

Study plan

Name of study plan: Stavební inženýrství, obor Inženýrství životního prostředí

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Civil Engineering

Type of study: Bachelor full-time

Required credits: 240

Elective courses credits: 0

Sum of credits in the plan: 240

Note on the plan: tento studijní plán platí pro nástupů 2017 (rozdělení NNK) a 2018

Name of the block: Compulsory courses

Minimal number of credits of the block: 208

The role of the block: Z

Code of the group: BJ20130100

Name of the group: Stavební inženýrství, povinné předměty, 1. semestr

Requirement credits in the group: In this group you have to gain at least 28 credits

Requirement courses in the group: In this group you have to complete at least 5 courses

Credits in the group: 28

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
123CH01	Chemistry Milena Pavlíková	Z,ZK	5	3P+1C	Z,L	z
101KG01	Constructive Geometry Iva Kivková, Iva Malechová, Liya Gaynutdinova, Michal Zdražil, Iva Slámová, Hana Lakomá, Jana Šápová, Iva Kivková, Iva Kivková (Gar.)	Z,ZK	5	2P+2C	Z,L	z
101MA01	Mathematics 1 Iva Kivková, Iva Malechová, Iva Slámová, Jana Šápová, Petr Kůrka, František Bubeník, Zdeněk Skalák, Ondřej Zindulka, Ivana Pultarová, Aleš Nekvinda, Aleš Nekvinda (Gar.)	Z,ZK	6	2P+3C	Z,L	z
105SVAR	Social Sciences and Architecture	Z,ZK	6	4P+1C	L,Z	z
132SM01	Structural Mechanics 1 Michal Polák, Martin Válek, Daniel Rypl, Anna Kurová, Matěj Lepš, Jan Sýkora, Tomáš Krejčí, Miroslav Šáp, Karel Pohl, Michal Polák, Michal Polák (Gar.)	Z,ZK	6	2P+2C	Z,L	z

Characteristics of the courses of this group of Study Plan: Code=BJ20130100 Name=Stavební inženýrství, povinné předměty, 1. semestr

123CH01	Chemistry Introduction to general chemistry - chemical bond, compounds, reactions, equilibrium. Chemistry of environment - water, atmosphere, pedosphere. Chemistry of building materials - inorganic binders, glass, ceramic, metals, natural polymers, wood, synthetic polymers on C and Si basis. Introduction to degradation of building materials and to analytical chemistry.	Z,ZK	5
101KG01	Constructive Geometry Projections and projective methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. Simple problems in axonometry. Basics of lighting of solids and groups of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical surfaces. Quadrics. Surfaces in building industry.	Z,ZK	5
101MA01	Mathematics 1 https://mat.fsv.cvut.cz/bubenik/mat1detail.htm	Z,ZK	6
105SVAR	Social Sciences and Architecture Subject introduces the fundamental principles of several social sciences: Economics, Economic Policy, Political Science and Law with an overview of architectural development. Economic section offers an introduction to market economy, economic policy and international economy. Lectures and seminars dedicated to Political Science explain Theory of state, political systems, democracy and totalitarianism. Law section comprises brief overview of development of Roman law with interpretation of the Constitution, Labor Code and Civil Code.	Z,ZK	6
132SM01	Structural Mechanics 1 Concurrent forces, force systems acting on rigid bodies in space/plane, moment of a force about a point and line. Supports of a rigid body, reaction forces. Compound two-dimensional structures. Trusses. Reaction forces applying the principle of virtual work.	Z,ZK	6

Code of the group: BJ20130200

Name of the group: Stavební inženýrství, povinné předměty, 2. semestr

Requirement credits in the group: In this group you have to gain 28 credits

Requirement courses in the group: In this group you have to complete at least 5 courses

Credits in the group: 28

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
102FY01	Physics Pavel Demo	Z,ZK	5	3P+1C	Z,L	z
101MA02	Mathematics 2 Iva Kivková, Iva Malechová, Iva Slámová, Hana Lakomá, Jana Šapová, Petr Kuera, František Bubeník, Zdeněk Skalák, Ondřej Zindulka, Ivana Pultarová Ivana Pultarová (Gar.)	Z,ZK	6	2P+3C	L,Z	z
154SG01	Land Surveying in Civil Engineering Rudolf Urban, Martin Štroner Rudolf Urban Rudolf Urban (Gar.)	Z,ZK	6	2P+3C	Z,L	z
123SH01	Building Materials Eva Vejmelková, Alena Vimmrová, Miloš Jerman Alena Vimmrová Alena Vimmrová (Gar.)	Z,ZK	5	2P+2C	Z,L	z
132SM02	Structural Mechanics 2 Michal Polák, Martin Válek, Daniel Rypl, Anna Kurová, Matěj Lepš, Jan Sýkora, Miroslav Šáp, Karel Pohl, Jitka Němcová, Matěj Lepš Michal Polák (Gar.)	Z,ZK	6	2P+2C	L,Z	z

Characteristics of the courses of this group of Study Plan: Code=BJ20130200 Name=Stavební inženýrství, povinné předměty, 2. semestr

102FY01	Physics Mass, structure of matter. Motion of matter, kinematics, dynamics. Force field. Deformations and leak. Oscillations, elastic waves, acoustics. Heat properties of matter.	Z,ZK	5
101MA02	Mathematics 2 https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/	Z,ZK	6
154SG01	Land Surveying in Civil Engineering The shape and size of the Earth, substitutive surfaces, cartographic projections Horizontal and vertical control, coordinate calculations Quality control, deviations and tolerations in build-up Angle and distance measurements Heighting measurements Other geodetic methods in build-up (GNSS, DPZ, ...) Photogrammetry and laser scanning Thematic mapping and present state documentation Geodetic works in build-up State map series of CR and thematic maps for build-up Geographic information systems and spatial planning Cadastre of real estates Laws and decrees for geodesy and build-up in Czech Republic	Z,ZK	6
123SH01	Building Materials Building materials - basis course. Classification of the materials. Structure of materials. Main properties of materials. Application of materials in building constructions. Introduction to material testing.	Z,ZK	5
132SM02	Structural Mechanics 2 Internal forces diagrams of simple statically determinate plane structures and compound two-dimensional structures. Multiaxially loaded cantilever. Definition of normal stress and prepositions of its distribution in a cross section. Equivalence of internal forces. Geometry of mass and areas, centre of gravity and moments of inertia.	Z,ZK	6

Code of the group: BJ20130300

Name of the group: Stavební inženýrství, povinné předměty, 3. semestr

Requirement credits in the group: In this group you have to gain 30 credits

Requirement courses in the group: In this group you have to complete at least 5 courses

Credits in the group: 30

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
136DSUP	Transport Structures and Urban Planning Ludvík Vébr	Z,ZK	6	5P+1C	L,Z	z
126EKMN	Economics and Management Božena Kadeřáková, Petr Kalivoda, Eduard Hromada Eduard Hromada Petr Kalivoda (Gar.)	Z,ZK	7	4P+2C		z
141HYA	Hydraulics Aleš Havlík, Tomáš Píček, Václav Matoušek, Petr Sklenář, Anna Špačková, Jakub Novotný, Vojtěch Bareš, Jan Krupička, Veronika Skalová, Václav Matoušek Václav Matoušek (Gar.)	Z,ZK	5	2P+2C	Z,L	z
101MA03	Mathematics 3 Iva Malechová, Petr Kuera, Ondřej Zindulka, Ivana Pultarová, Miloslav Vlasák, Aleš Někvinda, Michal Beneš, Martin Hála, Martin Soukenka, Michal Beneš Michal Beneš (Gar.)	Z,ZK	6	3P+2C	Z,L	z
132PRPE	Strength of Materials Karel Pohl, Tomáš Plachý, Martin Doškál, Dagmar Jandeková, Tomáš Koudelka, Milan Jirásek, Michal Šejnoha, Petr Kabele, Lenka Melzerová, Petr Kabele Petr Kabele (Gar.)	Z,ZK	6	3P+2C	Z,L	z

Characteristics of the courses of this group of Study Plan: Code=BJ20130300 Name=Stavební inženýrství, povinné předměty, 3. semestr

136DSUP	Transport Structures and Urban Planning	Z,ZK	6
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126EKMN	Economics and Management	Z,ZK	7
The aim of the course is to provide students with an introduction to economics and management in the construction industry and to familiarize them with basic economic terms and their practical applications. Students will be prepared to solve basic construction-management problems in the construction industry. They will acquire basic information about the method of pricing construction works and master the basic methods of managing a construction company. Emphasis is placed on understanding the principle of economic thinking in relation to the construction industry.			
141HYA	Hydraulics	Z,ZK	5
A course deals with issues of hydrostatics and hydrodynamics with aiming at civil engineering applications. There are analysed tasks related to hydrostatic and hydrodynamic loading of structures, pipeline flow, open channel flow and groundwater flow.			
101MA03	Mathematics 3	Z,ZK	6
https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/			
132PRPE	Strength of Materials	Z,ZK	6
Fundamentals of the theory of elasticity: stress and strain of straight beams subjected to bending and free torsion, ultimate plastic capacity of a member in bending, critical loads and buckling lengths of straight compression members. Basic assumptions, quantities, and equations describing the stress and strain state in 3D continuum, plates and walls.			

Code of the group: BJ20170400

Name of the group: Stavební inženýrství, povinné p edm ty, 4. semestr

Requirement credits in the group: In this group you have to gain 30 credits

Requirement courses in the group: In this group you have to complete at least 6 courses

Credits in the group: 30

Note on the group: rozdělení 133NNK

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
124PS01	Building Structures 1 <i>Petr Hájek</i>	Z,ZK	7	4P+2C	Z,L	z
132SM3	Structural Mechanics 3 <i>Tomáš Krejčí, Tomáš Plachý, Tomáš Koudelka, Milan Jirásek, Michal Šejnoha, Petr Kabele, Lenka Melzerová, Martin Lebeda, Eva Novotná, Petr Kabele Petr Kabele (Gar.)</i>	Z,ZK	5	2P+2C	L,Z	z
133NNKB	Fundamentals of Structural Design - Concrete <i>Martin Típka, Jitka Vašková, Radek Štefan, Michal Števíla, Nicole Svobodová Martin Típka Martin Típka (Gar.)</i>	Z,ZK	4	2P+1C	L,Z	z
134NNKO	Design of Supporting StructuresI - Steel <i>František Wald, Martina Eliášová Martina Eliášová Martina Eliášová (Gar.)</i>	Z,ZK	3	2P+1C	L	z
135GEMZ	Geology and soil mechanics <i>Jan Salák</i>	Z,ZK	7	4P+2C	Z,L	z
142VIZP	Water and Environmental Engineering <i>Aleš Havlík, Petr Nowak, Tomáš Dostál, Martin Do kal, Martin Šanda, Pavel Fošumpaur, Bohumil Š astný, Ladislav Satrapa, David Stránský, Ladislav Satrapa (Gar.)</i>	Z,ZK	4	3P+1C	Z,L	z

Characteristics of the courses of this group of Study Plan: Code=BJ20170400 Name=Stavební inženýrství, povinné p edm ty, 4. semestr

124PS01	Building Structures 1	Z,ZK	7
The concept of design of building structures with a comprehensive consideration of the functional requirements imposed on individual elements. Requirements for building structures, structural system, interaction of elements, spatial effect of the structural system. Vertical load-bearing structures (functions, requirements, principles of the structural design of walls, columns), floor structures (functions, requirements, principles of the structural design of vaults, wooden ceilings, reinforced concrete ceilings, ceramic concrete ceilings, steel and steel concrete ceilings). Expansion joints in load-bearing systems. Structural systems of single and multi-storey buildings, structural systems of long-span structures.			
132SM3	Structural Mechanics 3	Z,ZK	5
Deformation and force method for the solution of reactions and internal forces on statically indeterminate beams, frames, and truss structures. Calculation of displacements of beams, frames, and truss structures using the principle of virtual works.			
133NNKB	Fundamentals of Structural Design - Concrete	Z,ZK	4
The content of the subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, including the determination of load effects. The properties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete are discussed. Design and reinforcement of concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceability limit states is in the end of this course. The course follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Materials, Building Structures).			
134NNKO	Design of Supporting StructuresI - Steel	Z,ZK	3
The basics of designing steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load effects, design differences due to the specific properties of individual materials.			
135GEMZ	Geology and soil mechanics	Z,ZK	7
Strength and deformation properties of soils, applications. Principles of design of geotecGeological and geotechnical model of the environment. Basic geological processes. Quaternary geology, hydrogeology.hnical structures.			
142VIZP	Water and Environmental Engineering	Z,ZK	4
During the teaching semester, students are introduced to the fields of water engineering, water management and environmental engineering. In particular, emphasis is placed on the practical aspects of water and environmental engineering in close relation to other branches of civil engineering. The course is taught in the form of lectures and tutorials. The lectures are divided thematically into 20 blocks according to the different branches of the discipline (13 times water engineering and 7 times environmental engineering). In the exercises, students work on basic problems in the field of hydrology, water supply and water structures, especially dams, hydropower and flood issues. All 4 "water" departments of K14x are involved in teaching the course.			

Code of the group: BZ20130500

Name of the group: obor Inženýrství životního prostředí, 5. semestr

Requirement credits in the group: In this group you have to gain 30 credits

Requirement courses in the group: In this group you have to complete at least 5 courses

Credits in the group: 30

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
127VIS	Public Infrastructure of Settlements Václav Jetel	Z,ZK	6	3P+2C	Z	z
135ZSH	Foundations and Hydrogeology Ondřej Nol, Jana Tourková, Jan Kos, Jan Schröfel, Jan Valenta, Jakub Nedvď Daniel Jirásko Jana Tourková (Gar.)	Z,ZK	7	4P+2C	Z	z
136DSZP	Transport Structures and Environment Jan Hradil, Lenka Lomoz Jan Hradil Jan Hradil (Gar.)	Z,ZK	6	3P+2C	Z	z
141KMH	Climatology, Meteorology, Hydrology Petr Sklená, Jana Votrubová, Tomáš Vogel, Michal Dohnal, Jaromír Dušek Michal Dohnal Tomáš Vogel (Gar.)	Z,ZK	6	3P+2C	Z	z
143PED	Soil Science Michal Sn hota Michal Sn hota Michal Sn hota (Gar.)	Z,ZK	5	2P+2C	Z	z

Characteristics of the courses of this group of Study Plan: Code=BZ20130500 Name=obor Inženýrství životního prostředí, 5. semestr

127VIS	Public Infrastructure of Settlements	Z,ZK	6
135ZSH	Foundations and Hydrogeology Principles of design of foundation structures according to Eurocode principles. Types of foundation structures. Building pits. Basic information on the hydrogeological environment and groundwater chemistry. Aggressive waters. Groundwater tapping.	Z,ZK	7
136DSZP	Transport Structures and Environment The course is designed as an introduction to the problems of the relationship between road and rail transport and the environment. In more detail, it is aimed at the issue of noise and anti-noise measures from the point of view of a civil engineer in the field of rail transport. In the field of road transport, the subject is focused on traffic calming and control, solutions for urban and pedestrian zones, solutions for non-motorized traffic, including material, technological and design solutions.	Z,ZK	6
141KMH	Climatology, Meteorology, Hydrology The course focuses on the following thematic areas: General circulation of the atmosphere, climate factors and climate zones. Composition and structure of the atmosphere, water in the atmosphere. Air masses and fronts. Cloud development and precipitation. Hydrologic cycle and hydrologic balance. Interception, infiltration, evaporation. Runoff generation, rainfall-runoff relationships, flood routing, discharge measurement. Frequency analysis of extreme events. Hydrologic design.	Z,ZK	6
143PED	Soil Science Soil and the environment. Soil genesis, pedogenetic factors. Soil structure and texture. Physical and physiochemical soil properties. Physical, chemical and biological processes in soils. Soil classification. Soil survey and mapping. Soils of the world. Clay minerals, soil chemistry. Hydrostatic and hydrodynamic behaviour of soil water, capillarity. Determination of soil moisture. Flow of water in variably saturated porous media.	Z,ZK	5

Code of the group: BZ20130600

Name of the group: obor Inženýrství životního prostředí, 6. semestr

Requirement credits in the group: In this group you have to gain 25 credits

Requirement courses in the group: In this group you have to complete at least 5 courses

Credits in the group: 25

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
133BZKV	Concrete and Masonry Structures Iva Broukalová, Michaela Frantová, Petr Štemberk, Yuliia Khmurovskaja Petr Štemberk Petr Štemberk (Gar.)	Z,ZK	5	2P+2C	Z	z
134ODKV	Steel and Timber Structures Michal Netušil, Anna Kuklíková Michal Netušil Anna Kuklíková (Gar.)	Z,ZK	5	2P+2C	Z,L	z
141VTO	Water Courses Petr Sklená Petr Sklená Petr Sklená (Gar.)	Z,ZK	5	3P+1C	L	z
141VYV1	Fieldwork Training (1 week) Tomáš Píček, Martin Šanda, Michal Dohnal, Michal Sn hota Michal Dohnal Michal Dohnal (Gar.)	Z	2	2C	L	z
143GPU	GIS and Land Consolidation Miroslav Bauer	Z,ZK	8	4P+3C	L	z

Characteristics of the courses of this group of Study Plan: Code=BZ20130600 Name=obor Inženýrství životního prostředí, 6. semestr

133BZKV	Concrete and Masonry Structures The aim of the course is to deepen students' knowledge in the field of design of reinforced concrete structures at MSU in connection with the FSTC course. The subject content includes the problems of superimposition of slabs with one-way and two-way tension, principles of design of staircases, stiffening walls, masonry structures, foundations, retaining walls, prefabricated structures, halls and prestressed concrete. Serviceability limit states. Introduction to the design of civil engineering structures and bridges.	Z,ZK	5
134ODKV	Steel and Timber Structures Steel structures - pros and cons, material properties, fabrication, connections, industrial steel buildings, cables, high strength steel, buildings in terms of water engineering - load, protection, utilization. Timber - loadings, material properties, limit states methodology, design, connections, bracings, protection of structural timber, timber bridges.	Z,ZK	5

141VTO	Water Courses	Z,ZK	5
Students meet geomorphic fluvial processes taking place in river channels, expand their knowledge in the field of river hydraulics and river training technology and gain an idea of administration, maintenance and management of rivers in the Czech Republic. In practical part students are requested to prepare a report on assessment of river reach of own choice with aim to identify problems to be solved.			
141VYV1	Fieldwork Training (1 week)	Z	2
Not applicable.			
143GPU	GIS and Land Consolidation	Z,ZK	8
Land consolidation in the Czech Republic - history, process, legislation, designing landscape structures. Introduction to Geoinformatics. Main components of GIS - users, software, systems, hardware. Structure of geodata, basics of data preprocessing, searching the information. Basics of Geodatabases, work with raster and vector oriented systems. GIS in designing and in landscape and water management. Intro into morphological modelling. Digital terrain models, landuse mapping, soil maps, precipitation maps. Available commercial databases and free sources. Intro into remote sensing.			

Code of the group: BZ20130700

Name of the group: obor Inženýrství životního prostředí, 7. semestr

Requirement credits in the group: In this group you have to gain 19 credits

Requirement courses in the group: In this group you have to complete at least 4 courses

Credits in the group: 19

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
143EKDE	Dendrology and Ecology Martin Do kal, Jan Halík, Martina Sobotková Martin Do kal Martin Do kal (Gar.)	Z,ZK	7	3P+3C		z
143ODKO	Waste Management and Contamination Martin Do kal, Martin Šanda, Michal Šn hota Martin Do kal Martin Do kal (Gar.)	Z,ZK	6	3P+2C	Z	z
143TOK1	Landscape Design and Protection Adam Vokurka, Petr Kavka, Miroslav Bauer Miroslav Bauer Adam Vokurka (Gar.)	Z,ZK	6	3P+2C	Z	z
100ODPR	Industrial Training (3 weeks) Jan R ži ka, Petr Hájek Michal Jandera Michal Jandera (Gar.)	Z	0	6C	Z,L	z

Characteristics of the courses of this group of Study Plan: Code=BZ20130700 Name=obor Inženýrství životního prostředí, 7. semestr

143EKDE	Dendrology and Ecology	Z,ZK	7
143ODKO	Waste Management and Contamination	Z,ZK	6
Principles of linear and circular economy with a focus on construction and municipal waste. Waste collection, utilization and disposal systems (municipal, construction waste). Landfill security, landfill gas, landfill technology and post-closure reclamation. Measurement of waste production, biowaste management-composting and anaerobic digestion. Radioactive waste in the Czech Republic. Remediation of pollution - remediation methods to decontaminate the territory.			
143TOK1	Landscape Design and Protection	Z,ZK	6
Landscape stability assessment and nature protection in CR, classification of the basic problems in the landscape, design of the landscape stability system.			
100ODPR	Industrial Training (3 weeks)	Z	0
Professional practice is an important part of academic education in undergraduate degree programmes. The student will gain a basic understanding of duties and professional responsibilities. The professional practice evaluates the sum of all knowledge acquired through previous theoretical studies and is a proof of their acquisition.			

Code of the group: BZ20130800

Name of the group: obor Inženýrství životního prostředí, 8. semestr

Requirement credits in the group: In this group you have to gain 18 credits

Requirement courses in the group: In this group you have to complete at least 3 courses

Credits in the group: 18

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
122TSVZ	Technology of Construction Z Rostislav Šulc, Jaroslav Synek Rostislav Šulc Rostislav Šulc (Gar.)	Z,ZK	6	4P+2C	L	z
126STMN	Dana M š anová, Renáta Schneiderová Heralová, Václav Tatýrek, Jaroslava Tománková, Zita Prost jovská Zita Prost jovská Dana M š anová (Gar.)	Z,ZK	6	3P+2C	Z,L	z
144HHZI	Hydrobiology, hydrochemistry and sanitary engineering Jana Náb lková, Gabriela Š astná Jana Náb lková Jana Náb lková (Gar.)	Z,ZK	6	4P+2C	L	z

Characteristics of the courses of this group of Study Plan: Code=BZ20130800 Name=obor Inženýrství životního prostředí, 8. semestr

122TSVZ	Technology of Construction Z	Z,ZK	6
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126STMN		Z,ZK	6
Overview of selected concepts. Methods to support project management. Legal standards, SN and ISO standards. The essential aspects of Project Management. Construction as a project product. Objectives, strategies, phases and surroundings of the construction project. Project manager role. Purchases and contracts in the project. Quality management, risk management. Financial management and project evaluation. Feasibility study. Cost and resource management. Change procedures. The Act on Spatial Planning and Building Regulations, the Act on the Awarding of Public Contracts, and the definition of terms. Business obligation relationships, the conclusion of contracts, their form, and use of general business conditions. Business public competition, its influence on the obligations of participants. Securing the commitment - contractual penalty, guarantee. The main contract types in construction - are contract for the conclusion of a future contract, purchase contract, contract for work, and content of the contract.			
144HHZI	Hydrobiology, hydrochemistry and sanitary engineering	Z,ZK	6
Hydrochemistry: Chemical composition of water. Dissolved and particular matters. Metals, halogens. Nitrogen, sulphur and phosphorous compounds. Non-electrolytes. Organic matter. Self-purification. Eutrophication. Hydrobiology: Types of natural waters. Ecology of aquatic organisms. Hydrobiology of surface, drinking and waste waters. Water distribution system: Water sources. Systems of water purification. Water distribution system Sewer system: Wastewater. Shapes and sizes of the sewers. Types of sewerage networks. Sewerage objects. Combined sewer overflows. Environmental protection Waste water treatment plant: domestic wastewater treatment plant. Wastewater treatment plant. mechanical cleaning. Biological treatment. Removal of nitrogen and phosphorus. Sludge			

Name of the block: Povinná tělesná výchova, sportovní kurzy

Minimal number of credits of the block: 0

The role of the block: PT

Code of the group: BTV_POV

Name of the group: Povinná tělesná výchova

Requirement credits in the group:

Requirement courses in the group: In this group you have to complete at least 2 courses

Credits in the group: 0

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
TV1	Physical Education	Z	0	0+2	Z	PT
TV2	Physical Education	Z	0	0+2	L	PT

Characteristics of the courses of this group of Study Plan: Code=BTV_POV Name=Povinná tělesná výchova

TV1	Physical Education	Z	0
TV2	Physical Education	Z	0

Name of the block: Elective courses

Minimal number of credits of the block: 0

The role of the block: V

Code of the group: BF2013_KG

Name of the group: Výběrová konstruktivní geometrie

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
101YKG	Constructive Geometry - Selective Course	Z,ZK	5	2P+2C	Z	V

Characteristics of the courses of this group of Study Plan: Code=BF2013_KG Name=Výběrová konstruktivní geometrie

101YKG	Constructive Geometry - Selective Course	Z,ZK	5
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Name of the block: Compulsory elective courses

Minimal number of credits of the block: 6

The role of the block: S

Code of the group: BZ20130700_2

Name of the group: obor Inženýrství životního prostředí, povinně volitelné předměty, 7. semestr

Requirement credits in the group: In this group you have to gain 6 credits

Requirement courses in the group: In this group you have to complete at least 1 course

Credits in the group: 6

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
141YHMM	Hydroecological monitoring and modeling <i>Jana Votrubová, Tomáš Vogel, Michal Dohnal, Jaromír Dušek Michal Dohnal Michal Dohnal (Gar.)</i>	Z,ZK	6	3P+2C	Z	s
143YPEO	Erosion Protection <i>Tomáš Dostál Tomáš Dostál Tomáš Dostál (Gar.)</i>	Z,ZK	6	3P+2C	Z	s

Characteristics of the courses of this group of Study Plan: Code=BZ20130700_2 Name=obor Inženýrství životního prostředí, povinné volitelné předměty, 7. semestr

141YHMM	Hydroecological monitoring and modeling	Z,ZK	6	General principles of meteorological measurement, data resources, and measurement design. Meteorological and climatic measurements. Hydrological measurements. Tracers in experimental hydrology. Remote sensing for hydrology and meteorology. Evapotranspiration measurements. Data analysis. Modeling in hydrology. Modeling in ecology and biology. Inverse modeling.		
143YPEO	Erosion Protection	Z,ZK	6	Basic problems of soil erosion process, its risks and negative effects. Basic principles of catchment management. Negative effects of soil erosion on individual parts of landscape and society. Methods of soil loss and sediment transport determination, design of soil erosion control measures. State tools and policies in soil conservation.		

Name of the block: Jazyky

Minimal number of credits of the block: 4

The role of the block: J

Code of the group: BF20130100_J

Name of the group: povinný volitelný jazyk - 1. semestr

Requirement credits in the group: In this group you have to gain at least 2 credits

Requirement courses in the group: In this group you have to complete at least 1 course

Credits in the group: 2

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
104YC1A	English 1 <i>Lucie Simerová Petra Martincová</i>	Z	2	2C	Z,L	J
104YC1F	French 1 <i>Svatava Boboková-Bartíková</i>	Z	2	2C	Z,L	J
104YC1N	German 1 <i>Svatava Boboková-Bartíková</i>	Z	2	2C		J
104YC1R	Russian 1 <i>Vera Ermáková</i>	Z	2	2C		J
104YC1S	Spanish 1 <i>Miloslava Menclová</i>	Z	2	2C		J

Characteristics of the courses of this group of Study Plan: Code=BF20130100_J Name=povinný volitelný jazyk - 1. semestr

104YC1A	English 1	Z	2			
104YC1F	French 1	Z	2			
104YC1N	German 1	Z	2			
104YC1R	Russian 1	Z	2			
104YC1S	Spanish 1	Z	2			

Code of the group: BF20130200_J

Name of the group: povinný volitelný jazyk - 2. semestr

Requirement credits in the group: In this group you have to gain at least 2 credits

Requirement courses in the group: In this group you have to complete at least 1 course

Credits in the group: 2

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
104YC2A	English 2 Petra Martincová, V ra ermáková, Petra Florianová, Sandra Giormani, Svatava Boboková-Bartíková, Hana Horká, Lucie Simerová, Michaela Németh, Anna Študentová, Svatava Boboková-Bartíková Sandra Giormani (Gar.)	Z,ZK	2	2C		J
104YC2F	French 2 Svatava Boboková-Bartíková	Z,ZK	2	2C		J
104YC2N	German 2 Svatava Boboková-Bartíková Svatava Boboková-Bartíková Svatava Boboková-Bartíková (Gar.)	Z,ZK	2	2C		J
104YC2R	Russian 2 V ra ermáková	Z,ZK	2	2C		J
104YC2S	Spanish 2 Miloslava Menclová	Z,ZK	2	2C		J

Characteristics of the courses of this group of Study Plan: Code=BF20130200_J Name=povinn volitelný jazyk - 2. semestr

104YC2A	English 2 English 2 Course code: 104YC2A Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit and exam The aim of the compulsory English course is to enhance the knowledge of lexis and grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on professional language (i.e., ESP - technical style) and communicative competence within the construction industry. The course also seeks to teach students to read technical literature and to be able to produce essential written discourse and to express themselves in writing on issues in their field of study. The end of course requirements are a credit and an examination. Literature: Horká Hana, Giormani Sandra, Martincová Petra, Nivenová Renata : Professional English for Civil Engineering (Units 6 – 10)	Z,ZK	2
104YC2F	French 2	Z,ZK	2
104YC2N	German 2 The compulsory course - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction industry, understanding professional texts, and learning the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Literature: A.Hanáková, J.Dressel: Deutsch im Bauwesen	Z,ZK	2
104YC2R	Russian 2	Z,ZK	2
104YC2S	Spanish 2	Z,ZK	2

Name of the block: Povinn volitelné p edm ty, doporu ení S1

Minimal number of credits of the block: 22

The role of the block: S1

Code of the group: BZ20130600_1

Name of the group: obor Inženýrství životního prostředí, projekt, 6. semestr

Requirement credits in the group: In this group you have to gain 5 credits

Requirement courses in the group: In this group you have to complete at least 1 course

Credits in the group: 5

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
127PZ01	Project Design 1 Marek Janatka Marek Janatka (Gar.)	KZ	5	4C	L	S1
141PZ01	Project Design 1 Petr Sklená, Michal Dohnal Michal Dohnal Petr Sklená (Gar.)	KZ	5	4C	L	S1
142PZ01	Project Design 1 Martin Králík Martin Králík Martin Králík (Gar.)	KZ	5	4C	L	S1
143PZ01	Project Design 1 Václav David, Petr Koudelka Václav David Petr Koudelka (Gar.)	KZ	5	4C	L	S1

Characteristics of the courses of this group of Study Plan: Code=BZ20130600_1 Name=obor Inženýrství životního prostředí, projekt, 6. semestr

127PZ01	Project Design 1 The project is taught in cooperation with other departments. Preparation for bachelor thesis, collecting the information, preparation of data, state of art.	KZ	5
141PZ01	Project Design 1 The Project Design 1 at the Department of Hydraulics and Hydrology is focused on the modeling of the water component of the environment or the hydrological analysis of a selected catchment.	KZ	5
142PZ01	Project Design 1 The project is taught in cooperation with other departments. Preparation for bachelor thesis, collecting the information, preparation of data, state of art.	KZ	5
143PZ01	Project Design 1 Students will work on a study of the construction of a small water reservoir and on the revitalization of a small water courses under the reservoir. The study will include a textual, computational and drawing part.	KZ	5

Code of the group: BZ20130700_1

Name of the group: obor Inženýrství životního prostředí, projekt, 7. semestr

Requirement credits in the group: In this group you have to gain 5 credits

Requirement courses in the group: In this group you have to complete at least 1 course

Credits in the group: 5

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
101PZ02	Project Design 2 Jozef Bobok Jozef Bobok Jozef Bobok (Gar.)	KZ	5	4C	Z	S1
125PZ02	Project Design 2 Ilona Koubková Ilona Koubková (Gar.)	KZ	5	4C	Z	S1
127PZ02	Project Design 2 František Pospíšil, Václav Jetel František Pospíšil Václav Jetel (Gar.)	KZ	5	4C	Z	S1
133PZ02	Project Design 2 Jitka Vašková	KZ	5	4C	Z	S1
135PZ02	Project Design 2	KZ	5	4C	Z	S1
136PZ02	Project Design 2	KZ	5	4C	Z	S1
137PZ02	Project Design 2 Lenka Lomoz, Petra Váňová Lenka Lomoz Lenka Lomoz (Gar.)	KZ	5	4C	Z	S1
141PZ02	Project Design 2 Petr Šklenář, Michal Dohnal Michal Dohnal Michal Dohnal (Gar.)	KZ	5	4C	Z	S1
142PZ02	Project Design 2 Martin Králík Martin Králík Martin Králík (Gar.)	KZ	5	4C	Z	S1
143PZ02	Project Design 2 Tomáš Dostál, Martin Do kal, Martin Šanda, Michal Šn hota, Martina Sobotková, Adam Vokurka, Petr Kavka, Miroslav Bauer, Václav David, Miroslav Bauer Martin Do kal (Gar.)	KZ	5	4C	Z	S1
144PZ02	Project Design 2 Karel Kříž Karel Kříž Karel Kříž (Gar.)	KZ	5	4C	Z	S1
154PZ02	Project Design 2 Martin Štroner Martin Štroner (Gar.)	KZ	5	4C	Z	S1
155PZ02	Project Design 2	KZ	5	4C	Z	S1
220PZ02	Project Design 2 Radek Vašíček, Jiří Svoboda Radek Vašíček Radek Vašíček (Gar.)	KZ	5	4C	Z	S1

Characteristics of the courses of this group of Study Plan: Code=BZ20130700_1 Name=obor Inženýrství životního prostředí, projekt, 7. semestr

101PZ02	Project Design 2 Please, contact the guarantor of this subject.	KZ	5
125PZ02	Project Design 2 Independent project in the field of building services systems. Students choose out of the topics on offer and work on the text, calculations and graphical form of the project. Students from environment program.	KZ	5
127PZ02	Project Design 2 It is a project course, which is taught in the form of individual consultations. Teaching is provided by Ing. arch. František Pospíšil, Ph.D. and Ing. arch. Daniel Stojan.	KZ	5
133PZ02	Project Design 2 The subject is focused on concrete and masonry structures and materials in relation with the impact on the environment, aspects of sustainable construction, energy consumption, renewable sources, etc. The content of the work can be the elaboration of a research study comprising the processing of discoveries from the literature, the execution and analysis of experiments, etc.	KZ	5
135PZ02	Project Design 2	KZ	5
136PZ02	Project Design 2	KZ	5
137PZ02	Project Design 2 Development of a complete noise study of the selected area, containing a significant share of rail traffic. Elaboration of a study including an assessment of the noise situation of the area and a possible proposal for a solution to the given situation. Application of knowledge of the relevant legislation, methodological guidelines for the calculation of traffic noise levels and prediction software intended for determining the noise load.	KZ	5
141PZ02	Project Design 2 The project serves to intensify the cooperation between the student and the department. During the project students use the acquired knowledge from hydraulics, hydrology and other related technical and natural disciplines. It is supervised by the staff of the department, preferably directly by the supervisor of the bachelor thesis. In the case of the Department of Hydraulics and Hydrology, work is offered in the areas of watercourse revitalization, river hydraulics, small catchment hydrology, subsurface hydrology, urbanized catchment hydrology and hydraulic transport.	KZ	5
142PZ02	Project Design 2 The course is designed as a project before the thesis. Students will work with their thesis advisors on their thesis topic. The aim is to improve the level of the bachelor thesis and to allow for a broader scope (variant solutions) for subsequent elaboration in the bachelor thesis. Depending on the interest and capacity, the student chooses a project topic from the offer of each department, which is expected to be continued in the bachelor thesis.	KZ	5
143PZ02	Project Design 2 The subject is in fact pre-diploma (bachelor) thesis project. Students therefore will train independent work in direction of their final thesis. The aim there is to prepare students for their independent work on final thesis, to show them how to properly work with data, how to practically process them, and how to conclude and discuss.	KZ	5

144PZ02	Project Design 2 SEWERAGE: Data collection and processing for a given site, design of scenarios of foul water drainage and storm water drainage or infiltration. WATER SUPPLY: Design of water supply of a given site. Data collection, determination of the way of water supply. Design of feeding pipelines, water storage and main distribution pipelines. Drawing of situation and longitudinal profile.	KZ	5
154PZ02	Project Design 2 Theoretical, measurement and computational preparation for solving the bachelor thesis according to the topic.	KZ	5
155PZ02	Project Design 2 Processing of the project according to the assignment	KZ	5
220PZ02	Project Design 2 Solution of practical topic from the field of experimental geotechnics - familiarization with testing procedures in the laboratory and in the field (Underground Laboratory Josef - http://ceg.fsv.cvut.cz). Literature review, preparation and execution of tests, evaluation. Topics are linked to CEG research projects. Suitable as a preparation for bachelor thesis. The solution takes place after an individual agreement with the supervisor of particular topic.	KZ	5

Code of the group: BZ20130800_1

Name of the group: obor Inženýrství životního prostředí, bakalářská práce

Requirement credits in the group: In this group you have to gain at least 12 credits

Requirement courses in the group: In this group you have to complete at least 1 course

Credits in the group: 12

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
101BAPZ	Bachelor Thesis Jozef Bobok Jozef Bobok Jozef Bobok (Gar.)	Z	12	10C	L,Z	S1
127BAPZ	Bachelor Thesis Jiří Kupka, František Pospíšil, Marek Janatka, Václav Jetel Jiří Kupka Jiří Kupka (Gar.)	Z	12	10C	L,Z	S1
133BAPZ	Bachelor Thesis	Z	12	10C	L,Z	S1
135BAPZ	Bachelor Thesis Jan Pruška	Z	12	10C	L,Z	S1
136BAPZ	Bachelor Thesis Michal Uhlík Petr Mondschein (Gar.)	Z	12	10C	L,Z	S1
137BAPZ	Bachelor Thesis Lenka Lomoz, Petra Váňová Lenka Lomoz Lenka Lomoz (Gar.)	Z	12	10C	L,Z	S1
141BAPZ	Bachelor Thesis Michal Dohnal Michal Dohnal Michal Dohnal (Gar.)	Z	12	10C	L,Z	S1
142BAPZ	Bachelor Thesis Petr Nowak, Pavel Fošumpaur, Ladislav Satrapa, Martin Horský, Petra Nešvarová Chvojčková, Jitka Kučerová, Michal Toman, Miroslav Brouček, Tomáš Kašpar, Miroslav Brouček	Z	12	10C	L,Z	S1
143BAPZ	Bachelor Thesis Tomáš Dostál, Martin Doka, Martin Šanda, Michal Šnehota, Martina Sobotková, Adam Vokurka, Petr Kavka, Václav David, Pavla Schwarzová, Martin Šanda Tomáš Dostál (Gar.)	Z	12	10C	L,Z	S1
144BAPZ	Bachelor Thesis Iva Řiháková Bronislava Rohanová Jana Nábková (Gar.)	Z	12	10C	L,Z	S1
154BAPZ	Bachelor Thesis Martin Štroner Martin Štroner (Gar.)	Z	12	10C	L,Z	S1
155BAPZ	Bachelor Thesis Zdeněk Vyskočil, Jindřich Hoda Jindřich Hoda Jindřich Hoda (Gar.)	Z	12	10C	L,Z	S1
220BAPZ	Bachelor Thesis Radek Vašíček, Jiří Svoboda Radek Vašíček Radek Vašíček (Gar.)	Z	12	10C	L,Z	S1

Characteristics of the courses of this group of Study Plan: Code=BZ20130800_1 Name=obor Inženýrství životního prostředí, bakalářská práce

101BAPZ	Bachelor Thesis Please contact your teacher or guarantor of this subject.	Z	12
127BAPZ	Bachelor Thesis The first qualification thesis - an independent professional work of the student, of a larger scope - completing the bachelor's degree of study. The defence of the bachelor thesis is one of the components of the state final examination.	Z	12
133BAPZ	Bachelor Thesis A bachelor thesis is the qualification thesis of a bachelor's degree. It can take the form of a research study on the topic of concrete or masonry structures and their relations on environmental issues or a variant comparative analysis or parametric study or performing and analysing experiments, etc.	Z	12
135BAPZ	Bachelor Thesis The bachelor thesis concludes the bachelor studies. The student demonstrates that he/she can apply the knowledge acquired during the study on a specific project. The bachelor thesis is related to selected subjects of the study plan. For students of Z.	Z	12

136BAPZ	Bachelor Thesis	Z	12
The assigned topic of bachelor theses can be a project, traffic surveys, research of selected issues with application in practice for various technical solutions of road structures, laboratory tests to verify the functionality of various materials for pavements, etc. In terms of design, the most common topics of theses are, for example, the design of a new construction or reconstruction of a selected section of a road (bypass, flyover), the design of a road network in a selected area of the city, the design of a new construction or reconstruction of intersections, the design of an airport, heliport, etc. In terms of pavement structures and road construction technologies, the most frequent topics of work are, for example, comparison of different material solutions for asphalt or concrete pavements, including the relevant composite materials or input components (binders, aggregates, etc.), assessment of the behaviour of a particular material or type of structure by laboratory methods, or carrying out simulations, etc.			
137BAPZ	Bachelor Thesis	Z	12
A bachelor's thesis is the first comprehensive work prepared by students during their university studies on a chosen topic. The basic tasks are: work with professional literature, processing of professional text, citation habits, etc. A bachelor's thesis usually takes the form of a design (reconstruction of a section of a railway line, study of new lines), research (processing an overview of the current state of solutions in a certain area) or laboratory (including the execution and evaluation of specified laboratory tests).			
141BAPZ	Bachelor Thesis	Z	12
Working on a bachelor thesis in the field of hydraulics, hydrology, water courses or flood protection design. The thesis has the character of a study, in the case of students who are expected to continue in the follow-up master's studies, it is assumed that the thesis includes, among other things, a detailed analysis of the problems for the follow-up master's thesis.			
142BAPZ	Bachelor Thesis	Z	12
The course includes individual work of the student and consultations related to the work on the bachelor thesis			
143BAPZ	Bachelor Thesis	Z	12
Final thesis of bachelor study usually is a continuation of study and pre-diploma seminar. Student selects the topic from offer given by selected department. In close cooperation with responsible supervisor, student works on chosen topic.			
144BAPZ	Bachelor Thesis	Z	12
Bachelor Thesis concerning sewerage, waste water treatment, water supply, networks and bathology.			
154BAPZ	Bachelor Thesis	Z	12
Final thesis, prepared according to the assignment.			
155BAPZ	Bachelor Thesis	Z	12
Processing according to the work assignment			
220BAPZ	Bachelor Thesis	Z	12
Bachelor thesis elaboration with possible use of geotechnical laboratory and underground facility Josef (http://ceg.fsv.cvut.cz).			

List of courses of this pass:

Code	Name of the course	Completion	Credits
100ODPR	Industrial Training (3 weeks) Professional practice is an important part of academic education in undergraduate degree programmes. The student will gain a basic understanding of duties and professional responsibilities. The professional practice evaluates the sum of all knowledge acquired through previous theoretical studies and is a proof of their acquisition.	Z	0
101BAPZ	Bachelor Thesis Please contact your teacher or guarantor of this subject.	Z	12
101KG01	Constructive Geometry Projections and projective methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. Simple problems in axonometry. Basics of lighting of solids and groups of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical surfaces. Quadrics. Surfaces in building industry.	Z,ZK	5
101MA01	Mathematics 1 https://mat.fsv.cvut.cz/bubenik/mat1detail.htm	Z,ZK	6
101MA02	Mathematics 2 https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/	Z,ZK	6
101MA03	Mathematics 3 https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/	Z,ZK	6
101PZ02	Project Design 2 Please, contact the guarantor of this subject.	KZ	5
101YKG	Constructive Geometry - Selective Course	Z,ZK	5
102FY01	Physics Mass, structure of matter. Motion of matter, kinematics, dynamics. Force field. Deformations and leak. Oscillations, elastic waves, acoustics. Heat properties of matter.	Z,ZK	5
104YC1A	English 1	Z	2
104YC1F	French 1	Z	2
104YC1N	German 1	Z	2
104YC1R	Russian 1	Z	2
104YC1S	Spanish 1	Z	2
104YC2A	English 2 English 2 Course code: 104YC2A Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit and exam The aim of the compulsory English course is to enhance the knowledge of lexis and grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on professional language (i.e., ESP - technical style) and communicative competence within the construction industry. The course also seeks to teach students to read technical literature and to be able to produce essential written discourse and to express themselves in writing on issues in their field of study. The end of course requirements are a credit and an examination. Literature: Horká Hana, Giormani Sandra, Martincová Petra, Nivenová Renata : Professional English for Civil Engineering (Units 6 – 10)	Z,ZK	2
104YC2F	French 2	Z,ZK	2

104YC2N	German 2	Z,ZK	2
The compulsory course - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction industry, understanding professional texts, and learning the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Literature: A.Hanáková, J.Dressel: Deutsch im Bauwesen			
104YC2R	Russian 2	Z,ZK	2
104YC2S	Spanish 2	Z,ZK	2
105SVAR	Social Sciences and Architecture	Z,ZK	6
Subject introduces the fundamental principles of several social sciences: Economics, Economic Policy, Political Science and Law with an overview of architectural development. Economic section offers an introduction to market economy, economic policy and international economy. Lectures and seminars dedicated to Political Science explain Theory of state, political systems, democracy and totalitarianism. Law section comprises brief overview of development of Roman law with interpretation of the Constitution, Labor Code and Civil Code.			
122TSVZ	Technology of Construction Z	Z,ZK	6
123CH01	Chemistry	Z,ZK	5
Introduction to general chemistry - chemical bond, compounds, reactions, equilibrium. Chemistry of environment - water, atmosphere, pedosphere. Chemistry of building materials - inorganic binders, glass, ceramic, metals, natural polymers, wood, synthetic polymers on C and Si basis. Introduction to degradation of building materials and to analytical chemistry.			
123SH01	Building Materials	Z,ZK	5
Building materials - basis course. Classification of the materials. Structure of materials. Main properties of materials. Application of materials in building constructions. Introduction to material testing.			
124PS01	Building Structures 1	Z,ZK	7
The concept of design of building structures with a comprehensive consideration of the functional requirements imposed on individual elements. Requirements for building structures, structural system, interaction of elements, spatial effect of the structural system. Vertical load-bearing structures (functions, requirements, principles of the structural design of walls, columns), floor structures (functions, requirements, principles of the structural design of vaults, wooden ceilings, reinforced concrete ceilings, ceramic concrete ceilings, steel and steel concrete ceilings). Expansion joints in load-bearing systems. Structural systems of single and multi-storey buildings, structural systems of long-span structures.			
125PZ02	Project Design 2	KZ	5
Independent project in the field of building services systems. Students choose out of the topics on offer and work on the text, calculations and graphical form of the project. Students from environment program.			
126EKMN	Economics and Management	Z,ZK	7
The aim of the course is to provide students with an introduction to economics and management in the construction industry and to familiarize them with basic economic terms and their practical applications. Students will be prepared to solve basic construction-management problems in the construction industry. They will acquire basic information about the method of pricing construction works and master the basic methods of managing a construction company. Emphasis is placed on understanding the principle of economic thinking in relation to the construction industry.			
126STMN		Z,ZK	6
Overview of selected concepts. Methods to support project management. Legal standards, SN and ISO standards. The essential aspects of Project Management. Construction as a project product. Objectives, strategies, phases and surroundings of the construction project. Project manager role. Purchases and contracts in the project. Quality management, risk management. Financial management and project evaluation. Feasibility study. Cost and resource management. Change procedures. The Act on Spatial Planning and Building Regulations, the Act on the Awarding of Public Contracts, and the definition of terms. Business obligation relationships, the conclusion of contracts, their form, and use of general business conditions. Business public competition, its influence on the obligations of participants. Securing the commitment - contractual penalty, guarantee. The main contract types in construction - are contract for the conclusion of a future contract, purchase contract, contract for work, and content of the contract.			
127BAPZ	Bachelor Thesis	Z	12
The first qualification thesis - an independent professional work of the student, of a larger scope - completing the bachelor's degree of study. The defence of the bachelor thesis is one of the components of the state final examination.			
127PZ01	Project Design 1	KZ	5
The project is taught in cooperation with other departments. Preparation for bachelor thesis, collecting the information, preparation of data, state of art.			
127PZ02	Project Design 2	KZ	5
It is a project course, which is taught in the form of individual consultations. Teaching is provided by Ing. arch. František Pospíšil, Ph.D. and Ing. arch. Daniel Stojan.			
127VIS	Public Infrastructure of Settlements	Z,ZK	6
132PRPE	Strength of Materials	Z,ZK	6
Fundamentals of the theory of elasticity: stress and strain of straight beams subjected to bending and free torsion, ultimate plastic capacity of a member in bending, critical loads and buckling lengths of straight compression members. Basic assumptions, quantities, and equations describing the stress and strain state in 3D continuum, plates and walls.			
132SM01	Structural Mechanics 1	Z,ZK	6
Concurrent forces, force systems acting on rigid bodies in space/plane, moment of a force about a point and line. Supports of a rigid body, reaction forces. Compound two-dimensional structures. Trusses. Reaction forces applying the principle of virtual work.			
132SM02	Structural Mechanics 2	Z,ZK	6
Internal forces diagrams of simple statically determinate plane structures and compound two-dimensional structures. Multiaxially loaded cantilever. Definition of normal stress and prepositions of its distribution in a cross section. Equivalence of internal forces. Geometry of mass and areas, centre of gravity and moments of inertia.			
132SM3	Structural Mechanics 3	Z,ZK	5
Deformation and force method for the solution of reactions and internal forces on statically indeterminate beams, frames, and truss structures. Calculation of displacements of beams, frames, and truss structures using the principle of virtual works.			
133BAPZ	Bachelor Thesis	Z	12
A bachelor thesis is the qualification thesis of a bachelor's degree. It can take the form of a research study on the topic of concrete or masonry structures and their relations on environmental issues or a variant comparative analysis or parametric study or performing and analysing experiments, etc.			
133BZKV	Concrete and Masonry Structures	Z,ZK	5
The aim of the course is to deepen students' knowledge in the field of design of reinforced concrete structures at MSU in connection with the FSTC course. The subject content includes the problems of superimposition of slabs with one-way and two-way tension, principles of design of staircases, stiffening walls, masonry structures, foundations, retaining walls, prefabricated structures, halls and prestressed concrete. Serviceability limit states. Introduction to the design of civil engineering structures and bridges.			
133NNKB	Fundamentals of Structural Design - Concrete	Z,ZK	4
The content of the subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, including the determination of load effects. The properties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete are discussed. Design and reinforcement of concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceability limit states is in the end of this course. The course follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Materials, Building Structures).			

133PZ02	Project Design 2	KZ	5
The subject is focused on concrete and masonry structures and materials in relation with the impact on the environment, aspects of sustainable construction, energy consumption, renewable sources, etc. The content of the work can be the elaboration of a research study comprising the processing of discoveries from the literature, the execution and analysis of experiments, etc.			
134NNKO	Design of Supporting StructuresI - Steel	Z,ZK	3
The basics of designing steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load effects, design differences due to the specific properties of individual materials.			
134ODKV	Steel and Timber Structures	Z,ZK	5
Steel structures - pros and contras, material properties, fabrication, connections, industrial steel buildings, cables, high strength steel, buildings in terms of water engineering - load, protection, utilization. Timber - loadings, material properties, limit states methodology, design, connections, bracings, protection of structural timber, timber bridges.			
135BAPZ	Bachelor Thesis	Z	12
The bachelor thesis concludes the bachelor studies. The student demonstrates that he/she can apply the knowledge acquired during the study on a specific project. The bachelor thesis is related to selected subjects of the study plan. For students of Z.			
135GEMZ	Geology and soil mechanics	Z,ZK	7
Strength and deformation properties of soils, applications. Principles of design of geotechnical and geotechnical model of the environment. Basic geological processes. Quaternary geology, hydrogeological structures.			
135PZ02	Project Design 2	KZ	5
135ZSH	Foundations and Hydrogeology	Z,ZK	7
Principles of design of foundation structures according to Eurocode principles. Types of foundation structures. Building pits. Basic information on the hydrogeological environment and groundwater chemistry. Aggressive waters. Groundwater tapping.			
136BAPZ	Bachelor Thesis	Z	12
The assigned topic of bachelor theses can be a project, traffic surveys, research of selected issues with application in practice for various technical solutions of road structures, laboratory tests to verify the functionality of various materials for pavements, etc. In terms of design, the most common topics of theses are, for example, the design of a new construction or reconstruction of a selected section of a road (bypass, flyover), the design of a road network in a selected area of the city, the design of a new construction or reconstruction of intersections, the design of an airport, heliport, etc. In terms of pavement structures and road construction technologies, the most frequent topics of work are, for example, comparison of different material solutions for asphalt or concrete pavements, including the relevant composite materials or input components (binders, aggregates, etc.), assessment of the behaviour of a particular material or type of structure by laboratory methods, or carrying out simulations, etc.			
136DSUP	Transport Structures and Urban Planning	Z,ZK	6
136DSZP	Transport Structures and Environment	Z,ZK	6
The course is designed as an introduction to the problems of the relationship between road and rail transport and the environment. In more detail, it is aimed at the issue of noise and anti-noise measures from the point of view of a civil engineer in the field of rail transport. In the field of road transport, the subject is focused on traffic calming and control, solutions for urban and pedestrian zones, solutions for non-motorized traffic, including material, technological and design solutions.			
136PZ02	Project Design 2	KZ	5
137BAPZ	Bachelor Thesis	Z	12
A bachelor's thesis is the first comprehensive work prepared by students during their university studies on a chosen topic. The basic tasks are: work with professional literature, processing of professional text, citation habits, etc. A bachelor's thesis usually takes the form of a design (reconstruction of a section of a railway line, study of new lines), research (processing an overview of the current state of solutions in a certain area) or laboratory (including the execution and evaluation of specified laboratory tests).			
137PZ02	Project Design 2	KZ	5
Development of a complete noise study of the selected area, containing a significant share of rail traffic. Elaboration of a study including an assessment of the noise situation of the area and a possible proposal for a solution to the given situation. Application of knowledge of the relevant legislation, methodological guidelines for the calculation of traffic noise levels and prediction software intended for determining the noise load.			
141BAPZ	Bachelor Thesis	Z	12
Working on a bachelor thesis in the field of hydraulics, hydrology, water courses or flood protection design. The thesis has the character of a study, in the case of students who are expected to continue in the follow-up master's studies, it is assumed that the thesis includes, among other things, a detailed analysis of the problems for the follow-up master's thesis.			
141HYA	Hydraulics	Z,ZK	5
A course deals with issues of hydrostatics and hydrodynamics with aiming at civil engineering applications. There are analysed tasks related to hydrostatic and hydrodynamic loading of structures, pipeline flow, open channel flow and groundwater flow.			
141KMH	Climatology, Meteorology, Hydrology	Z,ZK	6
The course focuses on the following thematic areas: General circulation of the atmosphere, climate factors and climate zones. Composition and structure of the atmosphere, water in the atmosphere. Air masses and fronts. Cloud development and precipitation. Hydrologic cycle and hydrologic balance. Interception, infiltration, evaporation. Runoff generation, rainfall-runoff relationships, flood routing, discharge measurement. Frequency analysis of extreme events. Hydrologic design.			
141PZ01	Project Design 1	KZ	5
The Project Design 1 at the Department of Hydraulics and Hydrology is focused on the modeling of the water component of the environment or the hydrological analysis of a selected catchment.			
141PZ02	Project Design 2	KZ	5
The project serves to intensify the cooperation between the student and the department. During the project students use the acquired knowledge from hydraulics, hydrology and other related technical and natural disciplines. It is supervised by the staff of the department, preferably directly by the supervisor of the bachelor thesis. In the case of the Department of Hydraulics and Hydrology, work is offered in the areas of watercourse revitalization, river hydraulics, small catchment hydrology, subsurface hydrology, urbanized catchment hydrology and hydraulic transport.			
141VTO	Water Courses	Z,ZK	5
Students meet geomorphic fluvial processes taking place in river channels, expand their knowledge in the field of river hydraulics and river training technology and gain an idea of administration, maintenance and management of rivers in the Czech Republic. In practical part students are requested to prepare a report on assessment of river reach of own choice with aim to identify problems to be solved.			
141VYV1	Fieldwork Training (1 week)	Z	2
Not applicable.			
141YHMM	Hydroecological monitoring and modeling	Z,ZK	6
General principles of meteorological measurement, data resources, and measurement design. Meteorological and climatic measurements. Hydrological measurements. Tracers in experimental hydrology. Remote sensing for hydrology and meteorology. Evapotranspiration measurements. Data analysis. Modeling in hydrology. Modeling in ecology and biology. Inverse modeling.			
142BAPZ	Bachelor Thesis	Z	12
The course includes individual work of the student and consultations related to the work on the bachelor thesis			

142PZ01	Project Design 1 The project is taught in cooperation with other departments. Preparation for bachelor thesis, collecting the information, preparation of data, state of art.	KZ	5
142PZ02	Project Design 2 The course is designed as a project before the thesis. Students will work with their thesis advisors on their thesis topic. The aim is to improve the level of the bachelor thesis and to allow for a broader scope (variant solutions) for subsequent elaboration in the bachelor thesis. Depending on the interest and capacity, the student chooses a project topic from the offer of each department, which is expected to be continued in the bachelor thesis.	KZ	5
142VIZP	Water and Environmental Engineering During the teaching semester, students are introduced to the fields of water engineering, water management and environmental engineering. In particular, emphasis is placed on the practical aspects of water and environmental engineering in close relation to other branches of civil engineering. The course is taught in the form of lectures and tutorials. The lectures are divided thematically into 20 blocks according to the different branches of the discipline (13 times water engineering and 7 times environmental engineering). In the exercises, students work on basic problems in the field of hydrology, water supply and water structures, especially dams, hydropower and flood issues. All 4 "water" departments of K14x are involved in teaching the course.	Z,ZK	4
143BAPZ	Bachelor Thesis Final thesis of bachelor study usually is a continuation of study and pre-diploma seminar. Student selects the topic from offer given by selected department. In close cooperation with responsible supervisor, student works on chosen topic.	Z	12
143EKDE	Dendrology and Ecology	Z,ZK	7
143GPU	GIS and Land Consolidation Land consolidation in the Czech Republic - history, process, legislation, designing landscape structures. Introduction to Geoinformatics. Main components of GIS - users, software, systems, hardware. Structure of geodata, basics of data preprocessing, searching the information. Basics of Geodatabases, work with raster and vector oriented systems. GIS in designing and in landscape and water management. Intro into morphological modelling. Digital terrain models, landuse mapping, soil maps, precipitation maps. Available commercial databases and free sources. Intro into remote sensing.	Z,ZK	8
143ODKO	Waste Management and Contamination Principles of linear and circular economy with a focus on construction and municipal waste. Waste collection, utilization and disposal systems (municipal, construction waste). Landfill security, landfill gas, landfill technology and post-closure reclamation. Measurement of waste production, biowaste management-composting and anaerobic digestion. Radioactive waste in the Czech Republic. Remediation of pollution - remediation methods to decontaminate the territory.	Z,ZK	6
143PED	Soil Science Soil and the environment. Soil genesis, pedogenetic factors. Soil structure and texture. Physical and physiochemical soil properties. Physical, chemical and biological processes in soils. Soil classification. Soil survey and mapping. Soils of the world. Clay minerals, soil chemistry. Hydrostatic and hydrodynamic behaviour of soil water, capillarity. Determination of soil moisture. Flow of water in variably saturated porous media.	Z,ZK	5
143PZ01	Project Design 1 Students will work on a study of the construction of a small water reservoir and on the revitalization of a small water courses under the reservoir. The study will include a textual, computational and drawing part.	KZ	5
143PZ02	Project Design 2 The subject is in fact pre-diploma (bachelor) thesis project. Students therefore will train independent work in direction of their final thesis. The aim there is to prepare students for their independent work on final thesis, to show them how to properly work with data, how to practically process them, and how to conclude and discuss.	KZ	5
143TOK1	Landscape Design and Protection Landscape stability assessment and nature protection in CR, classification of the basic problems in the landscape, design of the landscape stability system.	Z,ZK	6
143YPEO	Erosion Protection Basic problems of soil erosion process, its risks and negative effects. Basic principles of catchment management. Negative effects of soil erosion on individual parts of landscape and society. Methods of soil loss and sediment transport determination, design of soil erosion control measures. State tools and policies in soil conservation.	Z,ZK	6
144BAPZ	Bachelor Thesis Bachelor Thesis concerning sewerage, waste water treatment, water supply, networks and balnology.	Z	12
144HHZI	Hydrobiology, hydrochemistry and sanitary engineering Hydrochemistry: Chemical composition of water. Dissolved and particular matters. Metals, halogens. Nitrogen, sulphur and phosphorous compounds. Non-electrolytes. Organic matter. Self-purification. Eutrophication. Hydrobiology: Types of natural waters. Ecology of aquatic organisms. Hydrobiology of surface, drinking and waste waters. Water distribution system: Water sources. Systems of water purification. Water distribution system Sewer system: Wastewater. Shapes and sizes of the sewers. Types of sewerage networks. Sewerage objects. Combined sewer overflows. Environmental protection Waste water treatment plant: domestic wastewater treatment plant. Wastewater treatment plant. mechanical cleaning. Biological treatment. Removal of nitrogen and phosphorus. Sludge	Z,ZK	6
144PZ02	Project Design 2 SEWERAGE: Data collection and processing for a given site, design of scenarios of foul water drainage and storm water drainage or infiltration. WATER SUPPLY: Design of water supply of a given site. Data collection, determination of the way of water supply. Design of feeding pipelines, water storage and main distribution pipelines. Drawing of situation and longitudinal profile.	KZ	5
154BAPZ	Bachelor Thesis Final thesis, prepared according to the assignment.	Z	12
154PZ02	Project Design 2 Theoretical, measurement and computational preparation for solving the bachelor thesis according to the topic.	KZ	5
154SG01	Land Surveying in Civil Engineering The shape and size of the Earth, substitutive surfaces, cartographic projections Horizontal and vertical control, coordinate calculations Quality control, deviations and tolerations in build-up Angle and distance measurements Heighting measurements Other geodetic methods in build-up (GNSS, DPZ, ...) Photogrammetry and laser scanning Thematic mapping and present state documentation Geodetic works in build-up State map series of CR and thematic maps for build-up Geographic information systems and spatial planning Cadastre of real estates Laws and decrees for geodesy and build-up in Czech Republic	Z,ZK	6
155BAPZ	Bachelor Thesis Processing according to the work assignment	Z	12
155PZ02	Project Design 2 Processing of the project according to the assignment	KZ	5
220BAPZ	Bachelor Thesis Bachelor thesis elaboration with possible use of geotechnical laboratory and underground facility Josef (http://ceg.fsv.cvut.cz).	Z	12
220PZ02	Project Design 2 Solution of practical topic from the field of experimental geotechnics - familiarization with testing procedures in the laboratory and in the field (Underground Laboratory Josef - http://ceg.fsv.cvut.cz). Literature review, preparation and execution of tests, evaluation. Topics are linked to CEG research projects. Suitable as a preparation for bachelor thesis. The solution takes place after an individual agreement with the supervisor of particular topic.	KZ	5

TV1	Physical Education	Z	0
TV2	Physical Education	Z	0

For updated information see <http://bilakniha.cvut.cz/en/FF.html>

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