Study plan

Name of study plan: Stavební inženýrství, specializace Pozemní stavby

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 2024/2025

Name of the block: Compulsory courses Minimal number of credits of the block: 117

Constructive Geometry

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:

101KC01

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 K ivková, Iva Malechová, Jana ápová, Liya Gaynutdinova, Michal Zdražil, Iva Slámová, Hana Lakomá, Petra Vacková Jana ápová Iva K ivková (Gar.)	Z,ZK	5	2P+2C	Z,L	Z
101MA01	Mathematics 1 Iva Malechová, Jana ápová, Iva Slámová, Petra Vacková, Zden k Skalák, Ivana Pultarová, Ond ej Zindulka, Jan Chleboun, Miloslav Vlasák, Aleš Nekvinda Aleš Nekvinda (Gar.)	Z,ZK	6	2P+3C	Z,L	Z
105SVAI	Social Sciences and Architecture Josef Záruba Pfeffermann, Bo ivoj Marek, Rudolf Pošva, Dana ímanová, Jana Hrbková Josef Záruba Pfeffermann Josef Záruba Pfeffermann (Gar.)	Z,ZK	5	4P+1C	L	Z
123CHE	Chemistry Jana Náb Iková, Martin Keppert, Milena Pavlíková Milena Pavlíková Milena Pavlíková (Gar.)	Z,ZK	4	3P+1C	L	Z
132SM01	Structural Mechanics 1 Michal Polák, Martin Válek, Daniel Rypl, Mat j Lepš, Jan Sýkora, Tomáš Koudelka, Aleš Pali ka, Ond ej Faltus, Miroslav áp, Michal Polák Michal Polák (Gar.)	Z,ZK	6	2P+2C	Z,L	Z
135GM01	Geomechanics 1 Kate ina Ková ová, Jan Jelínek, Svatoslav Chamra, Richard Malát Kate ina Ková ová Kate ina Ková ová (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

TOTAGOT	Constructive Geometry	۷,۷۱۸	3
Projections and projection	ve methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. S	imple problems in	axonometry.
Basics of lighting of soli	ds and groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical s	urfaces. Quadrics.	Surfaces in
building industry.			

bulluling industry.			
101MA01	Mathematics 1	Z,ZK	6
https://mat.fsv.cvut.cz/b	ubenik/mat1detail.htm		
105SVAI	Social Sciences and Architecture	/ /K 6	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 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

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.

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 K ivková, Iva Malechová, Jana ápová, Iva Slámová, Hana Lakomá, Zden k Skalák, Ivana Pultarová, Ond ej Zindulka, Miloslav Vlasák, Ivana Pultarová Ivana Pultarová (Gar.)	Z,ZK	6	2P+3C	L,Z	Z
102FYI	Physics Pavel Novák, Ji í Konfršt, Petr Pokorný, Pavel Demo Pavel Novák Pavel Novák (Gar.)	Z,ZK	4	3P+1C	L	Z
123SH01	Building Materials Eva Vejmelková, Alena Vimmrová, Miloš Jerman Alena Vimmrová Alena Vimmrová (Gar.)	Z,ZK	5	2P+2C	Z,L	Z
126BIM1	BIM Josef Žák Josef Žák Josef Žák (Gar.)	Z	1	1P+1C	Z	Z
132SM02	Structural Mechanics 2 Michal Polák, Martin Válek, Daniel Rypl, Mat j Lepš, Jan Sýkora, Tomáš Koudelka, Aleš Pali ka, Ond ej Faltus, Miroslav áp, Mat j Lepš 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/v	yuka/bakalari/eng/ls/MT02/	•	
102FYI	Physics	7.7K	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 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 Z.ZK Structural Mechanics 2

Internal forces diagrams of simple statically determinate plane structures and compound two-dimensional structures. Multiaxially loaded cantilever. Definition of normal stress and prepositions of its distribution in a cross section. Equivalence of internal forces. Geometry of mass and areas, centre of gravity and moments of inertia

Land Surveying in Civil Engineering

The shape and size of the Earth, substitutive surfaces, cartographic projections Horizontal and vertical control, coordinate calculations Quality control, deviations and tolerations in build-up Angle and distance measurements Heighting measurements Other geodetic methods in build-up (GNSS, DPZ, ...) Photogrammetry and laser scanning Thematic mapping and present state documentation Geodetic works in build-up State map series of CR and thematic maps for build-up Geographic information systems and spatial planning Cadastre of real estates Laws and decrees for geodesy and build-up in Czech Republic

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, Zden k Skalák, Ivana Pultarová, Ond ej Zindulka, Miloslav Vlasák, Michal Beneš, Martin Hála, Martin Soukenka, Petr Mayer, Michal Beneš Michal Beneš (Gar.)	Z,ZK	6	3P+2C	Z,L	Z
124PSI1	Building Structures 11 Petr Hájek, Ctislav Fiala, Jan R ži ka, B la Stib rková, Jaroslav Vychytil Jan R ži ka Petr Hájek (Gar.)	Z	4	2P+1C	Z	Z
132PRPE	Strength of Materials Tomáš Koudelka, Zden k Prošek, Milan Jirásek, Michal Šejnoha, Petr Kabele, Jan Vorel, Eva Novotná, Michal Šmejkal, Martin Došká, Milan Jirásek Petr Kabele (Gar.)	Z,ZK	6	3P+2C	Z,L	Z
135GM2I	Geomechanics 2l Ji í Koš ál, Jan Salák, Ivan Vaní ek, Martin Vaní ek Ivan Vaní ek Ivan Vaní ek (Gar.)	Z,ZK	5	2P+1C	Z	Z
141HYA	Hydraulics Aleš Havlík, Tomáš Picek, Václav Matoušek, Petr Sklená, Martin Fencl, Anna Špa ková, Jakub Novotný, Vojt ch Bareš, Jan Krupi ka Václav Matoušek Václav Matoušek (Gar.)	Z,ZK	5	2P+2C	Z,L	Z
142VIZP	Water and Environmental Engineering Aleš Havlík, Michal Sn hota, Petr Nowak, Tomáš Dostál, Martin Do kal, Martin Šanda, Pavel Fošumpaur, Bohumil Š astný, Ladislav Satrapa, 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	∠,∠K	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. Re-	quirements for bu	ilding structures,					
structural system, inte	raction of elements, spatial effect of the structural system. Vertical load-bearing structures (functions, requirements, principles	of the structural of	design of walls,					
columns), floor structu	res (functions, requirements, principles of the structural design of vaults, wooden ceilings, reinforced concrete ceilings, cerami	c concrete ceiling	s, steel and steel					
concrete ceilings). Exp	pansion 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 t	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 str	aight compression members. Basic assumptions, quantities, and equations describing the stress and strain state in 3D continu	uum, plates and w	valls.					
40501401	0 1 : 0	7 71/	-					

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

A course deals with issues of hydrostatics and hydrodynamics with aiming at civil engineering applications. There are analysed tasks related to hydrostatic and hydrodynamic loadin of structures, pipeline flow, open channel flow and groundwater flow.

142VIZP Water and Environmental Engineering

During the teaching semester, students are introduced to the fields of water engineering, water management and environmental engineering. In particular, emphasis is placed on the practical aspects of water and environmental engineering in close relation to other branches of civil engineering. The course is taught in the form of lectures and tutorials. The lectures are divided thematically into 20 blocks according to the different branches of the discipline (13 times water engineering and 7 times environmental engineering). In the exercises, students work on basic problems in the field of hydrology, water supply and water structures, especially dams, hydropower and flood issues. All 4 "water" departments of K14x are involved in teaching the course.

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 Petr Hájek, Ctislav Fiala, Malila Noori, Ji í Nová ek, Jaroslav Vychytil, Tereza Pavl , Ji í Pazderka, Veronika Ka ma íková Ji í Pazderka Ji í Pazderka (Gar.)	Z,ZK	4	2P+1C	L	Z
126EKMN	Economics and Management Martin ásenský, Božena Kade ábková, Petr Kal ev, Eduard Hromada, Pavlína Píchová, Pavlína Píchová Eduard Hromada Petr Kal ev (Gar.)	Z,ZK	7	4P+2C		Z
132SM3	Structural Mechanics 3 Tomáš Koudelka, Milan Jirásek, Michal Šejnoha, Petr Kabele, Jan Vorel, Eva Novotná, Michal Šmejkal, Martin Horák, Dagmar Jandeková, 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, Michal Števula Martin Tipka Martin Tipka (Gar.)	Z,ZK	4	2P+1C	L,Z	Z
134NNKO	Design of Supporting StructuresI - Steel František Wald, Martina Eliášová Martina Eliášová (Gar.)	Z,ZK	3	2P+1C	L	Z
136DSUZ	Transport Structures and Urban Planning Ludvík Vébr, František Pospíšil, Ond ej 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**

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

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

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

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

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

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: 94

The role of the block: P

Code of the group: BC202405

Name of the group: Stavební inženýrství, specializace Pozemní stavby, 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
124STAO	Building Acoustics and Daylighting Ji í Nová ek	Z	3	2P+1C	Z	Р
124STTT	Hygrothermal Performance of Buildings Ji i Novák	ZK	3	1P+1C	Z	Р
132ANKC	Analysis of Structures Aleš Jíra, Dagmar Jandeková, Petr Konvalinka, Jan Zatloukal Petr Konvalinka Petr Konvalinka (Gar.)	Z,ZK	5	2P+2C	Z	Р
133BK01	Concrete and Masonry Structures 1 Martin Tipka, Jitka Vašková, Petr Bílý Petr Bílý Petr Bílý (Gar.)	Z,ZK	6	3P+2C	Z	Р
134OK01	Steel Structures 1 Michal Jandera Michal Jandera (Gar.)	Z,ZK	6	3P+2C	Z	Р
135ZS01	Foundations 1 Ji í Barták, Jan Masopust, Jan Valenta Jan Valenta Jan Salák (Gar.)	Z,ZK	7	3P+3C	Z	Р

Characteristics of the courses of this group of Study Plan: Code=BC202405 Name=Stavební inženýrství, specializace Pozemní stavby, 5.semestr

124STAO	Building Acoustics and Daylighting	Z	3
124STTT	Hygrothermal Performance of Buildings	ZK	3
132ANKC	Analysis of Structures	Z,ZK	5
Analyses of statically d	eterminate and statically/deformable indeterminate structures, concerning live loads solution, stresses in thin-wall beams, an	alysis of walls and	d plates, matrix

formulation of deformation method, principles of FEM, models for a beam on elastic foundation and stability of structures. Z,ZK 133BK01 Concrete and Masonry Structures 1 6

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.

Steel Structures 1

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.

135ZS01 Z,ZK

Introduction to the subject, literature, design principles, geotechnical categories Strength and deformation characteristics of foundation soils, slab foundations Limit states of flat foundations, calculation of bearing capacity and settlement of flat foundations Deep foundations - typology, pile foundations, drilled and driven pile technology Axial capacity of isolated piles, pile load tests Determination of bearing capacity of transversely loaded piles, pile group Micropiles, anchors, technology Conventional and jet grouting, underground walls Construction pits, technology of shoring of construction pits Principles for the design and assessment of shoring structures, earth pressure, water effect Calculation of shoring structures, pressure dependent methods Dewatering of construction pits Protection of foundation structures against the effects of aggressive environments

Code of the group: BC202006

Name of the group: Stavební inženýrství, specializace Pozemní stavby, 6.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:

Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their Completion Credits | Scope | Semester

Code	members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Kole
124KK01	Non-Load Bearing Construction Lenka Hanzalová, Vladimír Ž ára, Hana Gattermayerová, Šárka Šilarová Šárka Šilarová (Gar.)	Z,ZK	7	2P+3C	L	Р
124P01C	Structural design project 1 Malila Noori, Lenka Hanzalová, Ji í Pazderka, Šárka Šilarová, Martin Jiránek, Kate ina Mertenová, Eva Burgetová, Ji í Novák Ji í Pazderka Ji í Pazderka (Gar.)	KZ	6	4C	L	Р
125TZ01	Building services systems 1 Stanislav Frolik, Karel Kabele Karel Kabele Karel Kabele (Gar.)	Z,ZK	5	2P+2C	L	Р
133BK02	Concrete and Masonry Structures 2 Martin Tipka, Jitka Vašková, Iva Broukalová, Michal Drahorád, Marek Foglar Marek Foglar Marek Foglar (Gar.)	Z,ZK	7	4P+2C	L	Р
134DK01	Timber Structures 1 Petr Kuklík, Anna Kuklíková Jakub Dolejš Petr Kuklík (Gar.)	Z,ZK	5	3P+1C	L	Р

Characteristics of the courses of this group of Study Plan: Code=BC202006 Name=Stavební inženýrství, specializace Pozemní stavby, 6.semestr

124KK01 Z,ZK Non-Load Bearing Construction 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.

124P01C ΚZ Structural design project 1 6

Converting an architectural study of a smaller or medium-sized building for housing, administration, education, culture or sports into a detailed design of a building structure based on static analysis, interaction of load-bearing and non-load-bearing elements and building physics. Focus on complex approach to practical design, analysis and optimalization of a building structures. Design of variants of the load-bearing system, preliminary static analysis (calculation of load-bearing elements - slabs, columns, walls, etc), calculation of foundations, design of structures on the building envelope with respect to thermal protection of buildings, building physics, fire protection of buildings and protection against water and soil moisture. Elaboration of detailed drawings including floor plans, sections and details.

125TZ01 5 Building services systems 1 Z,ZK Basic course in building services systems - water supply, drainage, gas supply and heating systems. 133BK02

Concrete and Masonry Structures 2 This course builds on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 1.-3. Masonry structures - subjected to compression, bending, shear, reinforced masonry, strenghtening of masonry structures 4.- 6. Design of concrete structures to serviceability limit states: stress limitation, crack development and crack width limitation, deflections, application on waterproof structures 7.-8. Introduction to pre-stressed concrete: design of pre-stressing, losses of pre-stressing, technology 9.-12. Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduction to engineering structures

134DK01 Timber Structures 1 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: BC202007

Name of the group: Stavební inženýrství, specializace Pozemní stavby, 7.semestr Requirement credits in the group: In this group you have to gain at least 22 credits

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

Credits in the group: 22 Note on the group:

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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
122TSC	Construction Technology C Rostislav Šulc, Mária Párová Rostislav Šulc Rostislav Šulc (Gar.)	Z,ZK	6	4P+2C	Z	Р
123MAI	Materials Engineering Milena Pavlíková, Zbyšek Pavlík Milena Pavlíková Zbyšek Pavlík (Gar.)	Z,ZK	5	2P+2C	Z	Р
124PDRC	Failures, Deteriorations, Renovations Tomáš ejka, Ji í Witzany Radek Zigler Ji í Witzany (Gar.)	Z,ZK	3	2P+1C	Z	Р
124PS3C	Building Structures 3C Vladimír Ž ára, Hana Gattermayerová Vladimír Ž ára Vladimír Ž ára (Gar.)	Z,ZK	3	2P+1C	Z	Р
100ODPR	Industrial Training (3 weeks) Petr Hájek, Jan R ži ka Michal Jandera Michal Jandera (Gar.)	Z	0	6C	Z,L	Р
125TZ02	Building Services Systems 2 Bohumír Garlík, Daniel Adamovský Daniel Adamovský (Gar.)	Z,ZK	5	2P+2C	Z	Р

Characteristics of the courses of this group of Study Plan: Code=BC202007 Name=Stavební inženýrství, specializace Pozemní stavby, 7.semestr

122TSC	Construction Technology C	Z,ZK	6						
123MAI	Materials Engineering	Z,ZK	5						
The course provides information on the building materials characterization and principles of designing and developing new types of materials having directed properties for specific									
building applications ar	d structures.								
124PDRC	Failures, Deteriorations, Renovations	Z,ZK	3						
In the lecture series, st	dents are introduced to issues related to the protection of (not only) historic and heritage-protected buildings. In particular, the	nese are defects a	and failures of						
buildings, load effects a	nd influences from the point of view of load history; non-force effects and influences, effects of forced deformation; durability an	nd reliability; mech	nanical, physical,						
chemical degradation a	nd corrosion processes; failures , reconstruction and rehabilitation of foundation structures, brick structures, concrete structures (reinforced concre	te), prefabricated						
structures, wooden stru	ctures of buildings, protection of buildings against increased humidity and diagnostics of buildings.								
124PS3C	Building Structures 3C	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 th	ne perimeter roof	shell. In the first						
part, the attention is for	sused on span structures of sloping roofs and hall buildings and on structural-static problems of multi-storey buildings. In the	second part, stude	ents will learn						
about the design of pre	fabricated indoor and multi-storey structures.								
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 pro	fessional						
responsibilities. The pro	fessional practice evaluates the sum of all knowledge acquired through previous theoretical studies and is a proof of their ac	quisition.							
125TZ02	Building Services Systems 2	Z,ZK	5						
This subject includes a	his subject includes an introduction to ventilation and air conditioning in buildings and solutions for electric instalations and artificial lighting								

Code of the group: BC202008

Name of the group: Stavební inženýrství, specializace Pozemní stavby, 8.semestr 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 2 courses

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
124PBZN	Fire Protection and Healthy Buildings Malila Noori, Zuzana Rácová, Veronika Ka ma íková, Martin Jiránek, Petr Hejtmánek, Marek Pokorný, Pavla Ryparová, Hana Najmanová, Vladimír Mózer Martin Jiránek Petr Hejtmánek (Gar.)	Z,ZK	6	3P+2C	L	Р
126STMN	Construction Management Dana M š anová, Renáta Schneiderová Heralová, Václav Tatýrek, Jaroslava Tománková, Zita Prost jovská Martin ásenský Dana M š anová (Gar.)	Z,ZK	6	3P+2C	Z,L	Р

Characteristics of the courses of this group of Study Plan: Code=BC202008 Name=Stavební inženýrství, specializace Pozemní stavby, 8.semestr

124PBZN Fire Protection and Healthy Buildings

Z,ZK

6

Fire Safety Analysis of fire - course of fire, burning process, fire loading; legislation and European Standards; fire safety solutions - fire project, requirement for fire resistance of buildings, escape ways, distance separation, fire-fighting equipment; fire behaviour of the most used materials (wood, steel, concrete, plastics); protection of building materials against fire (brickwork, concreting, plasters and sprays, coatings, impregnates of wood, encasements, glued facings of mineral fibres); sandwiches from fire point of view; influence of claddings on the course fire; passive protection of building structures - fire walls, fire glazed structures, fire ceiling, draft stops and seals; repressive measures - electric fire signalling, stationary extinguishing devices, smoke extract, hydrant systems. Healthy Buildings Constituents of indoor microclimate, hazardous substances (VOCs, HFRs, heavy metals, moulds, microbes, aerosols, radionuclides, etc.), their sources and health effects. Influence of building structures and materials on quality of indoor microclimate. Design of buildings with respect to optimisation of indoor microclimate.

126STMN Construction Management

Z,ZK

6

Overview of selected concepts. Methods to support project management. Legal standards, SN and ISO standards. The essential aspects of Project Management. Construction as a project product. Objectives, strategies, phases and surroundings of the construction project. Project manager role. Purchases and contracts in the project. Quality management, risk management. Financial management and project evaluation. Feasibility study. Cost and resource management. Change procedures. The Act on Spatial Planning and Building Regulations, the Act on the Awarding of Public Contracts, and the definition of terms. Business obligation relationships, the conclusion of contracts, their form, and use of general business conditions. Business public competition, its influence on the obligations of participants. Securing the commitment - contractual penalty, guarantee. The main contract types in construction - are contract for the conclusion of a future contract, purchase contract, contract for work, and content of the contract.

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 8

The role of the block: PV

Code of the group: BC202007 2

Name of the group: Stavební inženýrství, specializace Pozemní stavby, povinn volitelné p edm ty

Requirement credits in the group: In this group you have to gain at least 8 credits

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

Credits in the group: 8 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
101YAST	Applied Statistics Daniela Jarušková Jana Nosková Daniela Jarušková (Gar.)	Z	2	1P+1C	Z	PV
102YMES	Measurement in Civil Engineering Petra Tichá, Petr Semerák, Vít zslav Vydra Petr Semerák Petr Semerák (Gar.)	Z	2	2C	Z	PV
122YBPP	Construction Safety Code Tomáš Váchal Tomáš Váchal (Gar.)	Z	2	1P+1C	Z	PV
123YTVM	Production technology of building materials Eva Vejmelková, Dana Ko áková, Vojt ch Pommer, Martin Böhm Eva Vejmelková Eva Vejmelková (Gar.)	Z	2	1P+1C	Z	PV
124YBM1	Building Information Modeling (BIM) for Building Structures 1 Renáta Ho ánková, Pavel Chour, Stanislav Frolík, Hana Kabrhelová, Jakub Veselka, Petr Pánek, Petr Mat jka, Kate ina Šenfeld Jan R ži ka Jan R ži ka (Gar.)	Z	4	1P+3C	Z	PV
124YKSD	Complex Structural Detail Ji í Pazderka, Radek Zigler Ji í Pazderka Ji í Pazderka (Gar.)	Z	2	1P+1C	Z	PV
124YNAK	Numerical Analysis of Building Structures Vladimír Ž ára Vladimír Ž ára Vladimír Ž ára (Gar.)	Z	2	1P+1C	Z	PV
124YSPB	Curtain Walls Lenka Hanzalová, Šárka Šilarová Šárka Šilarová (Gar.)	Z	2	1P+1C	Z	PV
132YMMO	Modern Methods of Optimization Mat j Lepš, Jan Zeman Mat j Lepš Mat j Lepš (Gar.)	Z	2	1P+1C	Z	PV
132YNMI	Numerical Methods in Engineering Practice Milan Jirásek, Petr Kabele, Jaroslav Kruis, Jan Zeman Milan Jirásek Milan Jirásek (Gar.)	Z	2	1P+1C	Z	PV
132YPV1	Programming in C++ for Engineering Calculations 1 Tomáš Koudelka, Stanislav Šulc, Anna Ku erová Anna Ku erová Anna Ku erová (Gar.)	Z	2	1P+1C	Z	PV
133YPRK	Failures and Rehabilitation of Concrete Structures Jakub Žák, Petr Štemberk, Yuliia Khmurovska Petr Štemberk Petr Štemberk (Gar.)	Z	2	1P+1C	Z	PV
133YTB	Technology of Concrete II Josef Fládr Josef Fládr Josef Fládr (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
134YPNK	Fire Resistance of Steel and Timber Structures Zden k Sokol Zden k Sokol Zden k Sokol (Gar.)	Z	2	1P+1C	Z	PV
102POV1	Fire and Explosion 1 Petr Semerák Petr Semerák (Gar.)	Z	2	1P+1C	Z	PV
122YMKS	Construction Quality Controlling Rostislav Šulc, Pavel Svoboda, Tomáš Váchal, Linda Veselá Linda Veselá	Z	2	1P+1C	L	PV

123YCHS	Chemistry in Civil Engineering Milena Pavlíková, Martina Záleská Milena Pavlíková Milena Pavlíková (Gar.)	Z	2	1P+1C	L	PV
123YNTP	Numerical Analysis of Transport Processes Ji í Mad ra, Václav Ko í Ji í Mad ra Ji í Mad ra (Gar.)	Z	2	1P+1C	Z	PV
124YDRS	Timber Buildings Jan R ži ka, Jaroslav Vychytil, Kamil Stan k, Lukáš Velebil, Milan Peukert, Marek Pokorný Jan R ži ka Jan R ži ka (Gar.)	Z	2	1P+1C	L	PV
124YLOP	Lightweight Building Envelope Lenka Hanzalová, B la Stib rková, Šárka Šilarová Šárka Šilarová Šárka Šilarová (Gar.)	Z	2	1P+1C	L	PV
124YPFS	Precast concrete structures Radek Zigler, Ji í Witzany Radek Zigler Radek Zigler (Gar.)	Z	2	1P+1C	L	PV
124YRHS	Reconstruction of Historical Building Structures Radek Zigler, Tomáš ejka, Ji í Witzany Ji í Witzany Ji í Witzany (Gar.)	Z	2	1P+1C	L	PV
125YNST	HVAC and services design Hana Kabrhelová Hana Kabrhelová Hana Kabrhelová (Gar.)	Z	2	1P+1C	Z,L	PV
125YPMT	Building services systems CAD, modelling and simulation Stanislav Frolik Stanislav Frolik (Gar.)	Z	2	2C	Z,L	PV
126YVSF	Small Business Management Jana Frková, Olga Heralová Eduard Hromada Jana Frková (Gar.)	Z	2	1P+1C	Z,L	PV
132YPM1	Computer Analysis of Structures 1 Petr Faiman Petr Faiman (Gar.)	Z	2	1P+1C	L	PV
132YSHK	Statics and Reconstruction of Historical Structures Petr Fajman Petr Fajman (Gar.)	Z	2	1P+1C	L	PV
133YBKC	Concrete and Masonry Structures 1 Radek Štefan, Jakub Holan, Petr Bílý Petr Bílý (Gar.)	Z	2	2C	Z,L	PV
133YBSV	Concretes with Special Properties Michal Števula Michal Števula (Gar.)	Z	2	1P+1C	L	PV
133YMVB	Concrete and Masonry Structures 1 Roman Chylik, Petr Bilý, Josef Novák Petr Bilý Petr Bilý (Gar.)	Z	2	1P+1C	L	PV
133YPNB	Fire desgn og concrete and mnsory structures Radek Štefan, Martin Benýšek Radek Štefan Radek Štefan (Gar.)	Z	2	1P+1C	L	PV
134YDUV	Timber and Sustainable Construction Petr Kuklik, Anna Kukliková Anna Kukliková (Gar.)	Z	2	1P+1C	L	PV
134YNKS	Glass Structures Martina Eliášová Martina Eliášová (Gar.)	Z	2	1P+1C	L	PV
134YPDK	Additional Timber and Metal Structures Jakub Dolejš Jakub Dolejš Jakub Dolejš (Gar.)	Z	2	1P+1C	L,Z	PV
134YTSK	Thin-Walled and Composite Structures Michal Jandera Michal Jandera (Gar.)	Z	2	1P+1C	L	PV
135YING	Engineering geology Svatoslav Chamra, Milan Aue Kate ina Ková ová Milan Aue (Gar.)	Z	2	1P+1C	L	PV
135YPZU	Underground structures in urban areas Jan Pruška Jan Pruška (Gar.)	Z	2	1P+1C	Z	PV
135YVZK	Computer analysis in foundation engineering Jan Salák, Jan Pruška, Daniel Turanský, Jan Salášek Daniel Jirásko Jan Salášek (Gar.)	Z	2	1P+1C	Z	PV

Characteristics of the courses of this group of Study Plan: Code=BC202007_2 Name=Stavební inženýrství, specializace Pozemní stavby, povinn volitelné p edm tv

stavby, povinn vo	olitelné p edm ty						
101YAST	Applied Statistics	Z	2				
Basic notions and termi	nology, random variable, descriptive and inferential statistics. Discrete and continuous random variables, normal distribution,	log-normal distrib	oution. Statistical				
methods, theory of estir	nation, hypotheses testing, simple linear regression.						
102YMES	Measurement in Civil Engineering	Z	2				
As part of the course, s	As part of the course, students will learn about modern measuring methods in the construction industry. In practical laboratory tasks, groups will try to work with modern measuring						
devices and apparatus	to determine elastic and deformation properties of building materials and structures, measurement and spectral analysis of s	ound, noise and	vibrations,				
measurement of optical	properties of materials, transmittance and reflectance of materials, determination of photometric and spectral characteristics	of light sources,	measurement of				
thermophysical parame	ters of building materials						
122YBPP	Construction Safety Code	Z	2				
Healh and safety laws.	Norks in the trenches. Works at the height. Coordinator H&S when preparing and/or building constructions on a building	site. Fire safety.	ı				
123YTVM	Production technology of building materials	Z	2				
Basic building materials	different types of the production technology, energy consumption of the production, storage and transport, safety at work.	•	'				
124YBM1	Building Information Modeling (BIM) for Building Structures 1	Z	4				
Building information mo	del (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling	. The subject use	s the Autodesk				
Revit software base. Bu	ilding information model in the life cycle of the building - information required during the design part, during construction and	during use of the	finished building.				
124YKSD	Complex Structural Detail	Z	2				
The aim of the course is	s to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level	of knowledge abo	ut structural				
problems in buildings. T	he content of the course is focused on the complex solution of construction details, following all legislative requirements and	taking into accou	nt the maximum				
efficiency and durability	of the chosen solution.						
124YNAK	Numerical Analysis of Building Structures	Z	2				
The subject is focused of	on the practical modeling of various structural-static problems in particular. We will also focus on the problems of optimizing s	tructures. The goa	al is to learn how				
to define a problem, cor	overt it into a mathematical model, design a solution algorithm and write this algorithm in Excel or VBA. You'll learn how to us	e Excel effectively	, and write				

applications that you can use years from now. You will also definitely learn something about numerical modeling. I have been using Excel for work for 25 years and I would like to teach you how to use it effectively not only in building analysis models. Do not expect great science, but rather a practical approach to the problems you will encounter in practice.

124YSPB (Curtain Walls	Z	2
	design of roof coverings for sloping and steep roofs. The design of roof coverings in terms of requirements: building physical		
requirements and given b	chemical, lifetime and recycling. Principles of design of additional elements and details of roof coverings of flat, sloping and	steep roofs base	d on the stated
	Modern Methods of Optimization	Z	2
	nodern Methods of Optimization overview of numerical optimization methods applicable not only in the Civil Engineering area. The emphasis is put more on the	_	_
	ations in MATLAB environment are also conducted during exercises.		
132YNMI I	Numerical Methods in Engineering Practice	Z	2
	basic numerical methods for solving large sets of algebraic equations and boundary or initial value problems. In the contex	t of differential equ	uations, the finite
difference and finite elem	ent methods are explained from the viewpoints of an engineering scientist and a mathematician.		
l l	Programming in C++ for Engineering Calculations 1	Z	2
	ramming, non-objective primer of the language, basic algorithms used in the engineering computing.		
	Failures and Rehabilitation of Concrete Structures	Z	2
	the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial mea-		
_	es are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of b discussed. The course appropriately combines theoretical approaches with common practice.	ending moment a	iu sriear, ariu
	Technology of Concrete II	Z	2
	poncrete components and their influence on the concrete properties are presented. Furthermore, destructive and non-destru	I	
	elements are introduced. The last chapters of the lectures are devoted to the real applications of concrete structures. The the	_	
by exercises, where the s	students have the unique opportunity to try out the acquired knowledge in laboratory, including special tests.		
134YMOD I	Numerical Modeling of Steel and Timber Structures	Z	2
	nts with the basis of modelling od steel and timber structures. Students manage basis of simulation during the creation of s	tatic model of the	structure as well
	d check with respect to European design codes.	7	
	Fire Resistance of Steel and Timber Structures	Z	2
	ion to fire safety and fire resistance of steel, steel-concrete composite and timber structural elements.	Z	2
	Fire and Explosion 1 explosion and burning. Description, analysis and modeling of the forementioned processes. Temperature distribution field	_	_
	distribution field and shock waves, their origination and propagation. Dynamic effects of the shock waves. Tension and stres		_
	sure waves and high temperatures. Fire extinguishing.	.	
122YMKS	Construction Quality Controlling	Z	2
The course is divided into	two parts: quality control of the project documentation in terms of compliance with the implementing regulations and qual	ty control of the w	orks carried out.
	is the quality control during the construction process with a focus on the quality of project documentation, monitoring of cruc	-	
	gement of changes during implementation. Construction quality assurance tools. Technical standards and regulations. Con-		ontrol. Material
	rance. Listing of the most common errors at the level of project documentation and during the implementation of the constru		2
	Chemistry in Civil Engineering or students interested in the natural sciences, combining theoretical and practical skills in building chemistry, without chem	Z	2 equations It
_	of students interested in the natural sciences, combining theoretical and practical skills in building crientstry, without crient to the composition, preparation, and use of basic building materials. It extends the knowledge acquired in Chemistry.	icai iorriulas ariu	equations. It
	Numerical Analysis of Transport Processes	Z	2
	mal conditions in civil engineering problems. Basic description of porous space. Description of transport processes (heat a	_	_
Classification of mathema	atical models (diffusion-, convection- and mixed type). Computational models for solution of transport problems in porous s	pace – basic desc	ription and
	o structure and composition of computer codes WUFI and HEMOT, solution of simple transport problems (heat and moistu	re). Initial and bou	ndary conditions
<u> </u>	and impact to analysis of transport problems.		
	Timber Buildings	Z	2
	emplex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are eavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber str		
\ '	ext of low energy and passive buildings.	uctures are preser	nied in Structural
9.7	Lightweight Building Envelope	Z	2
	ie basics needed for the design of light outer skins, glazed roofs and skylights, it is focused on material characteristics and	I	
=	ication. Students are introduced to the requirements for these constructions, the design principles and design principles of	-	
concrete example of a de	esign solution and a suitable material base Students are shown the possibilities of using glass in architecture, including rea	lized constructions	3.
124YPFS I	Precast concrete structures	Z	2
	e of precast conrete panels, of which approx. 82 thousand were built in the period 1960-1995 do not meet the required exte		
	n many cases require the implementation of regeneration and modernization interventions enabling their full use. The cours In and modernization of precast houses, modernization of apartments in precast houses, on the issue of freeing parterres of p		
	tc. Renovation, modernization, or regenerations require the removal of functionally inadequate completion structures, technically		•
	anding interventions in supporting structures. As part of the construction of communication networks, modernization of urbai		
in some cases to carry ou	ut partial or complete demolition of a precast panel building. As part of the regeneration of precast panel housing estates, a	n extension is als	o carried out, or
	uses. The implementation of the mentioned plans requires a survey and diagnostics of supporting and peripheral structures	s, joints of parts a	nd an evaluation
	l condition and an assessment of the residual life of precast panel structures and buildings.		
· ·	Reconstruction of Historical Building Structures	Z	2
	cond half of the 19th century by 1960, more than 250 thousand of two- to five-story brick apartment (mainly rental) houses i Republic. Brick buildings from this period were built according to regulations, building codes and laws from the turn of the 19		
	o not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to t		•
	on and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment en	=	=
	ssue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and		•
	nd materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and the	•	
	f improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an in	tegral part of the r	nodernization of
these buildings.	HV/AC and carvicae decian	Z	2
	HVAC and services design signing of sanitary systems, heating and ventilation. Design of the heat source, heat emitters, potable water demand, amo	_	ir design of
air-handling unit and desi		ant or ventuation a	ii, acaigii Ul
	Building services systems CAD, modelling and simulation	Z	2
	mputer aided modelling and design of building services systems.	_	. –

126YVSF			_
	Small Business Management	Z	2
	into lectures 1 hour per week and exercises 1 hour per week. Lectures take place according to the course outline listed below.		
•	n for a selected business activity according to the specified syllabus. They draw up a plan for a start-up business. Entrepreneu	•	
	and a legal entity, e.g. Ltd. The financial plan is prepared in Excel, and the credit condition is the presentation of the business p	olan in power poir	it in front of the
auditorium.			
132YPM1	Computer Analysis of Structures 1	Z	2
Static model of a struct	ture. Computer codes RFEM-Dlubal, SCIA Engineer.		
132YSHK	Statics and Reconstruction of Historical Structures	Z	2
Short overview of hist	orical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in foun	dation conditions	included. Most
requent causes of fail	ure of panel buildings. Visit to the historical part of Prague Castle.		
133YBKC	Concrete and Masonry Structures 1	Z	2
	d computer programs for structural modeling. Fundamentals of the finite element method. Basic types of elements for modeling		
	odel. Practical procedures for the design and assessment of reinforced concrete structures using software tools. Principles and	=	-
erification of results.			
133YBSV	Concretes with Special Properties	7	2
	e, fibre concrete, self-compacting concrete, shotcrete and fibreconcretes, lightweight concrete, heavyweight concrete; their properties	_	_
New findings in technology		critics and applica	nons in practice
133YMVB		Z	2
	Concrete and Masonry Structures 1 ject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Intro		_
	,		•
	ructures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program	is for the design of	or concrete
tructures.	Tring day and a second a second and a second a second a second and a second and a second a second a second a		
33YPNB	Fire desgn og concrete and mnsory structures	Z	2
	on fire resistance of concrete and masonry structures: concrete and concrete structures exposed to fire, design rules, thermal	analysis, loads, d	esign principles
	rial properties of concrete and steel reinforcement at high temperatures, fire design of masonry structures.		
I34YDUV	Timber and Sustainable Construction	Z	2
	able use of wood in construction with respect to previous courses. Theoretical methods of structural design and design of struc	ctures composed	from different
naterials. Principles o	f strengthening and repairing of timber structures.		
134YNKS	Glass Structures	Z	2
he course is intendin	g to introduce the students the field of structural applications of glass and to give them some specific skills for calculation and det		
no ocaroo io interiam	to introduce the students the held of structural applications of glass and to give them some specific skills for calculation and det	ailing of for basic	glass structures
	, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs at	-	_
anes beams and fins		nd floors. On this	purpose the
panes beams and fins properties of glass as	, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs at	nd floors. On this ss/glazing applicate	purpose the ions. Design
panes beams and fins properties of glass as details and connecting	, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs a structural material will be presented in comparison with other basic building materials, together with selected examples of glas	nd floors. On this ss/glazing applicate	purpose the ions. Design
nanes beams and fins properties of glass as letails and connecting or better understanding	, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs a structural material will be presented in comparison with other basic building materials, together with selected examples of glas technology, relevant technical regulations, specification and current methods applied in design will be described. Worked exam	nd floors. On this ss/glazing applicate	purpose the ions. Design
nanes beams and fins properties of glass as letails and connecting or better understanding 34YPDK	, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs an structural material will be presented in comparison with other basic building materials, together with selected examples of glast technology, relevant technical regulations, specification and current methods applied in design will be described. Worked example, and design project will help to fix specific knowledge.	nd floors. On this s/glazing applica nples will accomp	purpose the ions. Design any the lecture
nanes beams and fins properties of glass as letails and connecting or better understanding 34YPDK Subject provides basio	, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs an structural material will be presented in comparison with other basic building materials, together with selected examples of glast technology, relevant technical regulations, specification and current methods applied in design will be described. Worked example, and design project will help to fix specific knowledge. Additional Timber and Metal Structures	nd floors. On this s/glazing applica nples will accomp	purpose the ions. Design any the lecture
nanes beams and fins properties of glass as letails and connecting or better understanding 34YPDK Subject provides basing with European codes	columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs as structural material will be presented in comparison with other basic building materials, together with selected examples of glass technology, relevant technical regulations, specification and current methods applied in design will be described. Worked example, and design project will help to fix specific knowledge. Additional Timber and Metal Structures Information regarding to design and application of supporting, working and industrial scaffolding systems. It is focused especiand on modelling of structures.	nd floors. On this s/glazing applica nples will accomp	purpose the ions. Design any the lecture
anes beams and fins roperties of glass as letails and connecting or better understanding 34YPDK Subject provides basing with European codes 34YTSK	columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs as structural material will be presented in comparison with other basic building materials, together with selected examples of glass technology, relevant technical regulations, specification and current methods applied in design will be described. Worked example, and design project will help to fix specific knowledge. Additional Timber and Metal Structures Information regarding to design and application of supporting, working and industrial scaffolding systems. It is focused especiand on modelling of structures. Thin-Walled and Composite Structures	nd floors. On this as/glazing application application in the series will accomp also on design rule also o	purpose the ions. Design any the lecture 2 is in accordance
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Name of the block: Povinná t lesná 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 t lesná 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 t lesná výchova

TV1	Physical Education				Z	0	

Physical Education Z 0

Name of the block: Jazyky

Minimal number of credits of the block: 3

The role of the block: J

TV2

Code of the group: BF20190201_J

Name of the group: Povinn 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, V ra ermáková, Svatava Boboková Bartíková, Elena Da eva, Jarmila Fu íková, Michaela Németh, 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=Povinn 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

Code of the group: BF20190302_J

Name of the group: Povinn 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, V ra ermáková, Svatava Boboková Bartíková, Elena Da eva, Jarmila Fu íková, Michaela Németh, Svatava Boboková Bartíková Sandra Giormani (Gar.)	Z,ZK	2	2C		J
104YC2N	German 2 Svatava Boboková Bartíková Sandra Giormani Svatava Boboková Bartíková	Z,ZK	2	2C		J

Characteristics of the courses of this group of Study Plan: Code=BF20190302_J Name=Povinn 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

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

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

Minimal number of credits of the block: 18

The role of the block: S1

Code of the group: BC202007 1

Name of the group: Stavební inženýrství, specializace Pozemní stavby, projekt

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
123P02C	Structural design project 2C Eva Vejmelková, Vojt ch Pommer, Zbyšek Pavlík, Martin Böhm Alena Vimmrová	KZ	6	4C	Z	S1
124P02C	Structural design project 2C Lenka Hanzalová, B la Stib rková, Ji í Pazderka, Šárka Šilarová, Eva Burgetová, Tomáš ejka Ji í Pazderka Ji í Pazderka (Gar.)	KZ	6	4C	Z	S1
125P02C	Structural design project 2C Stanislav Frolík Stanislav Frolík (Gar.)	KZ	6	4C	Z	S1
133P02C	Structural design project 2C Jitka Vašková	KZ	6	4C	Z	S1
134P02C	Structural design project 2C Michal Jandera Michal Jandera (Gar.)	KZ	6	4C	Z	S1
135P02C	Structural design project 2C Jan Salák, Ji í Pazderka, Jan Kos. Jan Pruška Jan Pruška	KZ	6	4C	Z	S1

Characteristics of the courses of this group of Study Plan: Code=BC202007_1 Name=Stavební inženýrství, specializace Pozemní stavby, projekt

stavby, projekt			
123P02C	Structural design project 2C	KZ	6
In accordance with the	project proposal.	'	<u> </u>
124P02C	Structural design project 2C	KZ	6
Converting an archited	tural study of medium-scale building into a detailed design of a building structure based on static analysis, interaction of load-	bearing and non-	load-bearing
elements and building	physics. Focus on complex approach to practical design, analysis and optimalization of a building structures. Design of varian	ts of the load-bea	ring system,
preliminary static anal	ysis (calculation of load-bearing elements - slabs, columns, walls, etc), calculation of foundations, design of structures on the l	building envelope	with respect to
thermal protection of b	uildings, building physics, fire protection of buildings and protection against water and soil moisture. Elaboration of detailed draw	ings including floo	or plans, sections
and details.			
125P02C	Structural design project 2C	KZ	6
Independent project in	the field of building services systems. Students choose out of the topics on offer and work on the text, calculations and graph	ical form of the pr	oject.
133P02C	Structural design project 2C	KZ	6
Elaboration of the stru	ctural part of the project documentation for the given structure (part of the structure). The design of the selected variant of the	structure with reg	ard to the
requirements of other	professions. Structural analysis and drawing documentation to the extent specified during consultations. The Department of A	rchitectural Engin	eering (K124)
and Geotechnics (K13	5) collaborate in teaching in the course.		
134P02C	Structural design project 2C	KZ	6
Design of steel / timbe	r load bearing building structure according to external requirements in relation to interaction of load bearing and final completic	on structural elem	ents. The project
is assigned by the sen	ninar leader.		
135P02C	Structural design project 2C	KZ	6
Design, static calculat	on and drawing documentation of the building substructure	•	

Code of the group: BC202008 1

Name of the group: Stavební inženýrství, specializace Pozemní stavby, bakalá ská 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
102BAPC	Bachelor Thesis Václav Nežerka Ji í Novák	Z	12	10C	L,Z	S1
123BAPC	Bachelor Thesis Milena Pavlíková, Martina Záleská, Eva Vejmelková, Alena Vimmrová, Zbyšek Pavlík Jan Pruška Jan Pruška (Gar.)	Z	12	10C	L,Z	S1
124BAPC	Bachelor Thesis Petr Hájek, Jan R ži ka, Malila Noori, Lenka Hanzalová, B la Stib rková, Ji í Nová ek, Jaroslav Vychytil, Ji í Pazderka, Šárka Šilarová, Jan Pruška	Z	12	10C	L,Z	S1

125BAPC	Bachelor Thesis Stanislav Frolík Stanislav Frolík (Gar.)	Z	12	10C	L,Z	S1
132BAPC	Bachelor Thesis Tomáš Koudelka, Aleš Jíra, Michal Šejnoha, Martin Došká, Anna Ku erová Aleš Jíra	Z	12	10C	L,Z	S1
133BAPC	Bachelor Thesis	Z	12	10C	L,Z	S1
134BAPC	Bachelor Thesis Ji í Mareš Michal Jandera Michal Jandera (Gar.)	Z	12	10C	L,Z	S1
135BAPC	Bachelor Thesis Jan Salák	Z	12	10C	L,Z	S1

Characteristics of the courses of this group of Study Plan: Code=BC202008_1 Name=Stavební inženýrství, specializace Pozemní stavby, bakalá ská práce

BAPC Bachelor Thesis BAPC Bachelor's studies. The supervisor of the bachelor's thesis can designate additional consultants to the student. BAPC Bachelor Thesis	12 ms. The thesis can
BAPC Bachelor Thesis BAPC Bachelor Thesis BAPC Bachelor Thesis BAPC Bachelor Thesis Stopics 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 during bachelor's studies. The supervisor of the bachelor's thesis can designate additional consultants to the student. BAPC Bachelor Thesis Bachelor Thesis 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 System or theoretical aspects or to focus on practical application on an object within building services systems. Students consult the supervisor and specialists from other thesis is presented in front of the commission.	12 lent's knowledge 12 ms. The thesis can
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thesis is presented in front of the commission.	er departments.
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RADC Rachalor Thesis 7	
DALO DAGIEGI HESIS	12
assignment of the final thesis is always individual based on the agreement of the teacher and the student. The vast majority of assignments are connected with	the scientific and
arch activities of the respective employee. The output of the solution may be a brief research study of the given problem, experimental activity, programming and	d others according
e respective assignment.	
BAPC Bachelor Thesis Z	12
chelor thesis is the qualification thesis of a bachelor's degree. It can take the form of processing the structural part of the building design project or research stu	dy on the topic of
gning and application of a structural element with a variant comparative analysis or parametric study or performing and analysing experiments, etc.	
BAPC Bachelor Thesis Z	12
is 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.	1
BAPC Bachelor Thesis Z	12
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	he bachelor thesis
lated to selected subjects of the study plan. For students of C spec.	

List of courses of this pass:

Code	Name of the course	Completion	Credits					
100ODPR	Industrial Training (3 weeks)	Z	0					
Professional practic	ce is an important part of academic education in undergraduate degree programmes. The student will gain a basic understanding	g of duties and prof	essional					
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 proje	ctive methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. Sir	nple problems in ax	conometry.					
Basics of lighting of s	solids and groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical su	ırfaces. Quadrics. S	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/							
101YAST	Applied Statistics	Z	2					
Basic notions and term	inology, random variable, descriptive and inferential statistics. Discrete and continuous random variables, normal distribution, lo	g-normal distributio	n. Statistica					
	methods, theory of estimation, hypotheses testing, simple linear regression.							
102BAPC	Bachelor Thesis	Z	12					
	in accordance with the thesis proposal							
102FYI	Physics	Z,ZK	4					
This is a basic physic	s course for students of the study programmes Civil Engineering; Management and Economics in Construction. The course foc	uses on mechanics	and basic					
hermodynamics. The fo	ollowing areas are covered in the course: Mechanics of material points (particles) and deformable bodies. Discrete and continuo	ous model of matter	. Kinematic					
and dynamics of a	material point (particle). Mechanical force fields. Gravitational field. Mechanical vibrations. Material deformation. Elastic waves. A	coustics. Hydrome	chanics.					

Fundamentals of thermodynamics. Heat transfer.

102POV1	Fire and Explosion 1	Z	2
	of a fire, explosion and burning. Description, analysis and modeling of the forementioned processes. Temperature distribution field and Dessure distribution field and shock waves, their origination and propagation. Dynamic effects of the shock waves. Tension and stress i		•
constructions. 1 1	materials caused by pressure waves and high temperatures. Fire extinguishing.	ir ballallig construc	ctions and
102YMES	Measurement in Civil Engineering	Z	2
-	rse, students will learn about modern measuring methods in the construction industry. In practical laboratory tasks, groups will try to		-
	paratus to determine elastic and deformation properties of building materials and structures, measurement and spectral analysis of s stical properties of materials, transmittance and reflectance of materials, determination of photometric and spectral characteristics of		
reasurement or op	thermophysical parameters of building materials	ignt sources, mea	Surement of
104YC2A	English 2	Z,ZK	2
-	code: 104YC2A Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit and exam The aim of the compulsory	-	
_	exis and grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall focu ical style) and communicative competence within the construction industry. The course also seeks to teach students to read technica	•	
	written discourse and to express themselves in writing on issues in their field of study. The end of course requirements are a credit a		
	Horká Hana, Giormani Sandra, Martincová Petra, Nivenová Renata : Professional English for Civil Engineering (Units 6 – 1		
104YC2N	German 2	Z,ZK	2
	urse - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction indust the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Liter	-	-
exis, and learning	Deutsch im Bauwesen	ature. A.Hariakova	, o.Diessei.
104YCA1	English 1	Z	1
-	ode: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English cours		_
_	nmar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on profes communicative competence within the construction industry. The course also seeks to teach students to read technical literature and		
	nd to express themselves in writing on issues in their field of study. The end of course requirements are a credit. Literature: Horká Hana	•	
	Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5)		
104YCN1	German 1	Z	1
	urse - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction indust the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Liter	-	-
ionio, and icanning	Deutsch im Bauwesen	ataro. / t.i iailakuva	, 0.0100001.
105SVAI	Social Sciences and Architecture	Z,ZK	5
-	nes the teaching of several social sciences: economics and economic policies, political science, political philosophy and law, with an		-
	ne section devoted to economics, the basic categories of the market economy, the foundations of economic policy and the basic conce poretical interpretation is effectively combined with practical examples from economic reality. In the lectures devoted to law, a brief ov	•	
=	sinstitutions is supplemented by a well-founded interpretation of the constitution, human rights and the labor code. Great attention is		-
the Civil Code and	d the Construction Act. In the political science lectures, the political development in ancient times is described in an engaging way, the	e theory of the sta	te, political
systems, democra	acy and totalitarianism are clarified. The series of lectures on the history of architecture and construction provides a comprehensive in	nterpretation of the	e history of
122TSC	architecture from antiquity to postmodernism and deconstruction. Construction Technology C	Z,ZK	6
122YBPP	Construction Safety Code	Z,Z.\\ Z	2
	safety laws. Works in the trenches. Works at the height. Coordinator H&S when preparing and/or building constructions on a bu	ilding site. Fire saf	ety.
122YMKS	Construction Quality Controlling	Z	2
	ed into two parts: quality control of the project documentation in terms of compliance with the implementing regulations and quality or bject is the quality control during the construction process with a focus on the quality of project documentation, monitoring of crucial p		
=	, management of changes during implementation. Construction quality assurance tools. Technical standards and regulations. Constru		
and prod	uct quality assurance. Listing of the most common errors at the level of project documentation and during the implementation of the common errors at the level of project documentation and during the implementation of the	onstruction deliver	ry.
123BAPC	Bachelor Thesis	Z	12
4000115	In accordance with the thesis proposal	7.71	1 4
123CHE	Chemistry heral chemistry - chemical bond, compounds, reactions, equilibrium. Chemistry of environment - water, atmosphere, pedosphere. Ch	Z,ZK	materials -
=	glass, ceramic, metals, natural polymers, wood, synthetic polymers on C and Si basis. Introduction to degradation of building materia	-	
123MAI	Materials Engineering	Z,ZK	5
The course provide	es information on the building materials characterization and principles of designing and developing new types of materials having d	rected properties	for specific
122D02C	building applications and structures. Structural design project 2C	KZ	6
123P02C	Structural design project 2C In accordance with the project proposal.	r\∠	6
123SH01	Building Materials	Z,ZK	5
	- basis course. Clasification of the materials. Structure of materials. Main properties of materials. Application of materials in building	•	I
400\/0110	material testing.		
123YCHS This course is de	Chemistry in Civil Engineering signed for students interested in the natural sciences, combining theoretical and practical skills in building chemistry, without chemic	Z al formulas and eq	2 Juations It
. The sourse is de	touches on issues related to the composition, preparation, and use of basic building materials. It extends the knowledge acquired in	-	padiono. It
123YNTP	Numerical Analysis of Transport Processes	Z	2
	grothermal conditions in civil engineering problems. Basic description of porous space. Description of transport processes (heat and		
	mathematical models (diffusion-, convection- and mixed type). Computational models for solution of transport problems in porous sp ction to structure and composition of computer codes WUFI and HEMOT, solution of simple transport problems (heat and moisture). I		
.pp.noadon. IIII.Ouu	 principles, significance and impact to analysis of transport problems. 	ai ana boundai	, 551101110115
123YTVM	Production technology of building materials	Z	2
В	asic building materials, different types of the production technology, energy consumption of the production, storage and transport, sa		
124BAPC	Bachelor Thesis	Ζ	12
		-	I
The topics of bach	relor's theses are based on the needs of practice or the scientific research activities of the department, scope and difficulty correspor acquired during bachelor's studies. The supervisor of the bachelor's thesis can designate additional consultants to the stude	d to the student's	I

124KK01 Non-Load Bearing Construction Z,ZK 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. 124P01C ΚZ Structural design project 1 6 Converting an architectural study of a smaller or medium-sized building for housing, administration, education, culture or sports into a detailed design of a building structure based on static analysis, interaction of load-bearing and non-load-bearing elements and building physics. Focus on complex approach to practical design, analysis and optimalization of a building structures. Design of variants of the load-bearing system, preliminary static analysis (calculation of load-bearing elements - slabs, columns, walls, etc), calculation of foundations, design of structures on the building envelope with respect to thermal protection of buildings, building physics, fire protection of buildings and protection against water and soil moisture. Elaboration of detailed drawings including floor plans, sections and details. 124P02C Structural design project 2C Converting an architectural study of medium-scale building into a detailed design of a building structure based on static analysis, interaction of load-bearing and non-load-bearing elements and building physics. Focus on complex approach to practical design, analysis and optimalization of a building structures. Design of variants of the load-bearing system, preliminary static analysis (calculation of load-bearing elements - slabs, columns, walls, etc), calculation of foundations, design of structures on the building envelope with respect to thermal protection of buildings, building physics, fire protection of buildings and protection against water and soil moisture. Elaboration of detailed drawings including floor plans, sections and details. 124PBZN Fire Protection and Healthy Buildings Fire Safety Analysis of fire - course of fire, burning process, fire loading; legislation and European Standards; fire safety solutions - fire project, requirement for fire resistance of buildings, escape ways, distance separation, fire-fighting equipment; fire behaviour of the most used materials (wood, steel, concrete, plastics); protection of building materials against fire (brickwork, concreting, plasters and sprays, coatings, impregnates of wood, encasements, glued facings of mineral fibres); sandwiches from fire point of view; influence of claddings on the course fire; passive protection of building structures - fire walls, fire glazed structures, fire ceiling, draft stops and seals; repressive measures - electric fire signalling, stationary extinguishing devices, smoke extract, hydrant systems. Healthy Buildings Constituents of indoor microclimate, hazardous substances (VOCs, HFRs, heavy metals, moulds, microbes, aerosols, radionuclides, etc.), their sources and health effects. Influence of building structures and materials on quality of indoor microclimate. Design of buildings with respect to optimisation of indoor microclimate. 124PDRC Failures, Deteriorations, Renovations 7.7K 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. **Building Structures 3C** 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. **Building Structures 1I** 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 **Building Structures 2I** 124PSI2 Z,ZK 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. 124STAO **Building Acoustics and Daylighting** 3 **124STTT** Hygrothermal Performance of Buildings 7K 3 Building Information Modeling (BIM) for Building Structures 1 124YBM1 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. **Timber Buildings** 2 The aim is to present a complex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are focused on following technologies of timber structures: (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structures are presented in structural and building physics context of low energy and passive buildings. Complex Structural Detail The aim of the course is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of knowledge about structural problems in buildings. The content of the course is focused on the complex solution of construction details, following all legislative requirements and taking into account the maximum efficiency and durability of the chosen solution. Lightweight Building Envelope 124YLOP The subject introduces the basics needed for the design of light outer skins, glazed roofs and skylights, it is focused on material characteristics and optimal selection of glazing units, their production and application. Students are introduced to the requirements for these constructions, the design principles and design principles of these constructions, including a concrete example of a design solution and a suitable material base Students are shown the possibilities of using glass in architecture, including realized constructions. 124YNAK Numerical Analysis of Building Structures The subject is focused on the practical modeling of various structural-static problems in particular. We will also focus on the problems of optimizing structures. The goal is to learn how to define a problem, convert it into a mathematical model, design a solution algorithm and write this algorithm in Excel or VBA. You'll learn how to use Excel effectively and write applications that you can use years from now. You will also definitely learn something about numerical modeling. I have been using Excel for work for 25 years and I would like to teach you how to use it effectively not only in building analysis models. Do not expect great science, but rather a practical approach to the problems you will encounter in practice. Precast concrete structures Residential houses made of precast conrete panels, of which approx. 82 thousand were built in the period 1960-1995 do not meet the required extent of the current dynamically developing society and in many cases require the implementation of regeneration and modernization interventions enabling their full use. The course is focused on the current issues of renewal, reconstruction and modernization of precast houses, modernization of apartments in precast houses, on the issue of freeing parterres of precast houses for services, shops, offices, fitness centers, etc. Renovation, modernization, or regenerations require the removal of functionally inadequate completion structures, technical equipment, installations and in some cases, even demanding interventions in supporting structures. As part of the construction of communication networks, modernization of urban development, etc., it is necessary in some cases to carry out partial or complete demolition of a precast panel building. As part of the regeneration of precast panel housing estates, an extension is also carried out, or

completion of precast houses. The implementation of the mentioned plans requires a survey and diagnostics of supporting and peripheral structures, joints of parts and an evaluation of the structural-technical condition and an assessment of the residual life of precast panel structures and buildings. 124YRHS Reconstruction of Historical Building Structures 7 2 In the period from the second half of the 19th century by 1960, more than 250 thousand of two- to five-story brick apartment (mainly rental) houses in traditional brick technology were constructed in the Czech Republic. Brick buildings from this period were built according to regulations, building codes and laws from the turn of the 19th and 20th centuries. Multi-storey brick tenement houses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the required extent, and in many cases require regeneration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enabling their further use. The course is focused on the current issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials, the issue of degradation and aging of structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their parts. Furthermore, the course is focused on the issue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integral part of the modernization of these buildings. 124YSPB **Curtain Walls** 2 Design principles for the design of roof coverings for sloping and steep roofs. The design of roof coverings in terms of requirements: building physical, waterproofing, operational, static, fire, acoustic, biological, chemical, lifetime and recycling. Principles of design of additional elements and details of roof coverings of flat, sloping and steep roofs based on the stated requirements and given boundary conditions. 125BAPC Ζ 12 **Bachelor Thesis** 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. 125P02C ΚZ Structural design project 2C 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. 5 Building services systems 1 Basic course in building services systems - water supply, drainage, gas supply and heating systems. Building Services Systems 2 125TZ02 Z,ZK 5 This subject includes an introduction to ventilation and air conditioning in buildings and solutions for electric instalations and artificial lighting 125YNST HVAC and services design 7 2 Basic principles of the designing of sanitary systems, heating and ventilation. Design of the heat source, heat emitters, potable water demand, amount of ventilation air, design of air-handling unit and design of indoor systems. 125YPMT Building services systems CAD, modelling and simulation Ζ 2 Introductory course in computer aided modelling and design of building services systems. Ζ 126BIM1 BIM 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** Overview of selected concepts. Methods to support project management. Legal standards, SN and ISO standards. The essential aspects of Project Management. Construction as a project product. Objectives, strategies, phases and surroundings of the construction project. Project manager role. Purchases and contracts in the project. Quality management, risk management. Financial management and project evaluation. Feasibility study. Cost and resource management. Change procedures. The Act on Spatial Planning and Building Regulations, the Act on the Awarding of Public Contracts, and the definition of terms, Business obligation relationships, the conclusion of contracts, their form, and use of general business conditions. Business public competition, its influence on the obligations of participants. Securing the commitment - contractual penalty, guarantee. The main contract types in construction - are contract for the conclusion of a future contract, purchase contract, contract for work, and content of the contract. 126YVSF **Small Business Management** 7 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 Analysis of Structures 132ANKC Z.ZK 5 Analyses of statically determinate and statically/deformable indeterminate structures, concerning live loads solution, stresses in thin-wall beams, analysis of walls and plates, matrix formulation of deformation method, principles of FEM, models for a beam on elastic foundation and stability of structures. 132BAPC **Bachelor Thesis** 12 The assignment of the final thesis is always individual based on the agreement of the teacher and the student. The vast majority of assignments are connected with the scientific and research activities of the respective employee. The output of the solution may be a brief research study of the given problem, experimental activity, programming and others according to the respective assignment. 132PRPE Z,ZK Strength of Materials 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 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 Z.ZK Structural Mechanics 2 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 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.

132YMMO	Modern Methods of Optimization	Z	2
The course is aimed	d at an overview of numerical optimization methods applicable not only in the Civil Engineering area. The emphasis is put more on the in however, practical applications in MATLAB environment are also conducted during exercises.	troduction of drivin	g principles,
132YNMI	Numerical Methods in Engineering Practice	Z	2
	sed on basic numerical methods for solving large sets of algebraic equations and boundary or initial value problems. In the context of difference and finite element methods are explained from the viewpoints of an engineering scientist and a mathematician.	differential equation	
132YPM1	Computer Analysis of Structures 1 Static model of a structure. Computer codes RFEM-Dlubal, SCIA Engineer.	Z	2
132YPV1	Programming in C++ for Engineering Calculations 1 Introduction to C++ programming, non-objective primer of the language, basic algorithms used in the engineering computing	Z	2
132YSHK	Statics and Reconstruction of Historical Structures	z	2
	historical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in founda frequent causes of failure of panel buildings. Visit to the historical part of Prague Castle.	_	
133BAPC	Bachelor Thesis	Z	12
A bachelor thesis is	s the qualification thesis of a bachelor's degree. It can take the form of processing the structural part of the building design project or igning and application of a structural element with a variant comparative analysis or parametric study or performing and analysing ex	research study on	
133BK01	Concrete and Masonry Structures 1	Z,ZK	6
	Concrete and Masonry Structures 1	'	-
	addition and generalization of procedures for verifying the load-bearing capacity of reinforced concrete structural elements for cases of	_	
	g and normal force, designing elements stressed by torsion, punching shear, assessment of slender compressed elements. Design p	•	
oi biaxiai beliullig	individual types of structures, including the choice of suitable calculation models and calculation methods and reinforcement prir		Jusseu IOI
400DI/00	<u> </u>		-
133BK02	Concrete and Masonry Structures 2	Z,ZK	7
	on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.	•	
•	bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit st		
•	crack width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-stress	٠,	٠, ١
	Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introdu		_
133NNKB	Fundamentals of Structural Design - Concrete	Z,ZK	4
	e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, including the control of the co	_	
	perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete		١ .
	oncrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabi ne course follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Mater	=	
133P02C	Structural design project 2C	KZ	6
	ne structural part of the project documentation for the given structure (part of the structure). The design of the selected variant of the	-	
requirements of or	ther professions. Structural analysis and drawing documentation to the extent specified during consultations. The Department of Arcl and Geotechnics (K135) collaborate in teaching in the course.	nitecturai Engineer	ing (K124)
	and Geolechnics (K133) collaborate in teaching in the course.		
400\/DI/O		7	
133YBKC	Concrete and Masonry Structures 1	Z of structures Drie	2
Introduction to se	Concrete and Masonry Structures 1 elected computer programs for structural modeling. Fundamentals of the finite element method. Basic types of elements for modeling	of structures. Prin	ciples for
Introduction to se	Concrete and Masonry Structures 1 elected computer programs for structural modeling. Fundamentals of the finite element method. Basic types of elements for modeling le model. Practical procedures for the design and assessment of reinforced concrete structures using software tools. Principles and response to the design and assessment of the finite element method.	of structures. Prin	ciples for
Introduction to se choosing a suitabl	Concrete and Masonry Structures 1 elected computer programs for structural modeling. Fundamentals of the finite element method. Basic types of elements for modeling le model. Practical procedures for the design and assessment of reinforced concrete structures using software tools. Principles and representation of results. Practical examples.	of structures. Prin	ciples for etation and
Introduction to se choosing a suitable 133YBSV	Concrete and Masonry Structures 1 elected computer programs for structural modeling. Fundamentals of the finite element method. Basic types of elements for modeling le model. Practical procedures for the design and assessment of reinforced concrete structures using software tools. Principles and representation of results. Practical examples. Concretes with Special Properties	of structures. Prin nethods of interpre Z	etation and
Introduction to se choosing a suitable 133YBSV	Concrete and Masonry Structures 1 elected computer programs for structural modeling. Fundamentals of the finite element method. Basic types of elements for modeling le model. Practical procedures for the design and assessment of reinforced concrete structures using software tools. Principles and reverification of results. Practical examples. Concretes with Special Properties rete, fibre concrete, self-compacting concrete, shotcrete and fibreconcretes, lightweight concrete, heavyweight concrete; their properties	of structures. Prin nethods of interpre Z	etation and
Introduction to section to section to section a suitable 133YBSV High-strength concrete	Concrete and Masonry Structures 1 elected computer programs for structural modeling. Fundamentals of the finite element method. Basic types of elements for modeling le model. Practical procedures for the design and assessment of reinforced concrete structures using software tools. Principles and reperfication of results. Practical examples. Concretes with Special Properties rete, fibre concrete, self-compacting concrete, shotcrete and fibreconcretes, lightweight concrete, heavyweight concrete; their propertion New findings in technology.	of structures. Prin nethods of interpre Z	ciples for etation and 2 s in practice.
Introduction to se choosing a suitable 133YBSV High-strength conci	Concrete and Masonry Structures 1 elected computer programs for structural modeling. Fundamentals of the finite element method. Basic types of elements for modeling le model. Practical procedures for the design and assessment of reinforced concrete structures using software tools. Principles and reperfication of results. Practical examples. Concretes with Special Properties rete, fibre concrete, self-compacting concrete, shotcrete and fibreconcretes, lightweight concrete, heavyweight concrete; their propertion New findings in technology. Concrete and Masonry Structures 1	of structures. Prinnethods of interpress Z es and applications	etation and 2 s in practice.
Introduction to se choosing a suitable 133YBSV High-strength concerning 133YMVB The content of the	Concrete and Masonry Structures 1 elected computer programs for structural modeling. Fundamentals of the finite element method. Basic types of elements for modeling le model. Practical procedures for the design and assessment of reinforced concrete structures using software tools. Principles and reperfication of results. Practical examples. Concretes with Special Properties rete, fibre concrete, self-compacting concrete, shotcrete and fibreconcretes, lightweight concrete, heavyweight concrete; their propertion New findings in technology. Concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introductions	of structures. Prinnethods of interpressions Z es and applications Z ction to nonlinear	ciples for etation and 2 s in practice.
Introduction to se choosing a suitable 133YBSV High-strength concrete 133YMVB The content of the reinforced concrete	Concrete and Masonry Structures 1 elected computer programs for structural modeling. Fundamentals of the finite element method. Basic types of elements for modeling le model. Practical procedures for the design and assessment of reinforced concrete structures using software tools. Principles and reperfication of results. Practical examples. Concretes with Special Properties rete, fibre concrete, self-compacting concrete, shotcrete and fibreconcretes, lightweight concrete, heavyweight concrete; their propertion New findings in technology. Concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introducte structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures.	of structures. Prinnethods of interpress Z es and applications Z ction to nonlinear is for the design of	ciples for etation and 2 s in practice. 2 modeling of concrete
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134P02C			
	Structural design project 2C	KZ	6
Design of steel / tin	nber load bearing building structure according to external requirements in relation to interaction of load bearing and final completion s	tructural elements.	The project
	is assigned by the seminar leader.		
134YDUV	Timber and Sustainable Construction	Z	2
	stainable use of wood in construction with respect to previous courses. Theoretical methods of structural design and design of structu	-	
minoadollon to oa	materials. Principles of strengthening and repairing of timber structures.	aroo compocoa iroi	ii diiioronii
124\/MOD		Z	2
134YMOD	Numerical Modeling of Steel and Timber Structures		. 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 struc	ture as well
	as the global analysis and check with respect to European design codes.		
134YNKS	Glass Structures	Z	2
	ding to introduce the students the field of structural applications of glass and to give them some specific skills for calculation and detaili		
	d fins, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs an		
properties of glas	is as structural material will be presented in comparison with other basic building materials, together with selected examples of glass	/glazing application	ıs. Design
details and connec	ting technology, relevant technical regulations, specification and current methods applied in design will be described. Worked example	es will accompany	the lectures
	for better understanding, and design project will help to fix specific knowledge.		
134YPDK	Additional Timber and Metal Structures	Z	2
	asic information regarding to design and application of supporting, working and industrial scaffolding systems. It is focused especially	-	
Cubject provided by	with European codes and on modelling of structures.	on doolgin raide in t	accordance
404\/DNI/	· · · · · · · · · · · · · · · · · · ·	Z	
134YPNK	Fire Resistance of Steel and Timber Structures	-	2
	The class gives introduction to fire safety and fire resistance of steel, steel-concrete composite and timber structural elemen		
134YTSK	Thin-Walled and Composite Structures	Z	2
The course include	es advanced analysis and structural design of slender sections and cold-formed sections. Advanced structural design of steel-concre	te composite is als	o included.
135BAPC	Bachelor Thesis	Z	12
	s concludes the bachelor studies. The student demonstrates that he/she can apply the knowledge acquired during the study on a speci	ific proiect. The bac	
	is related to selected subjects of the study plan. For students of C spec.	, ,	
135GM01	Geomechanics 1	Z	3
		-	_
	s on the understanding of basic geological laws and principles in relation to architecture, civil engineering and urban planning. Empha		-
	ical processes, both endogenous and exogenous, on the rock environment and how the geological situation affects the design of struc		
the rock environme	ent. At the same time, attention is paid to the technical properties of rocks with regard to their practical applications. The course also i	includes a brief intr	oduction to
	the regional geology of the Czech Republic.		
135GM2I	Geomechanics 2I	Z,ZK	5
Formation of so	ils, basic properties of soils, water in soil, strength and deformation properties of soils and their determination, improvement of soil p	roperties, application	on tasks
135P02C	Structural design project 2C	KZ	6
	Design, static calculation and drawing documentation of the building substructure	'	
135YING	Engineering geology	7	2
	ogical survey methods. Geological and engineering geological maps and profiles. Foundation soils in terms of engineering geology a	nd bydrogeology A	
	ogical cultof motification cological and origin colling goological maps and promoti. I cultidation collo in terms of origin colling goology a		naressive
waters Rock mass	- areas of discontinuities, their evaluation, Deposits of natural building materials. Landslides and slope protection, Engineering geological		
waters. Rock mass	- areas of discontinuities, their evaluation. Deposits of natural building materials. Landslides and slope protection. Engineering geology of civil engineering structures. Challenges of urban geology. Engineering geology in environmental design and protection.	gical survey for diff	
	of civil engineering structures. Challenges of urban geology. Engineering geology in environmental design and protection.	gical survey for diff	erent types
135YPZU	of civil engineering structures. Challenges of urban geology. Engineering geology in environmental design and protection. Underground structures in urban areas	gical survey for diff	erent types
135YPZU	of civil engineering structures. Challenges of urban geology. Engineering geology in environmental design and protection. Underground structures in urban areas tigation, basic conceptions of rock classification and properties evaluation, laboratory and field testing, elements of calculations in roc	gical survey for diff	erent types
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135YPZU Geotechnical inves	of civil engineering structures. Challenges of urban geology. Engineering geology in environmental design and protection. Underground structures in urban areas tigation, basic conceptions of rock classification and properties evaluation, laboratory and field testing, elements of calculations in roc construction, technology of underground constructions	gical survey for diff Z k mechanics and u	2 nderground
135YPZU Geotechnical inves	of civil engineering structures. Challenges of urban geology. Engineering geology in environmental design and protection. Underground structures in urban areas tigation, basic conceptions of rock classification and properties evaluation, laboratory and field testing, elements of calculations in roc construction, technology of underground constructions Computer analysis in foundation engineering	gical survey for diff Z k mechanics and u	2 nderground
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135YPZU Geotechnical inves 135YVZK Numerical meth	of civil engineering structures. Challenges of urban geology. Engineering geology in environmental design and protection. Underground structures in urban areas tigation, basic conceptions of rock classification and properties evaluation, laboratory and field testing, elements of calculations in roc construction, technology of underground constructions Computer analysis in foundation engineering ods in CAD/CAM in geomechanics. Basic types of constitutive models of soil and rock mass behavior. Summary of PC geotechnical conventional methods and in numerical modelling domain. Practical solutions of selected geotechnical problems.	gical survey for diff Z k mechanics and u Z software both in the	2 nderground 2 e field of
135YPZU Geotechnical inves 135YVZK Numerical meth 135ZS01 Introduction to ti	of civil engineering structures. Challenges of urban geology. Engineering geology in environmental design and protection. Underground structures in urban areas tigation, basic conceptions of rock classification and properties evaluation, laboratory and field testing, elements of calculations in roc construction, technology of underground constructions Computer analysis in foundation engineering ods in CAD/CAM in geomechanics. Basic types of constitutive models of soil and rock mass behavior. Summary of PC geotechnical conventional methods and in numerical modelling domain. Practical solutions of selected geotechnical problems. Foundations 1 ne subject, literature, design principles, geotechnical categories Strength and deformation characteristics of foundation soils, slab foundation.	Z k mechanics and u Z software both in the	2 nderground 2 e field of 7 es of flat
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