: calculations with chemical formulas and equations, oxidation-reduction reactions, thermochemistry, electronic structure of atoms, periodic properties of the elements, basic concepts of chemical bonding, molecular geometry and bonding theories, gases, intermolecular forces, liquids and solids, chemical kinetics, chemical thermodynamics, electrochemistry.

CMPE 102 Computer Programming (2-2)4

The objective of this course is to provide the basics of programming concepts using Python programming language and enable students to gain experience in laboratory environment.

ENG 101 English For Academic Purposes I (4-0)3.5

English language skills, especially academic skills, such as reading comprehension, vocabulary building and critical analysis of texts; listening and note-taking, class discussions, presentations, writing, research assignments and use of technology.

ENG 102 English for Academic Purposes II (4-0)3.5

Academic skills such as reading comprehension, class discussions, use of academic vocabulary and critical analysis of texts; research assignments and review of the English language structure; skills such as listening and note-taking, analysis of written products, writing, presentation and use of technology.

ENG 201 English for Academic Purposes III (3-0)3

Advanced reading and writing skills, applying critical reading skills and strategies, identifying the organization of a reading text, main ideas of the texts, and the author?s main purpose, summarizing a given text, outlining and writing an argumentative essay.

ENG 202 English for Academic Purposes IV (3-0)3

Preparing and writing research reports and delivering effective oral/written informative and persuasive presentations; gathering information, organizing data, outlining, using appropriate techniques in presentation and delivering for a maximum impact, using visual aids and citation effectively.

ENG 301 English for Occupational Purposes I (3-0)3

Job-related communication skills;the functions such as describing relationships at work,discussing performance reviews and giving feedback,discussing plans and arrangements,using social media for professional communication,discussing on recruitment tests and job interviews,presenting a service or product,writing reviews on websites

ENG 302 English for Occupational Purposes II (3-0)3

More detailed job-related communication skills;describing and organising meetings,developing communicational styles in various cultural settings,handling mistakes and apologizing,getting familiar with marketing styles and advertising,deciding how to adapt and market a product in different countries,

HIST 101 Principles of Atatürk and History of Turkish Revolution I (2-0)2

French Revolution; structure and geopolitic positioning of Ottoman Empire, reasons of its decline; Westernization movements, First and Second Constitutional Monarchy declarations; Libya and Balkan wars; First World War; period before the War of Independence, congresses, National Pact, establishment of Turkish Grand National Assembly.

HIST 102 Principles of Atatürk and History of Turkish Revolution II (2-0)2

War of Independence; Lausanne Treaty; declaration of the Republic; removal of sultanic rule and caliphate; Atatürk`s revolutions; establishment of national economy; Second World War, before and after; Turkish Republic after 1960.

HIST 221 History of Civilization (3-0)3

A chronological order of the rise of civilizations from Sumer until the Scientific Revolution.

IE 220 Probability and Statistics (3-0)5

Introduction to probability and statistics; random variables and probability distributions; expected value; sampling distributions; one and two sample estimation problems; test of hypotheses; simple linear regression.

IE 305 Engineering Economy (2-0)5

Economic analysis for engineering and managerial decision-making; cash flows, effect of time and interest rate on money and physical assets; methods of evaluating alternatives: present worth, future worth, annual worth, rate-of-return and benefit/cost ratios; depreciation and taxes; effects of inflation.

MATE 207 Introduction to Materials Engineering (3-0)5

Historical perspective and classification of materials; atomic structure and theory; bonding in solids; the structure of crystalline solids; fundamental mechanical properties of materials; phase diagrams; thermal processing of metal alloys; properties and use of ceramics, glasses and composites; material selection; design and economical considerati

MATH 151 Calculus I (4-2)7

Preliminaries, limits and continuity, differentiation, applications of derivatives, L`Hopital's Rule, integration, applications of integrals, integrals and transcendental functions, integration techniques and improper integrals, squences.

MATH 152 Calculus II (4-2)7

Infinite series, vectors in the plane and polar coordinates, vectors and motions in space, multivariable functions and their derivatives, multiple integrals: double integrals, areas, double integrals in polar coordinates, triple integrals in rectangular, cylindrical and spherical coordinates, line integrals, Independence of path,Green's theorem.

MATH 275 Linear Algebra (4-0)6

Linear equations and matrices, real vector spaces, inner product spaces, linear transformations and matrices, determinants, eigenvalues and eigenvectors.

MATH 276 Differential Equations (4-0)6

First-order, higher-order linear ordinary differential equations, series solutions of differential equations, Laplace transforms, linear systems of ordinary differential equations, Fourier analysis and partial differential equations.

MATH 380 Numerical Methods for Engineers (3-1)5

Solution of nonlinear equations, solution of linear systems, eigenvalues and eigenvectors, interpolation and polynomial approximation, least square approximation, numerical differentiation, numerical integration.

PHYS 101 General Physics I (3-2)6

Measurement, motion along a straight line, vectors, motion in two and three dimensions, force and motion I, force and motion II, kinetic energy and work, potential energy and conservation of energy, center of mass and linear momentum, rotation, rolling, torque, and angular momentum, equilibrium and elasticity.

PHYS 102 General Physics II (3-2)6

Electric charge, electric fields, Gauss` law, electric potential, capacitance, current and resistance, circuits, magnetic fields, magnetic fields due to currents, induction and inductance.

TURK 401 Turkish Language I (2-0)2

Languages and their classification; history of Turkish language, its spread over the world and its place among other languages; Turkish language in the republic era; orthography; expressions; foreign words, suffixes and prefixes; punctuation; language and verbalism.

TURK 402 Turkish Language II (2-0)2

Written expression and its genres; bibliography; sentence structure and types; misexpression; verbal expressions.