



Civil Engineering BSc Study Abroad Course List

Tuition-fee/credit: 110 USD

For course syllabi, please contact the Study Abroad Office!

Courses without prerequisites:

Course title	Semester	Credits (ECTS)
Engineering Mathematics 1.	Fall	4
Mechanics 1. (Statics)	Fall	5
Mechanics 2. (Dynamics)	Fall	4
Geology for Civil Engineering	Fall	3
Hydrology	Fall	2
Fluid Mechanics in Engineering 1.	Fall	3
Enterprises and Labour Market	Fall	3
Project Management 1.	Fall	3
Technical Drawing 1.	Fall	4
Materials Science	Fall	2
Environment Protection for Engineers	Fall	2
Geodesy 1.	Fall	4
Road and Railway Design 1.	Fall	4
Strengthening of Structures	Fall	3
Building Constructions 1.	Fall	1
Quality Management 1.	Spring	3
Construction Materials 1.	Spring	5
Basics of Structural Design	Spring	2
Construction Technology 1.	Spring	2
Construction Management 1.	Spring	2
Industrial Law	Spring	3
Work, Fire and Health Safety	Spring	3
Building Services Engineering	Spring	2
Road and Railway Design 2.	Spring	4
Computer Aided Structural Design 1.	Spring	2
Computer Aided Structural Design 3.	Spring	2



Courses with prerequisites for students majoring in Civil Engineering BSc:

Course title	Semester	Credits (ECTS)
Technical drawing 3/A	Fall	2
Engineering Mathematics 3.	Fall	3
Geographic information systems 2.	Fall	2
Geodesy field practice	Fall	2
Strength of Materials 2.	Fall	3
Fluid Mechanics in Engineering 3.	Fall	2
Steel Structures 1.	Fall	4
Reinforced Concrete Structures 1.	Fall	4
Construction Technology 2.	Fall	2
Building Constructions 3.	Fall	3
Geotechnics 1. (Soil Mechanics)	Fall	3
Structural Analysis 2.	Fall	2
Public Utilities	Fall	2
Steel Structures 3.	Fall	4
Reinforced Concrete Structures 3.	Fall	4
Construction Management 2.	Fall	4
Building Constructions 5.	Fall	3
Underground Structures	Fall	3
Geographic Information Systems 1.	Fall	2
Geotechnics 3. (Foundations)	Fall	4
Structural Dynamincs 1.	Fall	2
Engineering Timber Structures	Fall	2
Hydraulic Engineering	Fall	5
Road pavement and railway track sturctures	Fall	3
Complex Design 1.	Fall	2
Computer Aided Structural Design 2.	Fall	2
Computer Aided Structural Design 4.	Fall	2
Engineering Mathematics 2.	Spring	5
Geodesy 2.	Spring	2
Strength of Materials 1.	Spring	4
Fluid Mechanics in Engineering 2.	Spring	2
Technical Drawing 2.	Spring	2
Building Constructions 2.	Spring	2
Geographic Information Systems 2.	Spring	2
Structural Analysis 1.	Spring	4



Timber and Masonry Structures	Spring	2
Planning of water supply and sewerage	Spring	4
Steel Structures 2.	Spring	4
Reinforced Concrete Structures 2.	Spring	4
Construction Technology 3.	Spring	2
Building Constructions 4.	Spring	3
Geotechnics 2. (Earthworks)	Spring	2
Structural Analysis 3.	Spring	3
Water Resource Management	Spring	2
Steel-Concrete Composite Structures	Spring	2
Bridge Construction 1.	Spring	3
Construction Management 3.	Spring	2
Complex Design 2.	Spring	2

Detailed information about the courses:

Technical Drawing 3/A

Language of instruction:	English
Form of teaching:	lecture, practice
Class hours per week:	1+1
Prerequisites:	Technical Drawing 2.
Credits (ECTS):	2
Course description:	Students' experience of CAD systems is expanded through this practical based course in the application of computers in the field of architecture and design. The course is made up of units including the following topics: modelling building construction details using CAAD software, preparation of plans presenting engineering components and spatial illustrative figures, attaching engineering specifications and descriptions to components and the entire model, selecting and sorting existing geometric and assigned data, processing data and attaching the results to drawings using word processing and spreadsheet programs. By the end of the semester students will be familiar with CAAD systems to a level which will enable them to complete their engineering design project. This subject includes an architectural design project in the practical part (marked with a P) where students can develop their architectural skills.
Assessment methods:	semester mark
Semester:	Fall Semester

**Engineering Mathematics 1.**

Language of instruction:	English
Form of teaching:	lecture, practice
Class hours per week:	3+2
Prerequisites:	-
Credits (ECTS):	4
Course description:	This lecture and practical based subject provides students with a useful knowledge concerning the fundamentals of construction materials and covers the following topics: chemical, physical and mechanical properties of construction materials; features and application of heat and sound insulation materials; waterproofing materials, bitumen, damp-proof layers, methods for later drying out of wet walls; production, testing and properties of construction ceramics, choice and application of ceramic masonry elements; types of mortar and their testing and properties, application of special mortars in the construction industry; construction with stone and their testing and application; types of timber, structure, physical and mechanical properties of wood, defects in wood and wood protection; metal and reinforced concrete, production, testing and mechanical properties of steel; architectural glass; properties of plastic materials and their application in the construction industry.
Assessment methods:	exam
Semester:	Fall Semester

Engineering Mathematics 3.

Language of instruction:	English
Form of teaching:	lecture, practice
Class hours per week:	2+2
Prerequisites:	Engineering Mathematics 2.
Credits (ECTS):	3
Course description:	This course aims at teaching the basics of the elements of linear algebra, vector analysis and series. Linear algebra: concept of n-dimensional vector space, matrix, determinant, rank, matrix inverse. Solution of linear equation systems: Cramer's rule, Gauss-Jordan elimination, change of basis. Eigenvalues and eigenvectors. Vector analysis: Vector-scalar functions, curves in space and their tangents, curvature, torsion, arc length, surfaces as a two variable vector-scalar function, tangent plane, the area of a surface. Scalar-vector functions, gradient, directional derivatives. Vector-vector functions, line and surface integral, divergence and curl. Green's and Stokes' theorem, elements of potential theory. Numerical and function series, Taylor and Fourier series.
Assessment methods:	exam
Semester:	Fall Semester

**Mechanics 1. (Statics)**

Language of instruction:	English
Form of teaching:	lecture, practice
Class hours per week:	2+3
Prerequisites:	-
Credits (ECTS):	5
Course description:	This course aims at teaching the basics of mechanics and covers the following topics: equilibrium states and conditions of equilibrium; resultant and balance of plane force systems; defining load-bearing structures, their types and loads. This theme is also expanded through the calculation of support reactions, simple hinged structures, loads on structures, calculation of loads, types of structural systems, definition and calculation of internal forces and internal force diagrams, definition of support and internal forces of joint structures, three-joint girders, Gerber girders and compound joint structures. The definition and types of truss is also covered and the forces influencing them.
Assessment methods:	exam
Semester:	Fall Semester

Construction Materials 1.

Language of instruction:	English
Form of teaching:	lecture, practice
Class hours per week:	2+2
Prerequisites:	-
Credits (ECTS):	5
Course description:	This course provides students with essential knowledge concerning the fundamentals of construction materials and covers the following topics: chemical, physical and mechanical properties of construction materials; features and application of heat and sound insulation materials; waterproofing materials, bitumen, damp-proof layers, methods for later drying out of wet walls; production, testing and properties of construction ceramics, choice and application of ceramic masonry elements; types of mortar and their testing, application of special mortars in the construction industry; construction with stone and their testing and application; types of timber structures, physical and mechanical properties of wood, defects in wood and wood protection; metal and reinforced concrete, production, testing and mechanical properties of steel; architectural glass; properties of plastic materials and their application in the construction industry. Deterioration of construction materials.
Assessment methods:	exam
Semester:	Spring Semester

**Geology for Civil Engineering**

Language of instruction:	English
Form of teaching:	lecture, practice
Class hours per week:	1+1
Prerequisites:	-
Credits (ECTS):	3
Course description:	The goal of the course is to introduce the basic knowledge of the engineering geology, become familiar with the structure of the Earth, the lithosphere material, the surface conditions and the forces shaping the rock / soil formations. Showing the exploration of the possibilities of building materials, material testing, etc. as well. The objective of the course is to study and acquire the basics of investigation and interpretation of geological phenomena in connection of Earth's crust in mutual relation of natural geological structures and/or human constructions. With the basics of Geology course students are able: to identify, specify the most relevant empirical methods in connection of the necessary investigations of geological structures; to analyze and evaluate the basic results of geological interpretations.
Assessment methods:	exam
Semester:	Fall Semester

Hydrology

Language of instruction:	English
Form of teaching:	lecture, practice
Class hours per week:	2+2
Prerequisites:	-
Credits (ECTS):	2
Course description:	This is an introductory course on the elements of the hydrologic cycle. The following physical processes and principles are described: the water balance equation, precipitation and its measurements, areal averages, interception, infiltration, evaporation, runoff, unit hydrograph theory, river morphology, hydrology of lakes, groundwater. Elementary fluid mechanics. Understanding of the fundamental principles of hydrostatics and hydrodynamics; the basic ideas of dimensioning of hydraulic structures and hydraulic machinery. Hydrostatics (absolute and relative equilibrium, pressure head diagrams and buoyancy). Application of the Bernoulli equation (laminar and turbulent flow in pipes, losses and pipe systems). The impulse momentum equation, open channel flow (Chezy). Specific energy, supercritical and subcritical flow, hydraulic jump, stilling basins. Hydraulic machinery
Assessment methods:	exam
Semester:	Fall Semester

**Steel Structures 2.**

Language of instruction:	English
Form of teaching:	lecture, practice
Class hours per week:	1+2
Prerequisites:	Steel Structures 1.
Credits (ECTS):	4
Course description:	The goal of the semester is that the students should learn the conventional steel structures, and should be able to solve the design of the execution drawings independently.
Assessment methods:	exam
Semester:	Spring Semester

Building Constructions 3.

Language of instruction:	English
Form of teaching:	lecture, practice
Class hours per week:	3+4
Prerequisites:	Building Constructions 2.
Credits (ECTS):	3
Course description:	This course expands students' knowledge from what they learned in previous Building Constructions courses and covers the following topics: design and construction of monolith reinforced frame constructions; pile foundations; reinforced concrete frame stairs; expansion joints; methods of waterproofing and damp-proofing, traditional and modern waterproofing techniques (felt, sprayed, insulation coating etc.), materials of waterproofing and their application; utilised roofs, roofs open to pedestrian traffic, terraces, parking roofs and roofs with vegetation; internal structures for enclosing space, dry wall systems; mounted constructions, suspended ceilings and mounted floors, internal surfacing, floors and internal coverings; cavity walls design, external wall claddings; historic development of windows and doors; anatomy of windows and doors, glazing, physical installation aspects; traditional and modern windows and doors from wood, metal and plastic; skylights; shading. This subject includes an architectural design project in the practical part (marked with a P) where students can practice and further develop the content of the lectures (marked with an L).
Assessment methods:	exam
Semester:	Fall Semester

**Structural Analysis 1.**

Language of instruction:	English
Form of teaching:	lecture + practice
Class hours per week:	2+2
Prerequisites:	Strength of Materials 2.
Credits (ECTS):	4
Course description:	The purpose of this course is to introduce students to an advanced knowledge of structural analysis theory of statically indeterminate structures and learn its application for structural engineering problems. The selected topics are focusing for engineering problems and related computational methods.
Assessment methods:	Homework, midterm test, final test
Semester:	Spring Semester

Structural Analysis 2.

Language of instruction:	English
Form of teaching:	practice, lab
Class hours per week:	1 P, 1 L
Prerequisites:	Structural Analysis 1.
Credits (ECTS):	2
Course description:	The aim of the course is to introduce the necessary basics and relationships for mastering the subject group and to provide general knowledge for the recognition and analysis of load-bearing forces in load-bearing structures. Further aim is to provide a solid basic knowledge for further technical education. During the course, students become acquainted with the behavior of statically determinate and indeterminate planar structures with a moving vehicle load. They master the process of producing maximum stress diagrams for distributed and concentrated load.
Assessment methods:	Participation, mid-term test, presentation
Semester:	Fall Semester

**Fluid Mechanics in Engineering 1.**

Language of instruction:	English
Form of teaching:	lecture
Class hours per week:	2
Prerequisites:	-
Credits (ECTS):	3
Course description:	The aim of this course is to present the basic concepts of physics that students need to know for later courses and future careers. To emphasize that physics is a tool for understanding the real world. To teach transferable problem solving skills. Physics is the branch of science that describes matter, energy, space, and time in the most fundamental level. Physicists look patterns in the physical phenomena that occur in the universe. The goal is to find the most basic laws that govern the universe and to formulate those laws in the most precise way possible. The topics are the following: Newtonian Mechanics, Thermodynamics, Electrodynamics.
Assessment methods:	Participation, homework, final exam
Semester:	Fall Semester

Industrial Law

Language of instruction:	English
Form of teaching:	lecture
Class hours per week:	2
Prerequisites:	-
Credits (ECTS):	3
Course description:	The course focused on topics such as the European patent system, developing IP strategies, patent search and research success stories. The programme included lectures and presentations, Q&A sessions, hands-on exercises and case studies on success stories from the field.
Assessment methods:	Participation, tests
Semester:	Spring Semester

Fluid Mechanics in Engineering 2.

Language of instruction:	English
Form of teaching:	lecture+practice
Class hours per week:	1+1
Prerequisites:	Engineering Fluid Mechanics 1.
Credits (ECTS):	2
Course description:	This course exposes students to an expansive suite of topics and methods within the field of water resources engineering, emphasizes engineering fluid mechanics (Hydrostatics).
Assessment methods:	Participation, homework, practical test, final test
Semester:	Spring Semester

**Basics of Structural Design**

Language of instruction:	English
Form of teaching:	lecture+practice
Class hours per week:	1+1
Prerequisites:	-
Credits (ECTS):	2
Course description:	The goal of the semester is that the students should learn the theoretical background of the structural design, the basic knowledges of probability theories and the structure of the codified design through on the EuroCode Design Code system.
Assessment methods:	Participation, final test
Semester:	Spring Semester

Building Constructions 2.

Language of instruction:	English
Form of teaching:	lecture+practice
Class hours per week:	1+1
Prerequisites:	Building constructions 1.
Credits (ECTS):	2
Course description:	This subject intends to teach the following topics: requirements of building constructions; history of wall structures; walls built from solid bricks and stone, general rules of brick bounds; modern masonry materials, ceramic blocks, partition walls; lintels and openings of load-bearing wall structures; brick and stone arches, reinforced concrete joists; requirements and planning aspects of stairs, interior stairs, structural solutions for curved stairs, interior stairs made of reinforced concrete, metal and wood, stair structures of residential and public buildings, structural design of monolithic reinforced concrete stairs, stair structures made of stone and cast stone, pre-fabricated stair structures. In addition students will be introduced to the regulations and requirements structural design of ring beams, curved ceiling structures, the historical development, types and structural design of vaults. Chimneys and vents.
Assessment methods:	Participation, final test
Semester:	Spring Semester



Planning of Water supply and sewerage

Language of instruction:	English
Form of teaching:	lecture+practice
Class hours per week:	1+2
Prerequisites:	Hydrology; Fluid Mechanics in Engineering 3.
Credits (ECTS):	4
Course description:	This course exposes students to an expansive suite of topics and methods within the field of water supply and sewerage.
Assessment methods:	Participation, assignment, presentation, final exam
Semester:	Spring Semester

Water Resource Management

Language of instruction:	English
Form of teaching:	lecture+practice
Class hours per week:	1+1
Prerequisites:	Hydrology; Fluid Mechanics in Engineering 3.
Credits (ECTS):	2
Course description:	The course is designed to introduce students of Civil Engineering to the objectives of water resources management, based on brief history of the EU. The tasks, methods and tools of water management are covered in the course with Hungarian specialities of water management.
Assessment methods:	Participation, presentation
Semester:	Spring Semester