Study plan

Name of study plan: Stavební inženýrství, specializace 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 od akademického roku 2020/21

Name of the block: Compulsory courses
Minimal number of credits of the block: 117
The role of the block: Z

Code of the group: BJ20190100
Name of the group: Stavební inženýrství, varianta J, 1. semestr
Requirement credits in the group: In this group you have to gain at least 29 credits
Requirement courses in the group: In this group you have to complete at least 6 courses
Credits in the group: 29
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
101KG01	**Constructive Geometry** *Iva Křivková, Iva Malechová, Michal Zdražil, Iva Slámová, Hana Lakomá, Petra Vacková, Jana Čápová, Jozef Bobok **Jana Čápová** Iva Křivková (Gar.)*	Z,ZK	5	2P+2C	Z,L	z
101MA01	**Mathematics 1** *Iva Malechová, Iva Slámová, Petra Vacková, Jana Čápová, Jozef Bobok, Michal Beneš, Ivana Pultarová, Ondřej Zindulka, Jan Chleboun, ... **Aleš Nekvinda** Aleš Nekvinda (Gar.)*	Z,ZK	6	2P+3C	Z,L	z
105SVAI	**Social Sciences and Architecture** *Josef Záruba Pfeffermann, Bořivoj Marek, Rudolf Pošva, Dana Římanová, Jana Hrbková **Josef Záruba Pfeffermann** Josef Záruba Pfeffermann (Gar.)*	Z,ZK	5	4P+1C	L	z
123CHE	**Chemistry** *Jana Nábělková, Martin Keppert, Milena Pavlíková **Milena Pavlíková** Milena Pavlíková (Gar.)*	Z,ZK	4	3P+1C	L	z
132SM01	**Structural Mechanics 1** *Michal Polák, Daniel Rypl, Matěj Lepš, Jan Sýkora, Tomáš Koudelka, Aleš Palička, Karel Pohl, Tomáš Plachý, Martin Válek, ... **Matěj Lepš** Michal Polák (Gar.)*	Z,ZK	6	2P+2C	Z,L	z
135GM01	**Geomechanics 1** *Kateřina Kovářová, Jan Jelínek, Svatoslav Chamra, Richard Malát **Kateřina Kovářová** Kateřina Kovářová (Gar.)*	Z	3	2P+1C	L	z

Characteristics of the courses of this group of Study Plan: Code=BJ20190100 Name=Stavební inženýrství, varianta J, 1. semestr

101KG01	Constructive Geometry	Z,ZK	5
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 groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical surfaces. Quadrics. Surfaces in building industry.			
101MA01	Mathematics 1	Z,ZK	6
https://mat.fsv.cvut.cz/bubenik/mat1detail.htm			
105SVAI	Social Sciences and Architecture	Z,ZK	5
The subject combines the teaching of several social sciences - economics and economic policy, political science and law - with an overview of the development of architecture. Within economics, students will become familiar with basic economic concepts, the essence of economic and social policy and the place of construction in the economic structure. The content of the lectures on law is an overview of the institutions of Roman law, an interpretation of the constitution, human rights and selected legal norms, especially the new construction law. The political science part outlines the development of political thought in antiquity and in the period from the Renaissance to the present. Lectures on the history of architecture and construction provide a comprehensive explanation of the history of architecture from antiquity to postmodernism and deconstruction.			
123CHE	Chemistry	Z,ZK	4
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.			

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.			
135GM01	Geomechanics 1	Z	3
The course focuses on the understanding of basic geological laws and principles in relation to architecture, civil engineering and urban planning. Emphasis is placed on explaining the influence of geological processes, both endogenous and exogenous, on the rock environment and how the geological situation affects the design of structures and their interaction with the rock environment. At the same time, attention is paid to the technical properties of rocks with regard to their practical applications. The course also includes a brief introduction to the regional geology of the Czech Republic.			

Code of the group: BJ20190200
Name of the group: Stavební inženýrství, varianta J, 2. 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 6 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
101MA02	**Mathematics 2** *Iva Malechová, Iva Slámová, Hana Lakomá, Petra Vacková, Jana Čápová, Jozef Bobok, Michal Beneš, Ivana Pultarová, Ondřej Zindulka, ... **Ivana Pultarová** Ivana Pultarová (Gar.)*	Z,ZK	6	2P+3C	L,Z	z
102FYI	**Physics** *Pavel Novák, Tomáš Zbíral, Jiří Konfršt, Petr Pokorný, Jan Trejbal, Pavel Demo, Jiří Novák **Pavel Novák** Pavel Novák (Gar.)*	Z,ZK	4	3P+1C	L	z
123SH01	**Building Materials** *Alena Vimmrová, Eva Vejmelková, Miloš Jerman **Alena Vimmrová** Alena Vimmrová (Gar.)*	Z,ZK	5	2P+2C	Z,L	z
126BIM1	**BIM** *Petr Matějka, Josef Žák **Josef Žák** Josef Žák (Gar.)*	Z	1	1P+1C	Z	z
132SM02	**Structural Mechanics 2** *Michal Polák, Daniel Rypl, Matěj Lepš, Jan Sýkora, Tomáš Koudelka, Aleš Palička, Martin Válek, Jitka Němečková, Šimon Glanc, ... **Michal Polák** Michal Polák (Gar.)*	Z,ZK	6	2P+2C	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

Characteristics of the courses of this group of Study Plan: Code=BJ20190200 Name=Stavební inženýrství, varianta J, 2. semestr

101MA02	Mathematics 2	Z,ZK	6
https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/			
102FYI	Physics	Z,ZK	4
This is a basic physics course for students of the study programmes Civil Engineering; Management and Economics in Construction. The course focuses on mechanics and basic thermodynamics. The following areas are covered in the course: Mechanics of material points (particles) and deformable bodies. Discrete and continuous model of matter. Kinematics and dynamics of a material point (particle). Mechanical force fields. Gravitational field. Mechanical vibrations. Material deformation. Elastic waves. Acoustics. Hydromechanics. Fundamentals of thermodynamics. Heat transfer.			
123SH01	Building Materials	Z,ZK	5
Building materials - basis course. Clasification of the materials. Structure of materials. Main properties of materials. Application of materials in building constructions. Introduction to material testing.			
126BIM1	BIM	Z	1
The course focuses on teaching basic knowledge in the field of Building Information Management (BIM) in theoretical and practical areas, applicable across different specialisations and disciplines of the construction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digitized documents, raster and vector graphics, open data sources in the Czech Republic, ICT and enterprise systems, information systems for the construction industry, but also the context of BIM in the current construction industry in relation to the entire project life cycle and its specifics (delivery, expert focus, phases of construction projects, etc.) The theoretical knowledge is complemented by practical exercises aimed at mastering and understanding the basic principles of object-oriented parametric modelling.			
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.			
154SG01	Land Surveying in Civil Engineering	Z,ZK	6
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			

Code of the group: BJ20190300
Name of the group: Stavební inženýrství, varianta J, 3. semestr
Requirement credits in the group: In this group you have to gain at least 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:

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
101MA03	**Mathematics 3** *Iva Malechová, Jozef Bobok, Michal Beneš, Ondřej Zindulka, Petr Kučera, Zdeněk Skalák, Martin Hála, Martin Soukenka, Petr Mayer, ...* ***Michal Beneš*** *Michal Beneš (Gar.)*	Z,ZK	6	3P+2C	Z,L	z
124PSI1	**Building Structures 1I** *Ctislav Fiala, Jan Růžička, Petr Hájek, Jaroslav Vychytil, Běla Stibůrková* ***Jan Růžička*** *Petr Hájek (Gar.)*	Z	4	2P+1C	Z	z
132PRPE	**Strength of Materials** *Petr Kabele, Michal Šejnoha, Milan Jirásek, Jan Vorel, Eva Novotná, Martin Doškář, Martin Horák, Martin Lebeda, Barbora Hálková, ...* ***Milan Jirásek*** *Petr Kabele (Gar.)*	Z,ZK	6	3P+2C	Z,L	z
135GM2I	**Geomechanics 2I** *Jan Salák, Jiří Košťál, Martin Vaníček, Ivan Vaníček* ***Ivan Vaníček*** *Jan Salák (Gar.)*	Z,ZK	5	2P+1C	Z	z
141HYA	**Hydraulics** *Michal Dohnal, Aleš Havlík, Tomáš Picek, Václav Matoušek, Petr Sklenář, Martin Fencl, Anna Špačková, Jakub Novotný, Vojtěch Bareš, ...* ***Václav Matoušek*** *Michal Dohnal (Gar.)*	Z,ZK	5	2P+2C	Z,L	z
142VIZP	**Water and Environmental Engineering** *Aleš Havlík, Martin Fencl, Michal Sněhota, Petr Nowak, Tomáš Dostál, Martin Dočkal, Martin Šanda, Pavel Fošumpaur, Bohumil Šťastný, ...* ***Martin Horský*** *Ladislav Satrapa (Gar.)*	Z,ZK	4	3P+1C	Z,L	z

Characteristics of the courses of this group of Study Plan: Code=BJ20190300 Name=Stavební inženýrství, varianta J, 3. semestr

101MA03	Mathematics 3	Z,ZK	6
https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/			
124PSI1	Building Structures 1I	Z	4
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.			
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.			
135GM2I	Geomechanics 2I	Z,ZK	5
Formation of soils, basic properties of soils, water in soil, strength and deformation properties of soils and their determination, improvement of soil properties, application tasks			
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.			
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: BJ20190400
Name of the group: Stavební inženýrství, varianta J, 4. semestr
Requirement credits in the group: In this group you have to gain at least 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:

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
124PSI2	**Building Structures 2I** *Ctislav Fiala, Petr Hájek, Malila Noori, Veronika Kačmaříková, Jaroslav Vychytil, Tereza Pavlů, Jiří Pazderka, Jiří Nováček* ***Jiří Pazderka*** *Jiří Pazderka (Gar.)*	Z,ZK	4	2P+1C	L	z
126EKMN	**Economics and Management** *Eduard Hromada, Martin Časenský, Božena Kadeřábková, Petr Kalčev, Pavlína Píchová, Pavlína Píchová* ***Eduard Hromada*** *Eduard Hromada (Gar.)*	Z,ZK	7	4P+2C		z
132SM3	**Structural Mechanics 3** *Tomáš Koudelka, Petr Kabele, Michal Šejnoha, Milan Jirásek, Jan Vorel, Eva Novotná, Martin Horák, Michal Šmejkal, Tomáš Krejčí, ...* ***Aleš Jíra*** *Petr Kabele (Gar.)*	Z,ZK	5	2P+2C	L,Z	z
133NNKB	**Fundamentals of Structural Design - Concrete** *Martin Tipka, Radek Štefan, Jitka Vašková* ***Martin Tipka*** *Martin Tipka (Gar.)*	Z,ZK	4	2P+1C	L,Z	z

134NNKO	**Design of Supporting StructuresI - Steel** *František Wald, Michal Jandera, Martina Eliášová* ***Martina Eliášová*** *Martina Eliášová (Gar.)*	Z,ZK	3	2P+1C	L	Z
136DSUZ	**Transport Structures and Urban Planning** *Ludvík Vébr, František Pospíšil, Ondřej Bret* ***František Pospíšil*** *Ludvík Vébr (Gar.)*	Z,ZK	7	5P+1C	L,Z	Z

Characteristics of the courses of this group of Study Plan: Code=BJ20190400 Name=Stavební inženýrství, varianta J, 4. semestr

124PSI2	Building Structures 2I	Z,ZK	4

Staircases, sloping ramps, lift shafts - requirements, structural and material solutions, basics of typology, design principles, construction details, railing. Building foundations - foundation conditions, types of foundations, requirements, building plinth area (construction details). Basement - solution of basement walls, requirements, protection against water, waterproofing systems. Structural expansion joints in buildings - principles of joints design in bearing structures, thermal expansion, compensation of differences in settlement, construction details. Roof truss systems.

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.

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.

136DSUZ	Transport Structures and Urban Planning	Z,ZK	7

The course 136DSUZ is composed of 3 issues, which build on each other and complement each other. These are the area of transport structures (roads and rail transport - scope 3+1) and the area of urban planning and spatial planning (scope 2+0). Unlike the road construction and railroad construction sections, the urban planning section does not end with credit. Transport Structures - Roads (R): Introduction to basic terminology in the part of roads, history. Road Act and related legislative and technical regulations, their impact on road design. Design categories of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, earthwork - dimensions, shapes, drainage. Urban roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design principles. Safety equipment, junctions and crossings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of security, design and operation. Tram transport - history, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principles and parameters, metro lines. Railway constructions - an introduction to the design and construction of a railway track in the conditions of the Czech Republic, the basic elements of the railway superstructure. Spatial Planning (SP): Teaching spatial planning and urban planning, spatial planning tools and procedures for their acquisition.

Name of the block: Compulsory courses in the program
Minimal number of credits of the block: 92
The role of the block: P

Code of the group: BZ202005
Name of the group: Stavební inženýrství, specializace Inženýrství životního prostředí, 5. semestr
Requirement credits in the group: In this group you have to gain at least 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
127VEIS	**Public Infrastructure** *Václav Jetel, Marek Janatka* ***Václav Jetel*** *Václav Jetel (Gar.)*	Z,ZK	7	3P+2C	Z	P
133BZKZ	**Concrete and Masonry Structures** *Petr Bílý, Michaela Frantová* ***Michaela Frantová*** *Michaela Frantová (Gar.)*	Z,ZK	5	2P+2C	Z	P
135ZSH	**Foundations and Hydrogeology** *Ondřej Nol, Jana Tourková, Jan Kos, Jan Schröfel, Jakub Nedvěd* ***Kateřina Kovářová*** *Daniel Jirásko (Gar.)*	Z,ZK	7	4P+2C	Z	P
141KMH	**Climatology, Meteorology, Hydrology** *Michal Dohnal, Jana Votrubová, Tomáš Vogel, Jaromír Dušek* ***Michal Dohnal*** *Tomáš Vogel (Gar.)*	Z,ZK	6	3P+2C	Z	P
143PED	**Soil Science** ***Michal Sněhota*** *Michal Sněhota (Gar.)*	Z,ZK	5	2P+2C	Z	P

Characteristics of the courses of this group of Study Plan: Code=BZ202005 Name=Stavební inženýrství, specializace Inženýrství životního prostředí, 5. semestr

127VEIS	Public Infrastructure	Z,ZK	7

The aim of the course is to introduce students to the work of urban planners and spatial planners when designing public infrastructure concepts.

133BZKZ	Concrete and Masonry Structures	Z,ZK	5
The course lectures is focused on the design of one-way and two-way slabs, staircases, reinforcing walls, foundations, precast structures, halls and prestressed concrete. The course also covers masonry construction and an introduction to the design of civil engineering structures and bridges. The content of the practicum is the application of the knowledge and skills on the real structures.			
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.			
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.			
143PED	Soil Science	Z,ZK	5
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.			

Code of the group: BZ202006
Name of the group: Stavební inženýrství, specializace Inženýrství životního prostředí, 6. semestr
Requirement credits in the group: In this group you have to gain at least 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
134ODKV	**Steel and Timber Structures** *Michal Netušil, Anna Kuklíková* ***Michal Netušil*** *Michal Netušil (Gar.)*	Z,ZK	5	2P+2C	Z,L	P
141VTO	**Water Courses** *Petr Sklenář* ***Petr Sklenář*** *Petr Sklenář (Gar.)*	Z,ZK	5	3P+1C	L	P
143GIPU	**GIS and Land Consolidation** *Josef Krása, Petr Kavka, Miroslav Bauer* ***Miroslav Bauer*** *Josef Krása (Gar.)*	Z,ZK	7	4P+3C	L	P
144VHOB	**Urban water management** *Jana Nábělková, Jaroslav Pollert* ***Jana Nábělková*** *Jaroslav Pollert (Gar.)*	Z,ZK	6	4P+2C	L	P
141VYV1	**Fieldwork Training (1 week)** *Michal Dohnal, Tomáš Picek, Michal Sněhota, Martin Šanda* ***Michal Dohnal*** *Michal Dohnal (Gar.)*	Z	2	2C	L	P

Characteristics of the courses of this group of Study Plan: Code=BZ202006 Name=Stavební inženýrství, specializace Inženýrství životního prostředí, 6. semestr

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 propertie, limit states methodology, design, connections, bracings, protection of structural timber, timber bridges.			
141VTO	Water Courses	Z,ZK	5
Students meet geomorphic fluvial processes taking place in river channels, expand their knowlege 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 assesment of river reach of own choice with aim to identify problems to be solved.			
143GIPU	GIS and Land Consolidation	Z,ZK	7
Two parallel blocks of instruction - Land consolidation and basics of geomatics (GIS applied for KPÚ). Basics of land consolidation - history, course and phases of the KPÚ process, principles of designing common facilities, legislation. Introduction to GIS and main components of common systems. Data structure and basics of image information processing from geographically localized data. Basics of databases and work with vector and raster formats of geographic data. GIS in engineering practice and landscape engineering. Preparation of a digital terrain model, land use maps and other inputs and available databases in the Czech Republic. Processing of remote sensing data.			
144VHOB	Urban water management	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			
141VYV1	Fieldwork Training (1 week)	Z	2
Not applicable.			

Code of the group: BZ202007
Name of the group: Stavební inženýrství, specializace Inženýrství životního prostředí, 7. semestr
Requirement credits in the group: In this group you have to gain at least 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
136DSZP	**Transport Structures and Environment** *Lenka Lomoz, Jan Hradil* ***Jan Hradil*** *Jan Hradil (Gar.)*	Z,ZK	6	3P+2C	Z	P
143ODKO	**Waste Management and Contamination** *Michal Sněhota, Martin Dočkal, Martin Šanda* ***Martin Šanda*** *Martin Dočkal (Gar.)*	Z,ZK	6	3P+2C	Z	P
143TOKT	**Landscape Design and Protection** *Petr Kavka* ***Martin Neumann*** *Petr Kavka (Gar.)*	Z,ZK	7	2P+2C	Z	P
100ODPR	**Industrial Training (3 weeks)** *Jan Růžička, Petr Hájek, Kateřina Sojková* ***Michal Jandera*** *Michal Jandera (Gar.)*	Z	0	6C	Z,L	P

Characteristics of the courses of this group of Study Plan: Code=BZ202007 Name=Stavební inženýrství, specializace Inženýrství životního prostředí, 7. semestr

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.			
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.			
143TOKT	Landscape Design and Protection	Z,ZK	7
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: BZ202008
Name of the group: Stavební inženýrství, specializace Inženýrství životního prostředí, 8. semestr
Requirement credits in the group: In this group you have to gain at least 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** *Jaroslav Synek, Rostislav Šulc, Mária Párová* ***Rostislav Šulc*** *Rostislav Šulc (Gar.)*	Z,ZK	6	4P+2C	L	P
126STMN	**Construction Management** *Dana Měšťanová, Renáta Schneiderová Heralová, Václav Tatýrek, Jaroslava Tománková, Zita Prostějovská* ***Martin Čásenský*** *Zita Prostějovská (Gar.)*	Z,ZK	6	3P+2C	Z,L	P
143DEOK	**Dendrology and Landscape Protection** *Martin Dočkal, Barbora Jáchymová, Jan Halík* ***Martin Dočkal*** *Martin Dočkal (Gar.)*	Z,ZK	6	3P+3C	L	P

Characteristics of the courses of this group of Study Plan: Code=BZ202008 Name=Stavební inženýrství, specializace Inženýrství životního prostředí, 8. semestr

122TSVZ	Technology of Construction Z	Z,ZK	6
126STMN	Construction Management	Z,ZK	6
Overview of selected concepts. Methods to support project management. Legal standards, ČSN 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.			
143DEOK	Dendrology and Landscape Protection	Z,ZK	6
The subject represents a synthesis of topics related to applied ecology and at the same time dendrology, focused on practical use in the creation and protection of the landscape as well as within urbanized units.			

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: Compulsory elective courses
Minimal number of credits of the block: 6
The role of the block: S

Code of the group: BZ202007_2
Name of the group: Stavební inženýrství, specializace Inženýrství životního prostředí, povinně volitelné předměty
Requirement credits in the group: In this group you have to gain at least 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)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
141YHMM	**Hydroecological monitoring and modeling** *Michal Dohnal, Jana Votrubová, Tomáš Vogel, Jaromír Dušek* ***Michal Dohnal*** *Michal Dohnal (Gar.)*	Z,ZK	6	3P+2C	Z	S
143YPEO	**Erosion Protection** *Tomáš Dostál* ***Tomáš Dostál*** *Tomáš Dostál (Gar.)*	Z,ZK	6	3P+2C	Z	S
127YPSK	**Town and Regional Planning of Settlements and Landscape** *Václav Jetel, Jiří Kupka, Daniel Stojan* ***Jiří Kupka*** *Jiří Kupka (Gar.)*	Z,ZK	6	3P+2C	Z	S

Characteristics of the courses of this group of Study Plan: Code=BZ202007_2 Name=Stavební inženýrství, specializace Inženýrství životního prostředí, povinně volitelné předměty

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.			
127YPSK	Town and Regional Planning of Settlements and Landscape	Z,ZK	6
The course taught in the field of Environmental Engineering is an introduction to urbanism, urban design, spatial and regional planning as a basis for the preparation of a bachelor's thesis at the Dep. of Urban Design, Town and Regional Planning. It complements the semester projects with theory and a broader professional context and is a preparation for the part of the state bachelor's exam organized by the Dep. of Urban Design, Town and Regional Planning.			

Name of the block: Jazyky
Minimal number of credits of the block: 3
The role of the block: J

Code of the group: BF20190201_J
Name of the group: Povinně volitelný jazyk, 2. semestr
Requirement credits in the group: In this group you have to gain at least 1 credit
Requirement courses in the group: In this group you have to complete at least 1 course
Credits in the group: 1
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
104YCA1	**English 1** *Hana Horká, Petra Martincová, Petra Florianová, Sandra Giormani, Svatava Boboková Bartíková, Věra Čermáková, Karolína Synková, Alexandra Steinerová, Elena Dačeva, ...* ***Svatava Boboková Bartíková*** *Sandra Giormani (Gar.)*	Z	1	2C	Z,L	J
104YCN1	**German 1** *Svatava Boboková Bartíková* ***Svatava Boboková Bartíková*** *Svatava Boboková Bartíková (Gar.)*	Z	1	2C	Z,L	J

Characteristics of the courses of this group of Study Plan: Code=BF20190201_J Name=Povinně volitelný jazyk, 2. semestr

104YCA1	English 1	Z	1

English 1 Course code: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit 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. Literature: Horká Hana, Giormani Sandra, Martincová Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5)

104YCN1	German 1	Z	1

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

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Code of the group: BF20190302_J
Name of the group: Povinně volitelný jazyk, 3. 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** *Hana Horká, Petra Martincová, Petra Florianová, Sandra Giormani, Svatava Boboková Bartíková, Věra Čermáková, Karolína Synková, Alexandra Steinerová, Elena Dačeva, ...* ***Svatava Boboková Bartíková*** *Sandra Giormani (Gar.)*	Z,ZK	2	2C		J
104YC2N	**German 2** *Svatava Boboková Bartíková* ***Sandra Giormani*** *Svatava Boboková Bartíková (Gar.)*	Z,ZK	2	2C		J

Characteristics of the courses of this group of Study Plan: Code=BF20190302_J Name=Povinně volitelný jazyk, 3. semestr

104YC2A	English 2	Z,ZK	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)

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

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Name of the block: Povinně volitelné předměty, doporučení S1
Minimal number of credits of the block: 22
The role of the block: S1

Code of the group: BZ202006_1
Name of the group: Stavební inženýrství, specializace Inženýrství životního prostředí, projekt, 6. semestr
Requirement credits in the group: In this group you have to gain at least 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** *Michal Dohnal, Petr Sklenář* ***Michal Dohnal*** *Petr Sklenář (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=BZ202006_1 Name=Stavební inženýrství, specializace Inženýrství životního prostředí, projekt, 6. semestr

127PZ01	Project Design 1	KZ	5
The project is tought in cooperation with other departments. Preparation for bachelor thesis, collecting the information, preparation of data, state of art.			
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.			
142PZ01	Project Design 1	KZ	5
The project is tought in cooperation with other departments. Preparation for bachelor thesis, collecting the information, preparation of data, state of art.			
143PZ01	Project Design 1	KZ	5
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.			

Code of the group: BZ202007_1
Name of the group: Stavební inženýrství, specializace Inženýrství životního prostředí, projekt, 7. semestr
Requirement credits in the group: In this group you have to gain at least 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, Simona Vondráčková* ***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* ***Lenka Lomoz*** *Lenka Lomoz (Gar.)*	KZ	5	4C	Z	S1
141PZ02	**Project Design 2** *Michal Dohnal, Petr Sklenář* ***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** *Michal Sněhota, Tomáš Dostál, Martin Dočkal, Martin Šanda, Josef Krása, Petr Kavka, Miroslav Bauer, Václav David, Milena Císlerová, ...* ***Miroslav Bauer*** *Martin Dočkal (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*** *Martin Štroner (Gar.)*	KZ	5	4C	Z	S1
155PZ02	**Project Design 2**	KZ	5	4C	Z	S1
220PZ02	**Project Design 2** *Jiří Svoboda, Radek Vašíček* ***Radek Vašíček*** *Radek Vašíček (Gar.)*	KZ	5	4C	Z	S1

Characteristics of the courses of this group of Study Plan: Code=BZ202007_1 Name=Stavební inženýrství, specializace Inženýrství životního prostředí, projekt, 7. semestr

101PZ02	Project Design 2	KZ	5
Please, contact the guarantor of this subject.			

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.			
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.			
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.			
135PZ02	Project Design 2	KZ	5
136PZ02	Project Design 2	KZ	5
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.			
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.			
142PZ02	Project Design 2	KZ	5
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.			
143PZ02	Project Design 2	KZ	5
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.			
144PZ02	Project Design 2	KZ	5
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.			
154PZ02	Project Design 2	KZ	5
Theoretical, measurement and computational preparation for solving the bachelor thesis according to the topic.			
155PZ02	Project Design 2	KZ	5
Processing of the project according to the assignment			
220PZ02	Project Design 2	KZ	5
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.			

Code of the group: BZ202008_1
Name of the group: Stavební inženýrství, specializace 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
143BAPZ	**Bachelor Thesis** *Michal Sněhota, Tomáš Dostál, Martin Dočkal, Martin Šanda, Josef Krása, Petr Kavka, Václav David, Milena Číslerová, Petr Koudelka, ...* ***Martin Šanda*** *Tomáš Dostál (Gar.)*	Z	12	10C	L,Z	S1
101BAPZ	**Bachelor Thesis** *Jozef Bobok* ***Jozef Bobok*** *Jozef Bobok (Gar.)*	Z	12	10C	L,Z	S1
127BAPZ	**Bachelor Thesis** *František Pospíšil, Václav Jetel, Marek Janatka, Jiří Kupka* ***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 Chvojková, Jitka Kučerová, Tomáš Dally, Michal Toman, Miroslav Brouček, ...* ***Miroslav Brouček***	Z	12	10C	L,Z	S1
144BAPZ	**Bachelor Thesis** *Iva Čiháková* ***Bronislava Rohanová*** *Jana Nábělková (Gar.)*	Z	12	10C	L,Z	S1
154BAPZ	**Bachelor Thesis** ***Martin Štroner*** *Martin Štroner (Gar.)*	Z	12	10C	L,Z	S1
155BAPZ	**Bachelor Thesis** *Jindřich Hodač, Zdeněk Vyskočil* ***Jindřich Hodač*** *Jindřich Hodač (Gar.)*	Z	12	10C	L,Z	S1
220BAPZ	**Bachelor Thesis** *Jiří Svoboda, Radek Vašíček* ***Radek Vašíček*** *Radek Vašíček (Gar.)*	Z	12	10C	L,Z	S1

Characteristics of the courses of this group of Study Plan: Code=BZ202008_1 Name=Stavební inženýrství, specializace Inženýrství životního prostředí, bakalářská práce

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.			
101BAPZ	Bachelor Thesis	Z	12
Please contact your teacher or guarantor of this subject.			
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.			
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.			
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.			
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			
144BAPZ	Bachelor Thesis	Z	12
Bachelor Thesis concerning sewerage, waste water treatment, water suply, networks and balnology.			
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 (https://www.stolajosef.cz/).			

List of courses of this pass:

Code	Name of the course	Completion	Credits
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.			
101BAPZ	Bachelor Thesis	Z	12
Please contact your teacher or guarantor of this subject.			
101KG01	Constructive Geometry	Z,ZK	5
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 groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical surfaces. Quadrics. Surfaces in building industry.			

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
102FYI	Physics	Z,ZK	4
This is a basic physics course for students of the study programmes Civil Engineering; Management and Economics in Construction. The course focuses on mechanics and basic thermodynamics. The following areas are covered in the course: Mechanics of material points (particles) and deformable bodies. Discrete and continuous model of matter. Kinematics and dynamics of a material point (particle). Mechanical force fields. Gravitational field. Mechanical vibrations. Material deformation. Elastic waves. Acoustics. Hydromechanics. Fundamentals of thermodynamics. Heat transfer.			
104YC2A	English 2	Z,ZK	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)			
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			
104YCA1	English 1	Z	1
English 1 Course code: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit 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. Literature: Horká Hana, Giormani Sandra, Martincová Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5)			
104YCN1	German 1	Z	1
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			
105SVAI	Social Sciences and Architecture	Z,ZK	5
The subject combines the teaching of several social sciences - economics and economic policy, political science and law - with an overview of the development of architecture. Within economics, students will become familiar with basic economic concepts, the essence of economic and social policy and the place of construction in the economic structure. The content of the lectures on law is an overview of the institutions of Roman law, an interpretation of the constitution, human rights and selected legal norms, especially the new construction law. The political science part outlines the development of political thought in antiquity and in the period from the Renaissance to the present. Lectures on the history of architecture and construction provide a comprehensive explanation of the history of architecture from antiquity to postmodernism and deconstruction.			
122TSVZ	Technology of Construction Z	Z,ZK	6
123CHE	Chemistry	Z,ZK	4
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. Clasification of the materials. Structure of materials. Main properties of materials. Application of materials in building constructions. Introduction to material testing.			
124PSI1	Building Structures 1I	Z	4
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.			
124PSI2	Building Structures 2I	Z,ZK	4
Staircases, sloping ramps, lift shafts - requirements, structural and material solutions, basics of typology, design principles, construction details, railing. Building foundations - foundation conditions, types of foundations, requirements, building plinth area (construction details). Basement - solution of basement walls, requirements, protection against water, waterproofing systems. Structural expansion joints in buildings - principles of joints design in bearing structures, thermal expansion, compensation of differences in settlement, construction details. Roof truss systems.			
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.			
126BIM1	BIM	Z	1
The course focuses on teaching basic knowledge in the field of Building Information Management (BIM) in theoretical and practical areas, applicable across different specialisations and disciplines of the construction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digitized documents, raster and vector graphics, open data sources in the Czech Republic, ICT and enterprise systems, information systems for the construction industry, but also the context of BIM in the current construction industry in relation to the entire project life cycle and its specifics (delivery, expert focus, phases of construction projects, etc.) The theoretical knowledge is complemented by practical exercises aimed at mastering and understanding the basic principles of object-oriented parametric modelling.			
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	Construction Management	Z,ZK	6
Overview of selected concepts. Methods to support project management. Legal standards, ČSN 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 tought 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.			
127VEIS	Public Infrastructure	Z,ZK	7
The aim of the course is to introduce students to the work of urban planners and spatial planners when designing public infrastructure concepts.			
127YPSK	Town and Regional Planning of Settlements and Landscape	Z,ZK	6
The course taught in the field of Environmental Engineering is an introduction to urbanism, urban design, spatial and regional planning as a basis for the preparation of a bachelor's thesis at the Dep. of Urban Design, Town and Regional Planning. It complements the semester projects with theory and a broader professional context and is a preparation for the part of the state bachelor's exam organized by the Dep. of Urban Design, Town and Regional Planning.			
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.			
133BZKZ	Concrete and Masonry Structures	Z,ZK	5
The course lectures is focused on the design of one-way and two-way slabs, staircases, reinforcing walls, foundations, precast structures, halls and prestressed concrete. The course also covers masonry construction and an introduction to the design of civil engineering structures and bridges. The content of the practicum is the application of the knowledge and skills on the real structures.			
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 propertie, 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.			
135GM01	Geomechanics 1	Z	3
The course focuses on the understanding of basic geological laws and principles in relation to architecture, civil engineering and urban planning. Emphasis is placed on explaining the influence of geological processes, both endogenous and exogenous, on the rock environment and how the geological situation affects the design of structures and their interaction with the rock environment. At the same time, attention is paid to the technical properties of rocks with regard to their practical applications. The course also includes a brief introduction to the regional geology of the Czech Republic.			
135GM2I	Geomechanics 2I	Z,ZK	5
Formation of soils, basic properties of soils, water in soil, strength and deformation properties of soils and their determination, improvement of soil properties, application tasks			
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.		
136DSUZ	Transport Structures and Urban Planning	Z,ZK	7
	The course 136DSUZ is composed of 3 issues, which build on each other and complement each other. These are the area of transport structures (roads and rail transport - scope 3+1) and the area of urban planning and spatial planning (scope 2+0). Unlike the road construction and railroad construction sections, the urban planning section does not end with credit. Transport Structures - Roads (R): Introduction to basic terminology in the part of roads, history. Road Act and related legislative and technical regulations, their impact on road design. Design categories of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, earthwork - dimensions, shapes, drainage. Urban roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design principles. Safety equipment, junctions and crossings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of security, design and operation. Tram transport - history, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principles and parameters, metro lines. Railway constructions - an introduction to the design and construction of a railway track in the conditions of the Czech Republic, the basic elements of the railway superstructure. Spatial Planning (SP): Teaching spatial planning and urban planning, spatial planning tools and procedures for their acquisition.		
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 knowlege 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 assesment 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	KZ	5
	The project is tought in cooperation with other departments. Preparation for bachelor thesis, collecting the information, preparation of data, state of art.		
142PZ02	Project Design 2	KZ	5
	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.		
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.		
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.		

143DEOK	Dendrology and Landscape Protection	Z,ZK	6
The subject represents a synthesis of topics related to applied ecology and at the same time dendrology, focused on practical use in the creation and protection of the landscape as well as within urbanized units.			
143GIPU	GIS and Land Consolidation	Z,ZK	7
Two parallel blocks of instruction - Land consolidation and basics of geomatics (GIS applied for KPÚ). Basics of land consolidation - history, course and phases of the KPÚ process, principles of designing common facilities, legislation. Introduction to GIS and main components of common systems. Data structure and basics of image information processing from geographically localized data. Basics of databases and work with vector and raster formats of geographic data. GIS in engineering practice and landscape engineering. Preparation of a digital terrain model, land use maps and other inputs and available databases in the Czech Republic. Processing of remote sensing data.			
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.			
143PED	Soil Science	Z,ZK	5
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.			
143PZ01	Project Design 1	KZ	5
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.			
143PZ02	Project Design 2	KZ	5
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.			
143TOKT	Landscape Design and Protection	Z,ZK	7
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.			
144BAPZ	Bachelor Thesis	Z	12
Bachelor Thesis concerning sewerage, waste water treatment, water suply, networks and balnology.			
144PZ02	Project Design 2	KZ	5
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.			
144VHOB	Urban water management	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			
154BAPZ	Bachelor Thesis	Z	12
Final thesis, prepared according to the assignment.			
154PZ02	Project Design 2	KZ	5
Theoretical, measurement and computational preparation for solving the bachelor thesis according to the topic.			
154SG01	Land Surveying in Civil Engineering	Z,ZK	6
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			
155BAPZ	Bachelor Thesis	Z	12
Processing according to the work assignment			
155PZ02	Project Design 2	KZ	5
Processing of the project according to the assignment			
220BAPZ	Bachelor Thesis	Z	12
Bachelor thesis elaboration with possible use of geotechnical laboratory and underground facility Josef (https://www.stolajosef.cz/).			
220PZ02	Project Design 2	KZ	5
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.			
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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