Study plan

Name of study plan: Stavební inženýrství, specializace Požární bezpečnost staveb

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: 221
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 **Iva Křivková** 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, ... **Michal Polák** 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 policies, political science, political philosophy and law, with an overview of the development of architecture. In the section devoted to economics, the basic categories of the market economy, the foundations of economic policy and the basic concepts of international economics are explained. Theoretical interpretation is effectively combined with practical examples from economic reality. In the lectures devoted to law, a brief overview of the development of Roman law and its institutions is supplemented by a well-founded interpretation of the constitution, human rights and the labor code. Great attention is paid to selected provisions of the Civil Code and the Construction Act. In the political science lectures, the political development in ancient times is described in an engaging way, the theory of the state, political systems, democracy and totalitarianism are clarified. The series of lectures on the history of architecture and construction provides a comprehensive interpretation 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* ***Jiří Konfršt*** *Pavel Novák (Gar.)*	Z,ZK	4	3P+1C	L	z
123SH01	**Building Materials** *Alena Vimmrová, Eva Vejmelková, Miloš Jerman* ***Eva Vejmelková*** *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, ...* ***Petr Kabele*** *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, ...* ***Filip Horký*** *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* ***Petr Kalčev*** *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, ...* ***Petr Kabele*** *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* ***Michal Jandera*** *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.

Code of the group: BQ202005

Name of the group: Stavební inženýrství, specializace Požární bezpečnost staveb, 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 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**
124IZSQ	**Integrated Rescue System and Population Protection Q** *Vladimír Mózer* ***Marek Pokorný*** *Marek Pokorný (Gar.)*	Z,ZK	5	2P+2C	Z	z
124PS3Q	**Building Structures 3Q** *Vladimír Žďára, Hana Gattermayerová* ***Vladimír Žďára*** *Vladimír Žďára (Gar.)*	Z,ZK	3	2P+1C	Z	z
124PDRQ	**Failures, Deterioration, Renovations** *Tomáš Čejka* ***Radek Zigler*** *Radek Zigler (Gar.)*	ZK	3	2P	Z	z
133BZKQ	**Concrete and Masonry Structures 1** *Martin Tipka, Jitka Vašková, Petr Bílý* ***Petr Bílý*** *Petr Bílý (Gar.)*	Z,ZK	7	3P+3C	Z	z
134OK01	**Steel Structures 1** *Michal Jandera* ***Michal Jandera*** *Michal Jandera (Gar.)*	Z,ZK	6	3P+2C	Z	z
134TMZQ	**Thermal and Mechanical Loads Q** *Petr Semerák, Vítězslav Vydra, Zdeněk Sokol* ***Zdeněk Sokol*** *Zdeněk Sokol (Gar.)*	Z,ZK	6	3P+2C	Z	z

Characteristics of the courses of this group of Study Plan: Code=BQ202005 Name=Stavební inženýrství, specializace Požární bezpečnost staveb, 5. semestr

124IZSQ	Integrated Rescue System and Population Protection Q	Z,ZK	5

The subject is composed of two thematic parts, namely the technical part and communication skills. The technical part is focused on familiarizing students with the structure, functioning and components of the integrated rescue system, principles, structure and means of civil protection and an introduction to fire safety. Part of the communication skills subject is focused on different ways of verbal and non-verbal communication and presentation in front of an audience.

124PS3Q	Building Structures 3Q	Z,ZK	3
The subject deals with the complex design of load-bearing structures of roofing, indoor and multi-storey buildings and the structural-static effect of the perimeter roof shell. In the first part, the attention is focused on span structures of sloping roofs and hall buildings and on structural-static problems of multi-storey buildings. In the second part, students will learn about the design of prefabricated indoor and multi-storey structures.			
124PDRQ	Failures, Deterioration, Renovations	ZK	3
In the lecture series, students are introduced to issues related to the protection of (not only) historic and heritage-protected buildings. In particular, these are defects and failures of buildings, load effects and influences from the point of view of load history; non-force effects and influences, effects of forced deformation; durability and reliability; mechanical, physical, chemical degradation and corrosion processes; failures , reconstruction and rehabilitation of foundation structures, brick structures, concrete structures (reinforced concrete), prefabricated structures, wooden structures of buildings, protection of buildings against increased humidity and diagnostics of buildings.			
133BZKQ	Concrete and Masonry Structures 1	Z,ZK	7
The subject is focused on the design of concrete elements and constructions of multi-storey buildings - it follows on from the subject Fundamentals of Structural Design. The content of the course is the addition and generalization of procedures for verifying the load-bearing capacity of reinforced concrete structural elements for cases of bending, shear, a combination of biaxial bending and normal force, designing elements stressed by torsion, punching shear, assessment of slender compressed elements. Design procedures are discussed for individual types of structures, including the choice of suitable calculation models and calculation methods and reinforcement principles.			
134OK01	Steel Structures 1	Z,ZK	6
The course OK01 aims to expand the knowledge acquired in the subject NNK and concerning design of basic steel structures. In the theoretical part are delivered possibilities of global analysis of structures including classification from view of necessities of nonlinear analyses. Design of steel elements is widen for global analysis methods, advanced composite steel and concrete beams/columns and cold-formed thin-walled elements. The main part of the subject deals with complex design of multi-storey steel buildings and steel industrial halls. Final lectures concern large-span structures, uniqueness in design of tall buildings, including effects of seismicity.			
134TMZQ	Thermal and Mechanical Loads Q	Z,ZK	6
Objective of the course lie in basic information about thermal and mechanical loading and their combinations during exceptional situations, mainly during fire and blast. Theoretical foundations of heat transfer are discussed. The main part of the subject is focused on modeling the temperature for different types of fire and its effects on the bearing structures. The conclusion is devoted to the issue of explosions, modeling of pressure waves and their effects on buildings.			

Code of the group: BQ202006
Name of the group: Stavební inženýrství, specializace Požární bezpečnost staveb, 6. 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
124KKQ	**Completing Constructions Q** *Hana Gattermayerová, Šárka Šilarová, Pavel Kopecký* ***Šárka Šilarová*** *Šárka Šilarová (Gar.)*	Z,ZK	7	2P+3C	L	z
124PBSQ	**Fire Safety of Buildings Q** *Vladimír Mózer, Marek Pokorný, Petr Hejtmánek* ***Marek Pokorný*** *Marek Pokorný (Gar.)*	Z,ZK	7	4P+2C	L	z
124PR1Q	**Project 1-Q** *Marek Pokorný* ***Marek Pokorný*** *Marek Pokorný (Gar.)*	KZ	5	4C	L	z
125TBUQ	**Building Services Systems - Q** *Daniel Adamovský, Ilona Koubková, Karel Kabele, Zuzana Veverková* ***Ilona Koubková*** *Ilona Koubková (Gar.)*	Z,ZK	4	2P+2C	L	z
134DK01	**Timber Structures 1** *Lukáš Velebil, Petr Kuklík, Anna Kuklíková* ***Anna Kuklíková*** *Jakub Dolejš (Gar.)*	Z,ZK	5	3P+1C	L	z

Characteristics of the courses of this group of Study Plan: Code=BQ202006 Name=Stavební inženýrství, specializace Požární bezpečnost staveb, 6. semestr

124KKQ	Completing Constructions Q	Z,ZK	7
In the first part, the subject deals with the complex design of indoor and high-rise buildings, especially the influence of marginal conditions on the choice of material and structural variants and with an emphasis on envelope structures. In the second, more extensive part, the principles of solutions for roofs, perimeter walls, opening fillings and internal completion structures for various types of buildings are clearly discussed.			
124PBSQ	Fire Safety of Buildings Q	Z,ZK	7
The subject is focused on key principles in the design and assessment of fire safety of buildings, especially from the point of view of national requirements in the Czech Republic, and on familiarizing students with the following key topics: fire terminology in the field of fire protection and safety of buildings, statistical monitoring of events, the concept of fire prevention and fire repression, the mission of the Czech Fire and Rescue Service, the burning process, the characteristic course and dynamics of fire in the interior from the point of view of the building product, structure and structural system, the fire code in the Czech Republic and related European legislation, fire safety solutions for buildings, passive and active fire protection, dedicated fire safety equipment in constructions.			
124PR1Q	Project 1-Q	KZ	5
The task of the project is a architectural and structural design of a civil building (e.g. administrative building, school, kindergarten, office, building for culture). The student hand over a partial project documentation for a building permit and acquires the ability to have a comprehensive approach to the design of a modern building and to perceive the issue of designing building structures in a broader context (the continuity of the building part with other professions, mutual interaction of individual requirements for building structures).			
125TBUQ	Building Services Systems - Q	Z,ZK	4
Basic course in building services systems - water supply, drainage, gas supply , heating and ventilation systems.			
134DK01	Timber Structures 1	Z,ZK	5
Introduction and presentation of timber structures use in building industry. Wood and wood-based materials properties. Safety of timber structures design, ultimate limit states, valid standards. Cross section design of simple members. Connections of timber structures. Glued joints. Basic structural systems. Fire design. Protection of timber structures.			

Code of the group: BQ202007
Name of the group: Stavbení inženýrství, specializace Požární bezpečnost staveb, 7. 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
101SPSY	**Reliability of systems** *Jozef Bobok, Jana Nosková, Daniela Jarušková **Jana Nosková** Jana Nosková (Gar.)*	Z,ZK	5	2P+1C	Z	z
124PR2Q	**Project 2-Q** *Vladimír Mózer, Petr Hejtmánek **Petr Hejtmánek** Petr Hejtmánek (Gar.)*	KZ	5	4C	Z	z
125PBZQ	**Fire Services** *Ludvík Vébr, Daniel Adamovský, Ilona Koubková, Bohumír Garlík, Petr Pánek, Karel Fazekas **Ilona Koubková** Ilona Koubková (Gar.)*	Z,ZK	7	3P+3C	Z	z
133PSBZ	**Fire resistance of concrete and masonry structures** *Radek Štefan, Martin Benýšek, Radek Hájek **Radek Štefan** Radek Štefan (Gar.)*	Z,ZK	6	4P+2C	Z	z
134PSOD	**Fire Safety of Steel and Timber Structures** *František Wald, Petr Kuklík **Kamila Cábová** Kamila Cábová (Gar.)*	Z,ZK	5	2P+2C	Z	z
100ODPR	**Industrial Training (3 weeks)** *Jan Růžička, Petr Hájek, Kateřina Šojková **Michal Jandera** Michal Jandera (Gar.)*	Z	0	6C	Z,L	z

Characteristics of the courses of this group of Study Plan: Code=BQ202007 Name=Stavbení inženýrství, specializace Požární bezpečnost staveb, 7. semestr

101SPSY	Reliability of systems	Z,ZK	5
Inferential statistics. Theory of probability. Random variables and its characteristics. Basic methods of reliability theory.			
124PR2Q	Project 2-Q	KZ	5
The task of this project is to apply fire safety aspects on the building that was designed in the previous 124PR1Q subject; i.e. fire safety design, assessment of selected construction structures for the effect of fire and design of related technical equipment in the building. The fire design and assessment is done for the new construction of a building of a civil building. The output of the project will be the following 3 sub-separately classified parts, namely (A) fire safety design + selected details, (B) revision of the structural design and (C) technical equipment of the building.			
125PBZQ	Fire Services	Z,ZK	7
The basic subject for students of bachelor's degree. The expansion of knowledge in the field of fire safety of buildings and structures and develops knowledge in the field of fire of the reliability of structures. The subject has two separate parts. In the first part is in depth dealt with the issue of fire water supply, the issue of fire protection of the electrical equipment and fire ventilation and fire ventilation of residential and civil buildings. The second, completely separate part of the course deals with fire issues of communications and buildings associated with this issue.			
133PSBZ	Fire resistance of concrete and masonry structures	Z,ZK	6
The course is focused on fire resistance of concrete and masonry structures: concrete and concrete structures exposed to fire, design rules, thermal analysis, loads, design principles, design methods, material properties of concrete and steel reinforcement at high temperatures, fire design of masonry structures. The course is partially focused also on selected parts of advanced structural design of concrete structures at normal temperatures: serviceability limit states, pre-stressed concrete, precast and composite structures.			
134PSOD	Fire Safety of Steel and Timber Structures	Z,ZK	5
The course deals with the design of steel, concrete, composite steel and timber structures exposed to fire. Teaching is focused on the design of basic examples, calculation by elements.			
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: BQ202008
Name of the group: Stavební inženýrství, specializace Požární bezpečnost staveb, 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 4 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
122TSQ	**Technology of Structures N** *Pavel Svoboda, Rostislav Šulc, Pavel Neumann **Rostislav Šulc** Pavel Svoboda (Gar.)*	ZK	2	2P	L	z
124PORE	**Fire Repression** *Jana Nábělková, Vladimír Mózer, Marek Pokorný **Marek Pokorný** Marek Pokorný (Gar.)*	Z,ZK	4	2P+1C	L	z
126STMN	**Construction Management** *Dana Měšťanová, Renáta Schneiderová Heralová, Václav Tatýrek, Jaroslava Tománková, Zita Prostějovská **Dana Měšťanová** Zita Prostějovská (Gar.)*	Z,ZK	6	3P+2C	Z,L	z

135ZPS	**Foundation Engineering and Underground Structures** *Jiří Svoboda, Matouš Hilar, Jan Pruška* ***Jan Pruška*** *Jan Pruška (Gar.)*	Z,ZK	6	3P+2C	L	Z

Characteristics of the courses of this group of Study Plan: Code=BQ202008 Name=Stavební inženýrství, specializace Požární bezpečnost staveb, 8. semestr

122TSQ	Technology of Structures N	ZK	2
124PORE	Fire Repression	Z,ZK	4

The subject is divided into 2 thematically related parts, namely fire repression and the environment. In the fire repression section, students will get to know the organizational structure and legislation in the field of fire protection in the Czech Republic. The focus of the topic lies in the interpretation of the connections between the fire design of buildings on the one hand and the repressive activities of fire protection units when dealing with emergency and crisis events on the other. From the point of view of fire intervention, the issues of the basics of fire tactics, development and fire parameters, fire technical characteristics of flammable substances, calculation of forces and means, extinguishing agents are discussed. In connection with operation in buildings, activities with various fire hazards and corresponding conditions for fire fighting are defined. In the environment section, students will get to know the components of the environment, basic concepts and relationships, and also the safety risks in the components of the environment. As part of the exercises, the issue is supplemented by excursions to various water treatment facilities.

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.

135ZPS	Foundation Engineering and Underground Structures	Z,ZK	6

In this course, students will gain knowledge about the design of flat and deep foundations, the determination of the stability of earth slopes and the basic design elements of underground structures and basic methods for the design and assessment of underground structures. Students will be introduced to geotechnical investigations and the influence of geology on the alignment of underground structures, rock classifications for underground structures, an introduction to the theory of rock pressures, and tunneling methods. The course also covers fire safety issues and road tunnel operations.

Name of the block: Compulsory elective courses
Minimal number of credits of the block: 4
The role of the block: PV

Code of the group: BQ202007_1
Name of the group: Stavební inženýrství, specializace Požární bezpečnost staveb, povinně volitelné předměty
Requirement credits in the group: In this group you have to gain at least 4 credits
Requirement courses in the group: In this group you have to complete at least 1 course
Credits in the group: 4
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**
133YMVB	**Concrete and Masonry Structures 1** *Tomáš Trtík, Petr Bílý, Josef Novák* ***Petr Bílý*** *Petr Bílý (Gar.)*	Z	2	1P+1C	L	PV
134YDUV	**Timber and Sustainable Construction** *Anna Kuklíková* ***Anna Kuklíková*** *Anna Kuklíková (Gar.)*	Z	2	1P+1C	L	PV
134YNKS	**Glass Structures** *Martina Eliášová* ***Martina Eliášová*** *Martina Eliášová (Gar.)*	Z	2	1P+1C	L	PV
134YTSK	**Thin-Walled and Composite Structures** *Michal Jandera* ***Michal Jandera*** *Michal Jandera (Gar.)*	Z	2	1P+1C	L	PV
124YBM1	**Building Information Modeling (BIM) for Building Structures 1** *Petr Matějka, Renáta Hoďánková, Pavel Chour, Jiří Černý, Karel Fazekas, Hana Kabrhelová* ***Jan Růžička*** *Jan Růžička (Gar.)*	Z	4	1P+3C	Z	PV
126YVSF	**Small Business Management** *Jana Frková, Olga Heralová* ***Jana Frková*** *Eduard Hromada (Gar.)*	Z	2	1P+1C	Z,L	PV
132YNMI	**Numerical Methods in Engineering Practice** *Petr Kabele, Milan Jirásek, Jaroslav Kruis, Jan Zeman* ***Milan Jirásek*** *Milan Jirásek (Gar.)*	Z	2	1P+1C	Z	PV
132YPM1	**Computer Analysis of Structures 1** *Petr Fajman* ***Petr Fajman*** *Petr Fajman (Gar.)*	Z	2	1P+1C	L	PV
133YBKC	**Concrete and Masonry Structures 1** *Petr Bílý, Jakub Holan* ***Petr Bílý*** *Petr Bílý (Gar.)*	Z	2	2C	Z,L	PV
133YPRK	**Failures and Rehabilitation of Concrete Structures** *Jakub Žák, Petr Štemberk* ***Petr Štemberk*** *Petr Štemberk (Gar.)*	Z	2	1P+1C	Z	PV
134YMOD	**Numerical Modeling of Steel and Timber Structures** *Karel Mikeš* ***Karel Mikeš*** *Karel Mikeš (Gar.)*	Z	2	1P+1C	Z	PV

Characteristics of the courses of this group of Study Plan: Code=BQ202007_1 Name=Stavební inženýrství, specializace Požární bezpečnost staveb, povinně volitelné předměty

133YMVB	Concrete and Masonry Structures 1	Z	2
The content of the subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introduction to nonlinear modeling of reinforced concrete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected programs for the design of concrete structures.			
134YDUV	Timber and Sustainable Construction	Z	2
Introduction to sustainable use of wood in construction with respect to previous courses. Theoretical methods of structural design and design of structures composed from different materials. Principles of strengthening and repairing of timber structures.			
134YNKS	Glass Structures	Z	2
The course is intending to introduce the students the field of structural applications of glass and to give them some specific skills for calculation and detailing of for basic glass structures: panes beams and fins, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs and floors. On this purpose the properties of glass as structural material will be presented in comparison with other basic building materials, together with selected examples of glass/glazing applications. Design details and connecting technology, relevant technical regulations, specification and current methods applied in design will be described. Worked examples will accompany the lectures for better understanding, and design project will help to fix specific knowledge.			
134YTSK	Thin-Walled and Composite Structures	Z	2
The course includes advanced analysis and structural design of slender sections and cold-formed sections. Advanced structural design of steel-concrete composite is also included.			
124YBM1	Building Information Modeling (BIM) for Building Structures 1	Z	4
Building information model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The subject uses the Autodesk Revit software base. Building information model in the life cycle of the building - information required during the design part, during construction and during use of the finished building.			
126YVSF	Small Business Management	Z	2
The subject is divided into lectures 1 hour per week and exercises 1 hour per week. Lectures take place according to the course outline listed below. In the exercise, students prepare their own business plan for a selected business activity according to the specified syllabus. They draw up a plan for a start-up business. Entrepreneurship can take the form of both: a self-employed person and a legal entity, e.g. Ltd. The financial plan is prepared in Excel, and the credit condition is the presentation of the business plan in power point in front of the auditorium.			
132YNMI	Numerical Methods in Engineering Practice	Z	2
The course is focused on basic numerical methods for solving large sets of algebraic equations and boundary or initial value problems. In the context of differential equations, the finite difference and finite element methods are explained from the viewpoints of an engineering scientist and a mathematician.			
132YPM1	Computer Analysis of Structures 1	Z	2
Static model of a structure. Computer codes RFEM-Dlubal, SCIA Engineer.			
133YBKC	Concrete and Masonry Structures 1	Z	2
Introduction to selected computer programs for structural modeling. Fundamentals of the finite element method. Basic types of elements for modeling of structures. Principles for choosing a suitable model. Practical procedures for the design and assessment of reinforced concrete structures using software tools. Principles and methods of interpretation and verification of results. Practical examples.			
133YPRK	Failures and Rehabilitation of Concrete Structures	Z	2
The course focuses on the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial measures. Methods of strengthening existing concrete structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of bending moment and shear, and foundation structures are discussed. The course appropriately combines theoretical approaches with common practice.			
134YMOD	Numerical Modeling of Steel and Timber Structures	Z	2
Subject familiarize students with the basis of modelling od steel and timber structures. Students manage basis of simulation during the creation of static model of the structure as well as the global analysis and check with respect to European design codes.			

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: 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* ***Svatava Boboková Bartíková*** *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: 12
The role of the block: S1

Code of the group: BQ202008_1
Name of the group: Stavební inženýrství, specializace Požární bezpečnost staveb, 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
124BAPQ	**Bachelor Thesis** *Vladimír Mózer* ***Petr Hájek*** *Jan Pruška (Gar.)*	Z	12	10C	L,Z	S1
125BAPQ	**Bachelor Thesis** ***Stanislav Frolík*** *Stanislav Frolík (Gar.)*	Z	12	10C	L,Z	S1
133BAPQ	**Bachelor Thesis** ***Radek Štefan*** *Radek Štefan (Gar.)*	Z	12	10C	L,Z	S1
134BAPQ	**Bachelor Thesis** *František Wald* ***František Wald*** *František Wald (Gar.)*	Z	12	10C	L,Z	S1
135BAPQ	**Bachelor Thesis** ***Jan Pruška***	Z	12	10C	L,Z	S1

Characteristics of the courses of this group of Study Plan: Code=BQ202008_1 Name=Stavební inženýrství, specializace Požární bezpečnost staveb, bakalářská práce

124BAPQ	Bachelor Thesis	Z	12
The topics of bachelor's theses are based on the needs of practice or the scientific research activities of the department, scope and difficulty correspond to the student's knowledge acquired during bachelor's studies. The supervisor of the bachelor's thesis can designate additional consultants to the student.			
125BAPQ	Bachelor Thesis	Z	12
Bachelor Thesis is the result of the Bachelor degree study programme. It should prove student`s ability to work independently in the area of Building Services Systems. The thesis can cover theoretical aspects or to focus on practical application on an object within building services systems. Students consult the supervisor and specialists from other departments. The thesis is presented in front of the commission.			
133BAPQ	Bachelor Thesis	Z	12
A bachelor thesis is the qualification thesis of a bachelor's degree. It contains a design of a building with a focus on structural design and fire safety analysis, including an assessment of the fire resistance of the load-bearing elements.			
134BAPQ	Bachelor Thesis	Z	12
In this course, student formulates a bachelor's thesis that is necessary to reach the bachelor's degree. This course is focused on steel or timber structural design.			
135BAPQ	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 Q			

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.			
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			
101MA02	Mathematics 2	Z,ZK	6
https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/			
101MA03	Mathematics 3	Z,ZK	6
https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/			
101SPSY	Reliability of systems	Z,ZK	5
Inferential statistics. Theory of probability. Random variables and its characteristics. Basic methods of reliability theory.			
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 policies, political science, political philosophy and law, with an overview of the development of architecture. In the section devoted to economics, the basic categories of the market economy, the foundations of economic policy and the basic concepts of international economics are explained. Theoretical interpretation is effectively combined with practical examples from economic reality. In the lectures devoted to law, a brief overview of the development of Roman law and its institutions is supplemented by a well-founded interpretation of the constitution, human rights and the labor code. Great attention is paid to selected provisions of the Civil Code and the Construction Act. In the political science lectures, the political development in ancient times is described in an engaging way, the theory of the state, political systems, democracy and totalitarianism are clarified. The series of lectures on the history of architecture and construction provides a comprehensive interpretation of the history of architecture from antiquity to postmodernism and deconstruction.			
122TSQ	Technology of Structures N	ZK	2
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.			
124BAPQ	Bachelor Thesis	Z	12
The topics of bachelor's theses are based on the needs of practice or the scientific research activities of the department, scope and difficulty correspond to the student's knowledge acquired during bachelor's studies. The supervisor of the bachelor's thesis can designate additional consultants to the student.			
124IZSQ	Integrated Rescue System and Population Protection Q	Z,ZK	5
The subject is composed of two thematic parts, namely the technical part and communication skills. The technical part is focused on familiarizing students with the structure, functioning and components of the integrated rescue system, principles, structure and means of civil protection and an introduction to fire safety. Part of the communication skills subject is focused on different ways of verbal and non-verbal communication and presentation in front of an audience.			
124KKQ	Completing Constructions Q	Z,ZK	7
In the first part, the subject deals with the complex design of indoor and high-rise buildings, especially the influence of marginal conditions on the choice of material and structural variants and with an emphasis on envelope structures. In the second, more extensive part, the principles of solutions for roofs, perimeter walls, opening fillings and internal completion structures for various types of buildings are clearly discussed.			
124PBSQ	Fire Safety of Buildings Q	Z,ZK	7
The subject is focused on key principles in the design and assessment of fire safety of buildings, especially from the point of view of national requirements in the Czech Republic, and on familiarizing students with the following key topics: fire terminology in the field of fire protection and safety of buildings, statistical monitoring of events, the concept of fire prevention and fire repression, the mission of the Czech Fire and Rescue Service, the burning process, the characteristic course and dynamics of fire in the interior from the point of view of the building product, structure and structural system, the fire code in the Czech Republic and related European legislation, fire safety solutions for buildings, passive and active fire protection, dedicated fire safety equipment in constructions.			
124PDRQ	Failures, Deterioration, Renovations	ZK	3
In the lecture series, students are introduced to issues related to the protection of (not only) historic and heritage-protected buildings. In particular, these are defects and failures of buildings, load effects and influences from the point of view of load history; non-force effects and influences, effects of forced deformation; durability and reliability; mechanical, physical, chemical degradation and corrosion processes; failures , reconstruction and rehabilitation of foundation structures, brick structures, concrete structures (reinforced concrete), prefabricated structures, wooden structures of buildings, protection of buildings against increased humidity and diagnostics of buildings.			
124PORE	Fire Repression	Z,ZK	4
The subject is divided into 2 thematically related parts, namely fire repression and the environment. In the fire repression section, students will get to know the organizational structure and legislation in the field of fire protection in the Czech Republic. The focus of the topic lies in the interpretation of the connections between the fire design of buildings on the one hand and the repressive activities of fire protection units when dealing with emergency and crisis events on the other. From the point of view of fire intervention, the issues of the basics of fire tactics, development and fire parameters, fire technical characteristics of flammable substances, calculation of forces and means, extinguishing agents are discussed. In connection with operation in buildings, activities with various fire hazards and corresponding conditions for fire fighting are defined. In the environment section, students will get to know the components of the environment, basic concepts and relationships, and also the safety risks in the components of the environment. As part of the exercises, the issue is supplemented by excursions to various water treatment facilities.			
124PR1Q	Project 1-Q	KZ	5
The task of the project is a architectural and structural design of a civil building (e.g. administrative building, school, kindergarten, office, building for culture). The student hand over a partial project documentation for a building permit and acquires the ability to have a comprehensive approach to the design of a modern building and to perceive the issue of designing building structures in a broader context (the continuity of the building part with other professions, mutual interaction of individual requirements for building structures).			
124PR2Q	Project 2-Q	KZ	5
The task of this project is to apply fire safety aspects on the building that was designed in the previous 124PR1Q subject; i.e. fire safety design, assessment of selected construction structures for the effect of fire and design of related technical equipment in the building. The fire design and assessment is done for the new construction of a building of a civil building. The output of the project will be the following 3 sub-separately classified parts, namely (A) fire safety design + selected details, (B) revision of the structural design and (C) technical equipment of the building.			
124PS3Q	Building Structures 3Q	Z,ZK	3
The subject deals with the complex design of load-bearing structures of roofing, indoor and multi-storey buildings and the structural-static effect of the perimeter roof shell. In the first part, the attention is focused on span structures of sloping roofs and hall buildings and on structural-static problems of multi-storey buildings. In the second part, students will learn about the design of prefabricated indoor and multi-storey structures.			

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.			
124YBM1	Building Information Modeling (BIM) for Building Structures 1	Z	4
Building information model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The subject uses the Autodesk Revit software base. Building information model in the life cycle of the building - information required during the design part, during construction and during use of the finished building.			
125BAPQ	Bachelor Thesis	Z	12
Bachelor Thesis is the result of the Bachelor degree study programme. It should prove student`s ability to work independently in the area of Building Services Systems. The thesis can cover theoretical aspects or to focus on practical application on an object within building services systems. Students consult the supervisor and specialists from other departments. The thesis is presented in front of the commission.			
125PBZQ	Fire Services	Z,ZK	7
The basic subject for students of bachelor's degree. The expansion of knowledge in the field of fire safety of buildings and structures and develops knowledge in the field of fire of the reliability of structures. The subject has two separate parts. In the first part is in depth dealt with the issue of fire water supply, the issue of fire protection of the electrical equipment and fire ventilation and fire ventilation of residential and civil buildings. The second, completely separate part of the course deals with fire issues of communications and buildings associated with this issue.			
125TBUQ	Building Services Systems - Q	Z,ZK	4
Basic course in building services systems - water supply, drainage, gas supply , heating and ventilation systems.			
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.			
126YVSF	Small Business Management	Z	2
The subject is divided into lectures 1 hour per week and exercises 1 hour per week. Lectures take place according to the course outline listed below. In the exercise, students prepare their own business plan for a selected business activity according to the specified syllabus. They draw up a plan for a start-up business. Entrepreneurship can take the form of both: a self-employed person and a legal entity, e.g. Ltd. The financial plan is prepared in Excel, and the credit condition is the presentation of the business plan in power point in front of the auditorium.			
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.			
132YNMI	Numerical Methods in Engineering Practice	Z	2
The course is focused on basic numerical methods for solving large sets of algebraic equations and boundary or initial value problems. In the context of differential equations, the finite difference and finite element methods are explained from the viewpoints of an engineering scientist and a mathematician.			
132YPM1	Computer Analysis of Structures 1	Z	2
Static model of a structure. Computer codes RFEM-Dlubal, SCIA Engineer.			
133BAPQ	Bachelor Thesis	Z	12
A bachelor thesis is the qualification thesis of a bachelor's degree. It contains a design of a building with a focus on structural design and fire safety analysis, including an assessment of the fire resistance of the load-bearing elements.			
133BZKQ	Concrete and Masonry Structures 1	Z,ZK	7
The subject is focused on the design of concrete elements and constructions of multi-storey buildings - it follows on from the subject Fundamentals of Structural Design. The content of the course is the addition and generalization of procedures for verifying the load-bearing capacity of reinforced concrete structural elements for cases of bending, shear, a combination of biaxial bending and normal force, designing elements stressed by torsion, punching shear, assessment of slender compressed elements. Design procedures are discussed for individual types of structures, including the choice of suitable calculation models and calculation methods and reinforcement principles.			

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).			
133PSBZ	Fire resistance of concrete and masonry structures	Z,ZK	6
The course is focused on fire resistance of concrete and masonry structures: concrete and concrete structures exposed to fire, design rules, thermal analysis, loads, design principles, design methods, material properties of concrete and steel reinforcement at high temperatures, fire design of masonry structures. The course is partially focused also on selected parts of advanced structural design of concrete structures at normal temperatures: serviceability limit states, pre-stressed concrete, precast and composite structures.			
133YBKC	Concrete and Masonry Structures 1	Z	2
Introduction to selected computer programs for structural modeling. Fundamentals of the finite element method. Basic types of elements for modeling of structures. Principles for choosing a suitable model. Practical procedures for the design and assessment of reinforced concrete structures using software tools. Principles and methods of interpretation and verification of results. Practical examples.			
133YMVB	Concrete and Masonry Structures 1	Z	2
The content of the subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introduction to nonlinear modeling of reinforced concrete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected programs for the design of concrete structures.			
133YPRK	Failures and Rehabilitation of Concrete Structures	Z	2
The course focuses on the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial measures. Methods of strengthening existing concrete structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of bending moment and shear, and foundation structures are discussed. The course appropriately combines theoretical approaches with common practice.			
134BAPQ	Bachelor Thesis	Z	12
In this course, student formulates a bachelor's thesis that is necessary to reach the bachelor's degree. This course is focused on steel or timber structural design.			
134DK01	Timber Structures 1	Z,ZK	5
Introduction and presentation of timber structures use in building industry. Wood and wood-based materials properties. Safety of timber structures design, ultimate limit states, valid standards. Cross section design of simple members. Connections of timber structures. Glued joints. Basic structural systems. Fire design. Protection of timber 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.			
134OK01	Steel Structures 1	Z,ZK	6
The course OK01 aims to expand the knowledge acquired in the subject NNK and concerning design of basic steel structures. In the theoretical part are delivered possibilities of global analysis of structures including classification from view of necessities of nonlinear analyses. Design of steel elements is widen for global analysis methods, advanced composite steel and concrete beams/columns and cold-formed thin-walled elements. The main part of the subject deals with complex design of multi-storey steel buildings and steel industrial halls. Final lectures concern large-span structures, uniqueness in design of tall buildings, including effects of seismicity.			
134PSOD	Fire Safety of Steel and Timber Structures	Z,ZK	5
The course deals with the design of steel, concrete, composite steel and timber structures exposed to fire. Teaching is focused on the design of basic examples, calculation by elements.			
134TMZQ	Thermal and Mechanical Loads Q	Z,ZK	6
Objective of the course lie in basic information about thermal and mechanical loading and their combinations during exceptional situations, mainly during fire and blast. Theoretical foundations of heat transfer are discussed. The main part of the subject is focused on modeling the temperature for different types of fire and its effects on the bearing structures. The conclusion is devoted to the issue of explosions, modeling of pressure waves and their effects on buildings.			
134YDUV	Timber and Sustainable Construction	Z	2
Introduction to sustainable use of wood in construction with respect to previous courses. Theoretical methods of structural design and design of structures composed from different materials. Principles of strengthening and repairing of timber structures.			
134YMOD	Numerical Modeling of Steel and Timber Structures	Z	2
Subject familiarize students with the basis of modelling od steel and timber structures. Students manage basis of simulation during the creation of static model of the structure as well as the global analysis and check with respect to European design codes.			
134YNKS	Glass Structures	Z	2
The course is intending to introduce the students the field of structural applications of glass and to give them some specific skills for calculation and detailing of for basic glass structures: panes beams and fins, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs and floors. On this purpose the properties of glass as structural material will be presented in comparison with other basic building materials, together with selected examples of glass/glazing applications. Design details and connecting technology, relevant technical regulations, specification and current methods applied in design will be described. Worked examples will accompany the lectures for better understanding, and design project will help to fix specific knowledge.			
134YTSK	Thin-Walled and Composite Structures	Z	2
The course includes advanced analysis and structural design of slender sections and cold-formed sections. Advanced structural design of steel-concrete composite is also included.			
135BAPQ	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 Q			
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			
135ZPS	Foundation Engineering and Underground Structures	Z,ZK	6
In this course, students will gain knowledge about the design of flat and deep foundations, the determination of the stability of earth slopes and the basic design elements of underground structures and basic methods for the design and assessment of underground structures. Students will be introduced to geotechnical investigations and the influence of geology on the alignment of underground structures, rock classifications for underground structures, an introduction to the theory of rock pressures, and tunneling methods. The course also covers fire safety issues and road tunnel operations.			

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.			
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.			
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			
TV1	Physical Education	Z	0
TV2	Physical Education	Z	0

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