

# Vilnius College of Technologies and Design

Civil Engineering Faculty

**Subjects available** for academic year 2016/17

Subject	Subject code	ECTS credits	Annotation	Fall	Spring
Environmental and Human Safety	ESF16SP01	3	The course is aimed at familiarising the students with the theoretical and legal basics of environmental, occupational and civil safety, the fundamental requirements applied for the organisation of the safety of the working environment, working tools and works, teaching the students about the evaluation of working conditions and planning of the organisation of the measures ensuring safety, fire safety and prevention of accidents. The course studies are completed with an examination.	Yes	Yes
Building Engineering Systems	ESF16SP02	3	The course analyses the heating, cooling and air conditioning, cold and hot water supply and waste water systems in buildings: the principal schemes, used equipment, its functioning. The module teaches on how to design simple heating, water supply and waste water systems. The course studies are completed with an examination.	Yes	Yes
Hydromechanics	ESF16SP03	6	The course is aimed at providing students with the physical properties of fluids, laws of hydrostatics and hydrodynamics, modes of fluid flows, pressure drop in pipelines and their calculation methods, phenomena of fluid outlet through the openings and nozzles and water hammer in pipes, the classification of the elements of hydraulic systems and the purpose and structure of pumps. The course studies are completed with an examination	Yes	Yes
Renewable Energy Sources	ESF16SS01	3	The course is aimed to introduce students to the use of renewable resources and the Ministry of EU legislation, renewable energy sources: solar, wind, water, earth and biomass sources, their characteristics, perspectives and possibilities of energy sources, technologies of using energy sources, ecological and social aspects. The course studies are completed by an individual work performed by a student	Yes	Yes

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Economics of Enterprises	ESF16SP04	3	The course is aimed at providing students with knowledge on the companies, marketing and management, accounting basics. The course aims at educating logical thinking and analysis of the company's economic processes. The content of practical works and the topics are related to the student's professional activity. The course studies are completed with an examination.	Yes	Yes
Computer Graphics	ESF16SP05	3	The course is aimed at familiarising the students with the basics of construction drawing, detail and product design rules, and their application in blueprints; students are taught to analyse construction blueprints, apply valid standards in construction blueprints, and draft construction blueprints based on design rules; and knowledge is imparted about the main drawing, design, and editing commands and the application of the AutoCAD system in the preparation of graphic documents (blueprints). During practical tasks, spatial and logical thinking is cultivated, the ability to draft and read various blueprints is developed, and using drawing tools and means is taught. The studies of this course are completed by an individual work performed by a student.	Yes	Yes
Applied Mechanics/ Strength of materials	ESF16SP06	6	The course is aimed at familiarising the students with the basics of applied mechanics, main concepts of statics, and axioms, and links. Throughout the activities an understanding of flat systems of intersecting forces is developed, and the equilibrium condition and equations are analysed. A reduction of a flat system of forces and force system equilibrium are analysed. Basic concepts of material strength and the stress operating in cut sections are introduced. Tension and compression rod deformations along the axis are examined, and material tension and compression trial results are analysed. The concepts of warping, stretching, cutting, and splitting deformations are made clear. The condition for central compressed rod stability is analysed. Critical force and critical stress are defined. Types of building constructions, connections, and supports are examined. Structure calculation schemes are analysed. Composite beam types are examined, characteristic points of stress arising in beams are analysed, and detailed diagrams are completed. Flat statically resolvable girders, rods stress calculation methods, statically solvable structure influences, and their features are analysed. The course studies are completed with an examination.	Yes	Yes

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Applied Research	ESF16SP07	3	The course is aimed at familiarising the students with fundamental methodologies of applied research. Skills necessary to complete term papers, independent work, and the Final project and/or publications will be developed throughout the lectures. The subject is about the application of research methods, planning the applied research process, organization, and completion specifics. Throughout the course literature is studied, topics formulated, problems, relevance, objective, and tasks are described, data collected, analysed, and conclusion completed. The studies of this course are completed by an individual work performed by a student.	Yes	Yes
BIM Technologies in Building Design	ESF16SP08	6	The course is aimed at familiarising the students with the possibilities of application of computer-aided design software “Revit” in preparing the construction schemes. The course establishes the skills of the design of buildings, their sections, facades, units, forms the specific knowledge on the formation of the measurement modular system. The studies of this course are completed by an individual work of a student	Yes	Yes
Construction Materials	ESF16SP09	3	The course is aimed at providing knowledge on the raw-materials of building materials and their use for the production of building materials. During the course the students are familiarised with the production technologies of the main building materials and properties of the obtained materials according to the European Union (EU) technical requirements applicable to building materials. The studies of this course are completed by an individual work performed by a student.	Yes	No
Structures of Buildings I	ESF16SP10	6	The subject is aimed at familiarising the students with the classification of buildings, applicable requirements, normative construction technical documents; The subject programme analyses the structural systems of low-rise and multi-storey buildings; the partition structures are analysed in terms of thermal technique; structural solutions of walls, overlays, floor, partitions, roofs, windows and doors as well as stairs; discusses the types and constructions of wooden buildings; describes the design stage and composite project parts; teaches on the preparation of constructional part of building designs. The studies of this subject is completed by an individual work performed by a student.	Yes	No
Fundamentals of Structural Design I	ESF16SP11	6	The subject is aimed at familiarising the students with basic of structural design, devoting the most attention to calculation of loads and effects on steel structures. The studies of this subject are completed by an individual work performed by a student.	Yes	No

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Strengthening of Structures	ESF16SP12	3	The course is aimed at familiarising the students with the evaluation of the condition of constructions and methods of reinforcement of reinforced concrete, masonry, metal, wooden structures and basement and foundations as well as the essence of the calculation of reinforcement. The course studies are completed with an examination	Yes	No
Repair and Renovation Technologies	ESF16SP13	3	The course is aimed at providing students with the knowledge on the current condition of buildings, criteria of physical and moral wearing, defects emerging during use and causes of their emergence, methods of the performance of repair and reconstruction works, familiarising with the technologies of repair and reconstruction works, possibilities of use for the buildings of various purposes of use. The studies of this course are completed by an individual work performed by a student.	Yes	No
Technology of Construction Works	ESF16SP14	6	The subject is aimed at familiarising the students with the modern construction processes, occupational, fire and environmental safety requirements, management of construction, work rate-fixing and estimate documentation. The studies include the selection, analysis and evaluation of the technologies of preparatory, land, general and landscaping works, preparation of the estimate documentation of construction, project of construction works (technologies).	Yes	No
Geotechnics	ESF16SP15	3	The module is aimed at familiarising the students with basic of structural foundation and footing design. During tasks, new foundation and footing installation and reconstruction technologies and soil engineering geological research methods are examined, the physical and mechanical properties of Lithuanian soil and theoretical assumptions and methods of designing foundations and footings are analysed, and methods of foundation laying quality control methods are introduced.	No	Yes
Professional Ethics	ESF16SP16	3	The course is aimed at educating the communication skills of students. The course analyses the particularities of the communication art, the solution of the arising ethical problems, educates the value attitudes necessary for the formation of the civil position, teaches how to understanding oneself and other person properly and to evaluate the professional activity solutions in terms of ethics. The studies of this course are completed by an individual work performed by a student	No	Yes

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Organization of Construction Works	ESF16SP17	3	The module is aimed at familiarising the students with the modern construction processes, occupational, fire and environmental safety requirements, management of construction, work rate-fixing and estimate documentation. The studies include the selection, analysis and evaluation of the technologies of preparatory, land, general and landscaping works, preparation of the estimate documentation of construction, project of construction works (technologies). The studies of this module are completed by an individual work performed by a student.	No	Yes
Structures of Buildings II	ESF16SP18	6	The subject is aimed at familiarising the students with the analysis the structural systems and elements of large-span buildings; constructional schemes of carcass buildings, types and elements of carcasses and their connection units; structural solutions of monolithic buildings; constructional systems of industrial buildings; structural solutions and spatial stiffness. Studies of this subject is completed by an individual work performed by student.	No	Yes
Fundamentals of Structural Design II	ESF16SP19	3	The module is aimed at familiarising the students with basic of structural design, devoting the most attention to the structural design and construction of loads and effects and of reinforced concrete. The studies of this subject are completed by an individual work performed by a student.	No	Yes
Building Heating System	ESF16SS01	9	The course is designed to provide theoretical and practical knowledge about the sources of gas, properties of combustible gas and combustion process, diagrams of field gas supply network and their elements, gas appliances, consumer connection methods, elements of structural schemes of internal gas supply systems, problems and opportunities of building heat supply, heating systems, their design and elements. The course introduces to the main heat source equipment, principal schemes, connection methods and design solutions of internal gas supply system are selected. The course analyses heating systems of low-rise and high-rise buildings, trains how to apply legislation, calculate heat demand, select the most appropriate systems for a building, to design them and to select the appropriate equipment. The course studies are completed with student's self-guided work	No	Yes

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Topography	ESF16SG01	6	The course is aimed at providing knowledge on the coordinate systems, geodetic measurements, used instruments, coordinate and altitude establishment methods, methods of composition of topographic photographs, educating the skills of the calculation of coordinates and altitudes of points, formation and drawing of the plans of complex situation and relief. During the first semester, the studies are completed with the individual work performed by a student, during the second semester – with an examination, and during the third semester - with the student's individually performed work	No	Yes
Geodesy	ESF16SG02	6	The course is aimed at providing students with the fundamental information on geodesy, at teaching on how to perform measurement and marking works in the locality by using modern geodesy devices, to control the quality of construction works and compliance with the project. The course studies are completed with an examination.	No	Yes
Geographic Information Systems	ESF16SG03	6	The course is aimed at providing students with knowledge on the geographical information system, acquire practical skills of using the data sources of geo-information systems, create them, design and structure with ArcGIS software. The course is delivered during the fourth semester of studies. The course studies are completed with an examination	No	Yes
Introduction to Lithuania	ESF1601	3	The course is intended for international students who wish to gain comprehensive understanding of Lithuanian society and culture. The course is aimed to familiarise the students with the cultural background of Lithuania as well as its historical development in order to help them to make their exchange period more integral by an increased understanding of Lithuanian customs, culture and contemporary issues. During the course students will learn some basic phrases in Lithuanian, will gain basic knowledge of Lithuania's societal and cultural background from thematically various perspectives. The studies of this subject is completed by an individual work performed by a student.	Yes	Yes