# Study plan

## Name of study plan: Stavitelství

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Construction 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: platí pro nástup od akad. roku 2023/24

Name of the block: Compulsory courses Minimal number of credits of the block: 223

The role of the block: Z

Code of the group: BR20190001

Name of the group: Stavitelství, 1. 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
101KGR	Constructive Geometry Iva K ivková, Michal Zdražil, Iva Malechová, Iva Slámová, Jozef Bobok, Hana Lakomá Hana Lakomá Iva K ivková (Gar.)	Z,ZK	5	2P+2C	L,Z	Z
101MAR1	Mathematics R1 Iva Malechová, Jozef Bobok, Jan Lama , Milan Bo ík, Yuliya Namlyeyeva, Monika Rencová <b>Aleš Nekvinda</b> Aleš Nekvinda (Gar.)	Z,ZK	6	2P+3C	Z,L	Z
122MEST	Mechanization of construction  Rostislav Šulc, Tomáš Váchal, Pavel Neumann, Jaroslav Synek Jaroslav  Synek Rostislav Šulc (Gar.)	Z,ZK	5	2P+2C	Z	Z
124PSR1	Building Structures 1R Ctislav Fiala, Jan R ži ka, Petr Hájek, Ji í Novák, B la Stib rková Ctislav Fiala Petr Hájek (Gar.)	Z	3	2P+1C	Z,L	Z
132SMR1	Structural Mechanics R1 Pavel Padev t, Pavel Tesárek Pavel Padev t Pavel Padev t (Gar.)	Z,ZK	5	2P+2C	Z,L	Z
141HYDR	Hydraulics Vojt ch Bareš, Václav Matoušek, Tomáš Picek, Petr Sklená Václav Matoušek Vojt ch Bareš (Gar.)	Z,ZK	6	2P+2C	Z	Z

### Characteristics of the courses of this group of Study Plan: Code=BR20190001 Name=Stavitelství, 1. semestr

101KGR	Constructive Geometry	Z,ZK	5					
Projections and project	Projections and projective methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. Simple problems in axonometry.							
Basics of lighting of sol	ds and groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical s	urfaces. Quadrics	. Surfaces in					
building industry.								
101MAR1	Mathematics R1	Z,ZK	6					
https://mat.fsv.cvut.cz/v	https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/MT01/							
122MEST	Mechanization of construction	Z,ZK	5					

The course deals with the issue of mechanization of construction processes. It introduces the principles of construction and use of construction machinery and machinery for construction work, energy sources for machinery, machinery for main, auxiliary and service processes. The machines represent, according to the progress of work on the construction site, from preparatory and auxiliary work, to machines for earthworks, preparation and sheeting of construction pits and foundations, machines for rough construction, production, transport and processing of liquid mixtures, internal and finishing work. Gets acquainted with machines for transport and handling of materials and products. It also presents the principles of machine control using digital data, the possibilities of automation and robotics, incl. the impact of mechanization of construction work on the environment. Part of the course is to clarify the procedure for selecting suitable machine sets and the possibility of acquiring machines, issues of performance of machine sets and the principles of their choice.

124PSR1 Building Structures 1R
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.

132SMR1 Structural Mechanics R1

1. Newton's laws, balance of forces, moments, reactions of a mass point. 2. Connections of rigid plates and material points. Calculation of rigid plate reactions. 3. Continuous loading, calculation of reactions and connections on complex systems. 4. Calculation of reactions on lattice structures. Internal forces of lattice structures, method of contact points and intersection method. 5. Internal forces on straight beams. 6. Internal forces on bent and inclined beams. 7. Reaction to the spatial cantilever and calculation of the internal forces of the spatial cantilever. 8. Internal forces on planar composite systems. 9. Calculations of the position of the center of gravity on planar figures. Moments of inertia and ellipse of inertia. 10. Stress analysis of a section loaded with normal force and moment.

141HYDR Hydraulics Z,ZK 6

A Course Hydraulics (Hydraulika R) is focused on solutions of basic hydraulic problems related to a building practice. The solutions are based on an application of physical principles of behaviour of liquids (especially water) under static conditions and also under motion.

Code of the group: BR20190002

Name of the group: Stavitelství, 2. 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:

Note on the g	noup.					
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
101MAR2	Mathematics R2 Iva Malechová, Jozef Bobok, Milan Bo ík, Yuliya Namlyeyeva, Monika Rencová, Petr Mayer, Ivana Pultarová Ivana Pultarová Ivana Pultarová (Gar.)	Z,ZK	6	2P+3C	L,Z	Z
123SHR	Building Materials R Miloš Jerman, Martin Keppert Martin Keppert (Gar.)	Z,ZK	6	3P+2C	Z	Z
124PSR2	Building Structures 2R Ctislav Fiala, Petr Hájek, Veronika Ka ma íková, Ji í Pazderka <b>Ji í Pazderka</b> Ji í Pazderka (Gar.)	Z,ZK	4	2P+1C	L	Z
132SMR2	Structural Mechanics R2 Pavel Padev t, Aleš Jíra, Tomáš Janda, Zden k Prošek Pavel Padev t Pavel Padev t (Gar.)	Z,ZK	6	2P+2C	L,Z	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
142VIZP	Water and Environmental Engineering Michal Sn hota, Petr Nowak, Tomáš Dostál, Martin Do kal, Martin Šanda, Pavel Fošumpaur, Bohumil Š astný, Ladislav Satrapa, Martin Horský, Filip Horký Ladislav Satrapa (Gar.)	Z,ZK	4	3P+1C	Z,L	Z

Characteristics of the courses of this group of Study Plan: Code=BR20190002 Name=StaviteIství, 2. semestr

101MAR2	Mathematics R2	Z,ZK	6						
https://mat.fsv.cvut.cz/v	yuka/bakalari/eng/ls/MT02/								
123SHR	Building Materials R	Z,ZK	6						
Building materials - bas	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.									
124PSR2	Building Structures 2R	7 7K	1						

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.

132SMR2 | Structural Mechanics R2 | Z,ZK | 6

1. The principle of virtual works. 2. Calculation of deformation of structures using the principle of virtual works. 3. Betti's and Maxwell's theorem. 4. Basic principles of the force method, use of the PVP principle. 5. Calculation of internal forces on a straight beam using the force method. 6. Force method and its application to a statically indeterminate structure. 7. Reduction theorem. 8. Planar frame, calculation of internal forces using the force method. 9. Force method, lattice structures, use of symmetry. 10. Derivation of the bar stiffness matrix, principle of virtual displacements. 11. Deformation method, simplified deformation method on statically indeterminate structures. 12. Simplified deformation method (SDM) calculation of internal forces on continuous beams. 13. SDM, calculation of internal forces on planar frame structures.

135GM01 | Geomechanics 1 | Z | 3

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

142VIZP Water and Environmental Engineering Z,ZK 4

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

Code of the group: BR20190003

Name of the group: Stavitelství, 3. 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
122TS1	Construction Technology L1 Rostislav Šulc, Tomáš Váchal, Pavel Neumann, Václav Pospíchal, Mária Párová Tomáš Váchal Václav Pospíchal (Gar.)	Z,ZK	5	2P+2C	Z	Z
124SF1	Building Physics 1  Zbyn k Svoboda, Jaroslav Vychytil Jaroslav Vychytil Zbyn k Svoboda (Gar.)	Z,ZK	5	2P+2C	Z	Z
126BIMS	BIM for Building Engineering Petr Mat jka, Josef Žák Josef Žák Petr Mat jka (Gar.)	Z	1	1P+1C	L	Z
132PRUR	Theory of Elasticity Petr Fajman, Milan Jirásek <b>Petr Fajman</b> Petr Fajman (Gar.)	Z,ZK	6	3P+2C	Z,L	Z
135GM2R	Geomechanics R2 Jan Salák, Ivan Vaní ek, Ji í Koš ál Ivan Vaní ek Jan Salák (Gar.)	Z,ZK	4	2P+1C	Z	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=BR20190003 Name=Stavitelství, 3. semestr

122TS1	Construction Technology L1	Z,ZK	5
Basic technological pro	edures for earthworks processes, foundations and supporting structures. Basic auxiliary structures (bracketing, formwork, s	caffolding).	
124SF1	Building Physics 1	Z,ZK	5

Thermal Protection of Buildings Heat transfer, Fourier laws, thermal resistance, thermal transmittance, mean thermal transmittance, energy performance of buildings, energy need for heating, energy use, primary energy, diffusion and condensation of water vapor, internal surface temperature, risk of mould growth, thermal bridges and joints. Daylighting and acoustics Solar radiation and its importance. Determining the position of the Sun in the sky using numerical and graphical methods. Insolation. Meaning of terms, requirements. Daylighting. Criteria and limits. Lighting systems. The principle of determining the daylight factor by calculation and measurement. Parts of the daylight factor. Qualitative aspect of daylighting (uniformity, direction of light incidence, etc.). Concepts of sound and noise. Criteria and limits. Acoustic quantities, symbols and calculation. Sound propagation outdoors and indoors. Sound attenuation due to aperture. Direct and diffuse sound field. Reverberation time and reverberation radius. Sound absorbing structures. Structural acoustics. Sound insulation.

### 126BIMS BIM for Building Engineering

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.

132PRUR Theory of Elasticity

Z.ZK

In this course, students will learn the basic principles of mechanics and their application in the calculation of stresses in members and member stability. Wall and slab typology will also be covered, including loads and basic assumptions for designing structures on the computer.

135GM2R Geomechanics R2

Z,ZK

4

Basic course of Soil Mechanics for Civil Engineers. Introduction to origin of soils, soil description, multi-phase media behaviour, soil classification, compressibility and shear resistance, soil testing, earth pressures, assessment of stability and deformation of soil mass, applications in civil engineering.

36DSUZ Transport Structures and Urban Planning

Z,ZK

7

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

Code of the group: BR20190004

Name of the group: Stavitelství, 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
122TSR	Construction Technology R Rostislav Šulc, Tomáš Váchal, Pavel Neumann, Mária Párová, Jan Konvalinka Rostislav Šulc Rostislav Šulc (Gar.)	Z,ZK	6	3P+2C	Z	Z
124KKR	Completing Constructions Šárka Šilarová, Pavel Kopecký Pavel Kopecký Šárka Šilarová (Gar.)	Z,ZK	6	2P+3C	Z	Z
126EKMN	Economics and Management  Eduard Hromada, Martin ásenský, Božena Kade ábková, Petr Kal ev, Pavlína  Píchová, Pavlína Píchová Petr Kal ev Eduard Hromada (Gar.)	Z,ZK	7	4P+2C		Z
133NKRB	Load-bearing Structures Design - Concrete  Martin Tipka, Radek Štefan Martin Tipka Martin Tipka (Gar.)	Z,ZK	4	2P+1C	L,Z	Z
134NKRO	Load-bearing Structures Design - Steel František Wald, Michal Jandera Michal Jandera Martina Eliášová (Gar.)	Z,ZK	3	2P+1C	Z,L	Z
135ZSE	Foundations E	Z,ZK	4	2P+2C	Z	Z

Characteristics of the courses of this group of Study Plan: Code=BR20190004 Name=Stavitelství, 4. semestr

122TSR	Construction Technology R	Z,ZK	6
124KKR	Completing Constructions	Z,ZK	6

Construction principles of the design of roof coverings for flat, 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. Designing and the ability to select suitable assembly structures based on the theories of design principles and the principles of solving individual groups of elements from the area of assembly structures. This involves the creation of insulation systems, windows and doors, internal dividing walls, floors and floor structures and their details.

#### 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

#### 133NKRB Load-bearing Structures Design - Concrete

Z,ZK

The content of the subject are the basics of load-bearing concrete structures design with a focus on building realization 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 study programme (Structural Mechanics, Elasticity and Strength, Building Materials, Building Structures).

#### 134NKRO Load-bearing Structures Design - 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, configuration differences due to the specific properties of individual materials.

#### 135ZSE Foundations E

Z.ZK

Úvod do p edm tu, literatura, zásady navrhování, geotechnické kategorie Pevnostní a deforma ní charakteristiky základové p dy, plošné základy Mezní stavy plošných základ , výpo et únosnosti a sedání plošných základ Hlubinné základy - typologie, pilotové základy, technologie vrtaných a ražených pilot Osová únosnost osam lých pilot, zat žovací zkoušky pilot Stanovení únosnosti pín zatížených pilot, skupina pilot Mikropiloty, kotvy, technologie Injektáž klasická a trysková, podzemní st ny Stavební jámy, technologie pažení stavebních jam Zásady pro návrh a posouzení pažicích konstrukcí, zemní tlak, ú inek vody Výpo et pažicích konstrukcí, metody závislých tlak Odvod ování stavebních jam Ochrana základových konstrukcí p ed ú inky agresivního prost edí

Code of the group: BR20190005

Name of the group: Stavitelství, 5. semestr

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

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

Credits in the group: 30

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
122BPPS	Health and Safety during Project Implementation Tomáš Váchal, Pavel Neumann, Pavel Svoboda Tomáš Váchal Pavel Svoboda (Gar.)	Z,ZK	6	3P+2C	Z	Z
122ORVY	Organization of construction Pavel Neumann en k Jarský Pavel Neumann (Gar.)	Z,ZK	6	3P+2C	Z	Z
133RBZS	Construction of Concrete and Masonry Structures Iva Broukalová, Petr Bílý, Michaela Frantová Iva Broukalová Iva Broukalová (Gar.)	Z,ZK	6	3P+2C	Z	Z
134ROD	Steel and Timber Structures Construction Michal Netušil, Karel Mikeš Michal Netušil (Michal Netušil (Gar.)	Z,ZK	6	3P+2C	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=BR20190005 Name=Stavitelství, 5. semestr

122BPPS Health and Safety during Project Implementation

Z,ZK

6

The safety of work on the construction site is key in the conditions of the modern construction industry and precisely in relation to our integration into EU structures. The aim of the subject is to acquaint students with the currently valid legislation in the field of construction preparation and implementation. Familiarization with the role of the OSH coordinator, with the principles of OSH plan development, as a management platform for creating a safe workplace and coordinating safe work, namely in the individual segments of the implementation of civil and engineering constructions. Defining a safe workplace in terms of implementation, but also the use and maintenance of buildings. Determination of occupational risks based on the analysis of technological procedures, including the determination of PPE for the given activities. Familiarization with the safe operation of construction mechanization. Familiarization with the principles of initial training on the construction site and communication with workers in the provision of health and safety during implementation.

122ORVY Organization of construction

Z,ZK

6

Construction of the building and investment complex - basic terms. Production process of building and object. Spatial structure of object and complex building process. Technological and time structure of object and complex construction process. Technological stages for congruent and incongruent objects. Modeling construction production. Construction technology project and its main documents, analysis and risk detection. Quality control of construction production. Environmental and health and safety plans. Public hearing of the building. Preparation and management of the construction of investment units. Designing principles of construction organization respecting the basic principles of project management. Realization of construction. Handing over and taking over the construction site, construction manager, foreman and their duties. Basic principles of the theory of flow construction, its application in practice. Modeling the construction progress using spatio-temporal graphs. Simulation of the construction process using network graphs, construction technology network graph. The use of computers in the modeling of building construction. Principles of designing construction site equipment for a building and an investment unit. Information modeling of buildings, principles and principles of BIM, use for building construction

133RBZS Construction of Concrete and Masonry Structures

Z,ZK

6

The subject is focused on the practical designing of basic concrete structural elements, relations of the design and behaviour of structural members, reinforcing and construction technology and execution. The principles of structural design are presented with an emphasis on simplified and empirical methods. The subject also includes designing of masonry structures, an introduction to the design of bridges and engineering structures, and the basic principles of prestressed concrete elements design.

134ROD Steel and Timber Structures Construction

7.7K

6

The subject is aimed on the basis of the design of steel and timber structures and their construction. Subject increases the knowledge the previous subject aimed on the basic design of elementary structural members.

154SG01 Land Surveying in Civil Engineering

Z,ZK

ΚZ

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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: BR20190006

Name of the group: Stavitelství, 6. semestr

Project R1

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:

122PJ1R

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
122PJ1R	Project R1 Tomáš Váchal, Pavel Neumann, Václav Pospíchal, Ctislav Fiala, Ji í Novák, Petr Mondschein, Pavel Kopecký, Martin Tipka, Martin Králík, Tomáš Váchal Václav Pospíchal (Gar.)	KZ	5	4C	L	Z
125TZBR	Building Services System R Stanislav Frolik, Daniel Adamovský, Bohumír Garlík, Karel Kabele Karel Kabele Karel Kabele (Gar.)	Z,ZK	7	4P+2C	L	Z
126KANR	Costing and Bidding L Dana ápová, Renáta Schneiderová Heralová, Lucie Brožová, Stanislav Vitásek Lucie Brožová Renáta Schneiderová Heralová (Gar.)	Z,ZK	6	2P+3C	L	Z
136RPK	Road Structures Construction Petr Mondschein Petr Mondschein (Gar.)	Z,ZK	6	3P+2C	Z	Z
142RVS	Realization of Water Management Structures Pavel Fošumpaur, Karel K íž, Tomáš Dally Karel K íž Pavel Fošumpaur (Gar.)	Z,ZK	6	3P+2C		Z

### Characteristics of the courses of this group of Study Plan: Code=BR20190006 Name=StaviteIství, 6. semestr

According to the as	ssigned study of a simpler building (at the level of the project for the zoning decision), the design of the supporting	structure of the building in detail:	s for the execution
of the building. Sele	lection by students to focus on land, traffic or water construction		
125TZBR	Building Services System R	Z,ZK	7
Basic course in bui	uilding services systems - water supply, drainage, gas supply and heating systems.	·	•
126KANR	Costing and Bidding L	Z,ZK	6
The aim of the sub	bject is to teach the student to use basic calculation techniques and procedures, to use normative and database.	Another goal of the course is to to	each the student
pricing methods for	or tenders, to create a bill of quantities and a detailed estimate. Price, factors influencing price, types of prices, legis	slation. Valuation of building produ	uction in all stages
of the project, data	a for valuation. Estimating, estimating basis. Hourly billing rates, bidding, software for costs estimation. Fees of pro	eject and engineering activities. L	ife cycle cost
calculation (LCC)	Data and bases for cost calculation - consumption of work and material, standards in construction. Wages and sala	ries. Costs and their classification	ı, cost breakdown
common calculatio	on methods and techniques, calculation bases. Dynamization of calculation, calculation of machine costs, individu	al cost calculation, calculation so	chema, content of
individual cost com	nponents. Costs Controlling.		
136RPK	Road Structures Construction	Z,ZK	6

The theoretical part of the course introduces students to materials used in road construction, their properties, testing and use. In the exercises, the knowledge of designing is deepened.

142RVS Realization of Water Management Structures

The course focuses on the technological procedures in the realization of water management structures. The course is divided into two parts. The first part focuses on the implementation of sanitary engineering structures and the second part explains the procedures for the implementation of hydraulic engineering structures.

Code of the group: BR20190007

Name of the group: Stavitelství, 7. semestr

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

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

Credits in the group: 28 Note on the group.

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
122BIMP	BIM in a Construction Praxis Pavel Neumann, Jaroslav Synek, Petr Zavadil, Vja eslav Usmanov, Michal Ková ík Jaroslav Synek Jaroslav Synek (Gar.)	Z,ZK	6	2P+3C		Z
122ICPS	Engineering Activities for Building Construction Rostislav Šulc, Tomáš Váchal, Lenka St elbová Tomáš Váchal Tomáš Váchal (Gar.)	Z,ZK	6	2P+3C	Z	Z
122MKST	Quality Management System in Construction Company Tomáš Váchal, Pavel Svoboda, Linda Veselá Tomáš Váchal Pavel Svoboda (Gar.)	Z,ZK	6	2P+3C	Z	Z
122PJ2R	Project R2 Rostislav Šulc, Tomáš Váchal, Pavel Neumann, Miloslava Popenková Rostislav Šulc Václav Pospíchal (Gar.)	KZ	4	4C	Z	Z
126STMN	Construction Management Renáta Schneiderová Heralová, Zita Prost jovská, Dana M š anová, Jaroslava Tománková, Václav Tatýrek <b>Dana M š anová</b> Zita Prost jovská (Gar.)	Z,ZK	6	3P+2C	Z,L	Z

### Characteristics of the courses of this group of Study Plan: Code=BR20190007 Name=Stavitelství, 7. semestr

BIM in a Construction Praxis

7.7K

The subject aims to learn the requirements for the effective use of BIM models of buildings in the life cycle of the building. The content of the subject is focused on the phases using completed digital models of the building, i.e. on the needs and requirements of the preparation, production and operation of the building, preparation, production and operation of the building. Part of the subject is information about applications used in the digital environment to fulfill the requirements of users of the building model.

Engineering Activities for Building Construction

Basic regulations, concepts according to legal regulations, flow diagram of the preparation and authorization of the contract Building Act - performance of public administration and spatial planning Building Act - building regulations Implementing legislation to the Building Act - design phase Implementing legislation to the Building Act - permit process Implementing legislation to the Construction Act - construction Roads Act - basic provisions and special use - implementation process Rights and obligations of the client, builder, contractual relationship in variants Rights and obligations of the designer, contractual relationship in variants Air Protection Act, Waste Act and Nature and Landscape Protection Act - permit process Law on the protection of agricultural land fund, law on forests and water law - permit process Act on State Monument Care and Act on Environmental Impact Assessment - permit process Civil Code - contract

122MKST Quality Management System in Construction Company

Current world trends in the field of quality management: quality management system (SMK) according to EN ISO 9001, Total Quality Management (TQM) and re-engineering in application to a construction company. Analysis of quality management system processes. Forms of familiarization with the subject on specific cases based on practical experience, namely: management of the organization so that quality management and assurance is reflected in the implementation of construction e meeting customer requirements that are defined in the contract continuous improvement of the effectiveness of SMK and training in the principles of quality policy, such as: Continuous satisfaction of external and internal customer requirements; execution of works; active involvement of all staff in quality improvement; creation of conditions by the management of the organization for flawless performance of all staff; application of the latest trends in achieving high quality processes and products; effective communication and teamwork in applying the process approach of the quality management system in the organisation; all-round training of employees in order to capture the current world trend; motivation of employees by management and differentiated remuneration for the results achieved in the performance of work tasks; growth of culture in the organisation, economic prosperity and the resulting social approach of management to employees.

122PJ2R Project R2 Construction technology project simulating pre-production and production preparation of the contractor

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.

Code of the group: BR20190008

Name of the group: Stavitelství, 8. semestr

Requirement credits in the group: In this group you have to gain at least 18 credits Requirement courses in the group: In this group you have to complete at least 1 course

Credits in the group: 18 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role	
122ROP	Guided Professional Practice Rostislav Šulc Rostislav Šulc Rostislav Šulc (Gar.)	Z	18	15C	L	Z	

Characteristics of the courses of this group of Study Plan: Code=BR20190008 Name=StaviteIství, 8. semestr

122ROP Guided Professional Practice	Z	18
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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
TV2	Physical Education	Z	0

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 2

The role of the block: S

Code of the group: BR20230007\_1

Name of the group: Stavitelství, povinn volitelný p edm t

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
105PRA	Law Pavla Vo íšková <b>Pavla Vo íšková</b> Pavla Vo íšková (Gar.)	Z	2	2P	Z,L	S
105YSAS	Sociology and Psychology Jitka Cirklová, Monika Dobiášová Monika Dobiášová Jitka Cirklová (Gar.)	Z	2	1P+1C		S
122YTPP	Technology of preparatory processes Tomáš Váchal, Mária Párová Mária Párová Rostislav Šulc (Gar.)	Z	2	1P+1C	Z,L	S
122YZST	Special construction and technology Michal Ková ik Rostislav Šulc Václav Pospíchal (Gar.)	Z	2	1P+1C		S
124YKSD	Complex Structural Detail Ji í Pazderka, Radek Zigler Ji í Pazderka Ji í Pazderka (Gar.)	Z	2	1P+1C	Z	S
124YLOP	Lightweight Building Envelope Lenka Hanzalová, Šárka Šilarová <b>Šárka Šilarová</b> Šárka Šilarová (Gar.)	Z	2	1P+1C	L	S
125YNST	HVAC and services design Hana Kabrhelová Hana Kabrhelová (Gar.)	Z	2	1P+1C	Z,L	S
126YPER	Human resource management Eduard Hromada, Olga Heralová Olga Heralová Michal Vondruška (Gar.)	Z,ZK	2	1P+1C	L	S
126YVSF	Small Business Management Olga Heralová, Jana Frková Jana Frková Eduard Hromada (Gar.)	Z	2	1P+1C	Z,L	S
142YKGV	Structural and Geotechnical Issues of Hydraulic Structures  Miroslav Brou ek Miroslav Brou ek (Gar.)	Z	2	1P+1C	Z	S

144BTIS	Trenchless technologies for underground utilities  Karel K íž Karel K íž Karel K íž (Gar.)	Z	2	1P+1C	Z	s
210YDIR	Ji í Litoš, Vladimír Šána <b>Ji í Litoš</b> Petr Konvalinka (Gar.)	Z	2	1P+1C	Z	S
haracteristics of	f the courses of this group of Study Plan: Code=BR20230007_1	Name=Stavite	lství, povi	inn volite	elný peo	dm t
05PRA	Law				Z	2
05YSAS	Sociology and Psychology				Z	2
he subject is conceive	ed as a synthesis of selected chapters from psychology and sociology. He deals with the	e psychology of work	and organiz	zation, manag	erial psych	ology, social
sychology and the use	e of psychology in corporate communication. In the part of sociology, attention is focuse	ed on the sociology o	f the city and	the region, t	he sociolog	y of housing
nd selected themes from	om sociology of the company.					
22YTPP	Technology of preparatory processes				Z	2
onstruction manager	- qualifications, financial and criminal responsibility, rights and obligations according to	law and contract, pro	cesses perfe	ormed by the	constructio	n manager -
b description. Forema	an, rights and obligations, job description. Technical supervision of the builder, construc	tion supervision, fina	ncial and cri	minal respons	sibility. Awa	rding of public
nd other construction	contracts, requirements of contracting authorities, offer of construction contracts for inc	lividual tenders Basic	pre-product	tion and produ	uction prep	aration of the
ontractor.						
22YZST	Special construction and technology				Z	2
rogressive technologi	cal procedures resulting from the latest construction research. Introduction to modern t	echnologies used in	the construc	tion of non-tra	aditional bu	ildings and in
eeting demanding cus	stomer requirements. Special methods of production of monolithic, prefabricated and cor	nbined silicate load-b	earing struct	ures. Current	technologie	es of monolith
ructures. Special tech	nnologies of erection of steel structures. Special technologies used in the construction	of new buildings as w	ell as in the	reconstruction	n of building	gs and the
otection of monumen	ts. Progressive materials and technological procedures for interior and finishing works	resulting from the late	est developn	nents in const	ruction res	earch.
24YKSD	Complex Structural Detail				7	2
					Z	_
	s to extend the knowledge gained in previous courses - it is intended for students who	have already reached	d advanced I	1	_ ,	
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he aim of the course i roblems in buildings. T	s to extend the knowledge gained in previous courses - it is intended for students who	•		evel of knowl	edge about	structural
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The subject is focused on a basic clarification of individual trenchless methods for the laying and rehabilitation of underground utilities. Within the lectures, the benefits and applicability in specific conditions, suitability for individual applications, requirements for construction readiness, and their limits and risks are discussed for individual methods. As part of the exercises, there are specific real cases implemented variant proposals of methods.

210YDIR

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Basics of experimental measurement and instrumentation of testing structures. Theory of experimental work, measurements, data exploatation and processing of results. Structures and principal behavior of testing devices, tenzometers, inductive senzors etc. Static and dynamic loading testing of structures and their parts. Destructive and nondestructive testing methods. Diagnostics of civil engineering structures. Excursion on site or on the building structure. Concept of management of quality, system of quality of the building firms, phase of control of the quality of the projects, building process and finished structures. Acreditation process of the testing laboratories. Certification of the quality systems of production and certification of products.

Name of the block: Jazyky

Minimal number of credits of the block: 3

The role of the block: J

Code of the group: BF20190201\_J

Name of the group: 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 Karolína Synková, Alexandra Steinerová, Elena Da eva, Jarmila Fu íková, Sandra Giormani, Hana Horká, Petra Martincová, V ra ermáková, 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:

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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
104YC2A	English 2 Karolína Synková, Alexandra Steinerová, Elena Da eva, Jarmila Fu íková, Sandra Giormani, Hana Horká, Petra Martincová, V ra ermáková, Michaela Németh, Svatava Boboková Bartíková Sandra Giormani (Gar.)	Z,ZK	2	2C		J
104YC2N	German 2 Svatava Boboková Bartíková Svatava Boboková Bartíková Svatava Boboková Bartíková (Gar.)	Z,ZK	2	2C		J

Characteristics of the courses of this group of Study Plan: Code=BF20190302\_J Name=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
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: 12

The role of the block: S1

Code of the group: BR20190008\_1

Name of the group: Stavitelství, 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
122BAPR	Bachelor Thesis Pavel Svoboda Tomáš Váchal Rostislav Šulc (Gar.)	Z	12	10C	L,Z	S1
124BAPR	Bachelor Thesis Lenka Hanzalová, Jaroslav Vychytil <b>Petr Hájek</b>	Z	12	10C	L,Z	S1
125BAPR	Bachelor Thesis Stanislav Frolík Stanislav Frolík (Gar.)	Z	12	10C	L,Z	S1
126BAPR	Bachelor Thesis Eduard Hromada, Daniel Macek Eduard Hromada Daniel Macek (Gar.)	Z	12	10C	L,Z	S1
133BAPR	Bachelor Thesis Lukáš Vráblík	Z	12	10C	L,Z	S1
134BAPR	Bachelor Thesis Jakub Dolejš Jakub Dolejš (Gar.)	Z	12	10C	L,Z	S1
136BAPR	Bachelor Thesis Michal Uhlík Petr Mondschein (Gar.)	Z	12	10C	L,Z	S1
137BAPR	Bachelor Thesis Vít Lojda Vít Lojda Vít Lojda (Gar.)	Z	12	10C	L,Z	S1
141BAPR	Bachelor Thesis	Z	12	10C	L,Z	S1
142BAPR	Bachelor Thesis Pavel Fošumpaur, Tomáš Dally, Jitka Ku erová Pavel Fošumpaur	Z	12	10C	L,Z	S1
143BAPR	Bachelor Project Michal Sn hota, Tomáš Dostál, Martin Do kal, Martin Šanda, Milena Císlerová, Václav David, Petr Kavka, Petr Koudelka, Josef Krása, Martin Šanda Tomáš Dostál (Gar.)	Z	12	10C	L,Z	S1
210BAPR	Bachelor Thesis Ji í Litoš, Pavel Reiterman <b>Ji í Litoš</b>	Z	12	10C	L,Z	S1
haracteristics	of the courses of this group of Study Plan: Code=BR20190008_1 Na	me=Stavitels	ství, baka	ılá ská p	ráce	
122BAPR	Bachelor Thesis				Z	12
124BAPR	Bachelor Thesis				Z	12

122BAPR   Bachelor Thesis	Z	12
124BAPR Bachelor Thesis	Z	12
The topics of bachelor's theses are based on the needs of practice or the scientific research activities of the department,	scope and difficulty correspond to the stu-	dent's knowledge
acquired during bachelor's studies. The supervisor of the bachelor's thesis can designate additional consultants to the stu	ıdent.	
125BAPR Bachelor Thesis	Z	12
Bachelor Thesis is the result of the Bachelor degree study programme. It should prove student's ability to work independe	ently in the area of Building Services Syste	ems. The thesis can
cover theoretical aspects or to focus on practical application on an object within building services systems. Students consi The thesis is presented in front of the commission.	ult the supervisor and specialists from oth	ner departments.
126BAPR Bachelor Thesis	Z	12
The bachelor thesis finishes the bachelor study. A student proves that he/she is able to apply the knowledge acquired in the	he study on the real project. The bachelor	thesis connects to
the chosen subjects of the study curricula. The partial results are further evaluated and appropriate conclusions are drawn	n. For students of branch R.	
133BAPR Bachelor Thesis	Z	12
A bachelor thesis is the qualification thesis of a bachelor's degree. It can take the form of processing the structural design	project or research study on the topic of	designing and
application of a structural element with a variant comparative analysis or parametric study or performing and analysing ex	periments, etc.	
134BAPR Bachelor Thesis	Z	12
In this course, student formulates a bachelor's thesis that is necessary to reach the bachelor's degree.	'	1
136BAPR Bachelor Thesis	Z	12
The assigned topic of bachelor theses can be a project, traffic surveys, research of selected issues with application in practic	ce for various technical solutions of road st	ructures, laboratory
tests to verify the functionality of various materials for pavements, etc. In terms of design, the most common topics of thes		
1 toda to roing the randiantary of various materials for pavernority, storing of assign, the most common topics of the	ses are, for example, the design of a new	construction or
reconstruction of a selected section of a road (bypass, flyover), the design of a road network in a selected area of the city, intersections, the design of an airport, heliport, etc. In terms of pavement structures and road construction technologies, the	, the design of a new construction or reco	nstruction of
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# List of courses of this pass:

Code	Name of the course	Completion	Credits
101KGR	Constructive Geometry	Z,ZK	5
Projections and	projective methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. Sim	ple problems in ax	onometry.
Basics of lighting	ng of solids and groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical sur building industry.	faces. Quadrics. S	urfaces in
101MAR1	Mathematics R1	Z,ZK	6
	https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/MT01/	,	
101MAR2	Mathematics R2	Z,ZK	6
	https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/	,	_
104YC2A	English 2	Z,ZK	2
English 2 Course	e code: 104YC2A Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit and exam The aim of the compulsory		to enhanc
the knowledge o	f lexis and grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus	s is on professiona	ıl language
	nnical style) and communicative competence within the construction industry. The course also seeks to teach students to read technical		
produce essentia	al written discourse and to express themselves in writing on issues in their field of study. The end of course requirements are a credit are		. Literature
	Horká Hana, Giormani Sandra, Martincová Petra, Nivenová Renata : Professional English for Civil Engineering (Units 6 10)		
104YC2N	German 2	Z,ZK	2
	course - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction indust	-	
texts, and learning	ng the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Literature	ature: A.Hanáková	, J.Dressel
400/044	Deutsch im Bauwesen		
104YCA1	English 1	Z	1
-	code: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English cours		_
	ammar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on profess nd communicative competence within the construction industry. The course also seeks to teach students to read technical literature and t		
	and to express themselves in writing on issues in their field of study. The end of course requirements are a credit. Literature: Horká Hana,		
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	Deutsch im Bauwesen		
105PRA	Law	Z	2
105YSAS	Sociology and Psychology		2
10010/10		_	_
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	onceived as a synthesis of selected chapters from psychology and sociology. He deals with the psychology of work and organization, me the use of psychology in corporate communication. In the part of sociology, attention is focused on the sociology of the city and the reg		
	onceived as a synthesis of selected chapters from psychology and sociology. He deals with the psychology of work and organization, m the use of psychology in corporate communication. In the part of sociology, attention is focused on the sociology of the city and the reg and selected themes from sociology of the company.		
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requirements; execution of works; active involvement of all staff in quality improvement; creation of conditions by the management of the organization for flawless performance of all staff; application of the latest trends in achieving high quality processes and products; effective communication and teamwork in applying the process approach of the quality management system in the organisation; all-round training of employees in order to capture the current world trend; motivation of employees by management and differentiated remuneration for the results achieved in the performance of work tasks; growth of culture in the organisation, economic prosperity and the resulting social approach of management to employees. Organization of construction 122ORVY Z.ZK Construction of the building and investment complex - basic terms. Production process of building and object. Spatial structure of object and complex building process. Technological and time structure of object and complex construction process. Technological stages for congruent and incongruent objects. Modeling construction production. Construction technology project and its main documents, analysis and risk detection. Quality control of construction production. Environmental and health and safety plans. Public hearing of the building. Preparation and management of the construction of investment units. Designing principles of construction organization respecting the basic principles of project management. Realization of construction. Handing over and taking over the construction site, construction manager, foreman and their duties. Basic principles of the theory of flow construction, its application in practice. Modeling the construction progress using spatio-temporal graphs. Simulation of the construction process using network graphs, construction technology network graph. The use of computers in the modeling of building construction. Principles of designing construction site equipment for a building and an investment unit. Information modeling of buildings, principles and principles of BIM, use for building construction 122PJ1R ΚZ 5 Project R1 According to the assigned study of a simpler building (at the level of the project for the zoning decision), the design of the supporting structure of the building in details for the execution of the building. Selection by students to focus on land, traffic or water construction 122PJ2R Project R2 ΚZ 4 Construction technology project simulating pre-production and production preparation of the contractor 122ROP **Guided Professional Practice** Ζ 18 122TS1 Construction Technology L1 Z,ZK 5 Basic technological procedures for earthworks processes, foundations and supporting structures. Basic auxiliary structures (bracketing, formwork, scaffolding). **122TSR** Construction Technology R Z,ZK 6 122YTPP Technology of preparatory processes 2 Construction manager - qualifications, financial and criminal responsibility, rights and obligations according to law and contract, processes performed by the construction manager job description. Foreman, rights and obligations, job description. Technical supervision of the builder, construction supervision, financial and criminal responsibility. Awarding of public and other construction contracts, requirements of contracting authorities, offer of construction contracts for individual tenders Basic pre-production and production preparation of the contractor. 122YZST Special construction and technology Ζ 2 Progressive technological procedures resulting from the latest construction research. Introduction to modern technologies used in the construction of non-traditional buildings and in meeting demanding customer requirements. Special methods of production of monolithic, prefabricated and combined silicate load-bearing structures. Current technologies of monolithic structures. Special technologies of erection of steel structures. Special technologies used in the construction of new buildings as well as in the reconstruction of buildings and the protection of monuments. Progressive materials and technological procedures for interior and finishing works resulting from the latest developments in construction research. 123SHR Building Materials R 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. 124BAPR **Bachelor Thesis** 12 The topics of bachelor's theses are based on the needs of practice or the scientific research activities of the department, scope and difficulty correspond to the student's knowledge acquired during bachelor's studies. The supervisor of the bachelor's thesis can designate additional consultants to the student. 124KKR **Completing Constructions** Z,ZK 6 Construction principles of the design of roof coverings for flat, 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. Designing and the ability to select suitable assembly structures based on the theories of design principles and the principles of solving individual groups of elements from the area of assembly structures. This involves the creation of insulation systems, windows and doors, internal dividing walls, floors and floor structures and their details. 124PSR1 **Building Structures 1R** 7 3 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 124PSR2 **Building Structures 2R** 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. **Building Physics 1** Thermal Protection of Buildings Heat transfer, Fourier laws, thermal resistance, thermal transmittance, mean thermal transmittance, energy performance of buildings, energy need for heating, energy use, primary energy, diffusion and condensation of water vapor, internal surface temperature, risk of mould growth, thermal bridges and joints. Daylighting and acoustics Solar radiation and its importance. Determining the position of the Sun in the sky using numerical and graphical methods. Insolation. Meaning of terms, requirements. Daylighting. Criteria and limits. Lighting systems. The principle of determining the daylight factor by calculation and measurement. Parts of the daylight factor. Qualitative aspect of daylighting (uniformity, direction of light incidence, etc.). Concepts of sound and noise. Criteria and limits. Acoustic quantities, symbols and calculation. Sound propagation outdoors and indoors. Sound attenuation due to aperture. Direct and diffuse sound field. Reverberation time and reverberation radius. Sound absorbing structures. Structural acoustics. Sound insulation. Sound reduction index. Impact noise. Indirect transmission. 124YKSD Complex Structural Detail Ζ 2 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 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.

124YLOP

125BAPR	Bachelor Thesis	Z	12
	the result of the Bachelor degree study programme. It should prove student`s ability to work independently in the area of Building Sel aspects or to focus on practical application on an object within building services systems. Students consult the supervisor and specia	-	
cover theoretical a	The thesis is presented in front of the commission.	note nom other de	spartments.
125TZBR	Building Services System R	Z,ZK	7
	Basic course in building services systems - water supply, drainage, gas supply and heating systems.		
125YNST	HVAC and services design	Z	2
Basic principles	of the designing of sanitary systems, heating and ventilation. Design of the heat source, heat emitters, potable water demand, amour air-handling unit and design of indoor systems.	it or ventilation air	, design of
126BAPR	Bachelor Thesis	Z	12
	s finishes the bachelor study. A student proves that he/she is able to apply the knowledge acquired in the study on the real project. T		connects to
	e chosen subjects of the study curricula. The partial results are further evaluated and appropriate conclusions are drawn. For student		
126BIMS	BIM for Building Engineering son teaching basic knowledge in the field of Building Information Management (BIM) in theoretical and practical areas, applicable a	Cross different so	1 acialisations
	ne construction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digitize		
•	a sources in the Czech Republic, ICT and enterprise systems, information systems for the construction industry, but also the context of		
industry in relation	to the entire project life cycle and its specifics (delivery, expert focus, phases of construction projects, etc.) The theoretical knowledge exercises aimed at mastering and understanding the basic principles of object-oriented parametric modelling.	e is complemented	d by practical
126EKMN	Economics and Management	Z.ZK	7
	urse is to provide students with an introduction to economics and management in the construction industry and to familiarize them w	1 '	1
	plications. Students will be prepared to solve basic construction-management problems in the construction industry. They will acquire		
method of pricing of	construction works and master the basic methods of managing a construction company. Emphasis is placed on understanding the present the construction industry.	inciple of econom	ic thinking in
126KANR	relation to the construction industry.  Costing and Bidding L	Z,ZK	6
	ject is to teach the student to use basic calculation techniques and procedures, to use normative and database. Another goal of the	1 '	1
	tenders, to create a bill of quantities and a detailed estimate. Price, factors influencing price, types of prices, legislation. Valuation of b		
	tta for valuation. Estimating, estimating basis. Hourly billing rates, bidding, software for costs estimation. Fees of project and enginee	-	-
, ,	lata and bases for cost calculation - consumption of work and material, standards in construction. Wages and salaries. Costs and their n methods and techniques, calculation bases. Dynamization of calculation, calculation of machine costs, individual cost calculation,		
	individual cost components. Costs Controlling.		.,
126STMN	Construction Management	Z,ZK	6
	ed concepts. Methods to support project management. Legal standards, SN and ISO standards. The essential aspects of Project M	-	
	bjectives, strategies, phases and surroundings of the construction project. Project manager role. Purchases and contracts in the proj Financial management and project evaluation. Feasibility study. Cost and resource management. Change procedures. The Act on Sp	-	-
	Act on the Awarding of Public Contracts, and the definition of terms. Business obligation relationships, the conclusion of contracts, the conclusion of contracts and the definition of terms.		
business condition	ns. Business public competition, its influence on the obligations of participants. Securing the commitment - contractual penalty, guara		ntract types
126VDED	in construction - are contract for the conclusion of a future contract, purchase contract, contract for work, and content of the conclusion of a future programment.		
126YPER Main intention is to	Human resource management human resource management human resource management human resource management in construction company with focus on hiring, adaptation, motivation, leader	Z,ZK	2 ation. Within
	classes theory is combined with trainings (model situations).	. ,	
126YVSF	Small Business Management	Z	2
	led into lectures 1 hour per week and exercises 1 hour per week. Lectures take place according to the course outline listed below. In		
	plan for a selected business activity according to the specified syllabus. They draw up a plan for a start-up business. Entrepreneursh son and a legal entity, e.g. Ltd. The financial plan is prepared in Excel, and the credit condition is the presentation of the business pla	•	
com omproyed por	auditorium.	pomo. pom	
132PRUR	Theory of Elasticity	Z,ZK	6
In this course, stude	ents will learn the basic principles of mechanics and their application in the calculation of stresses in members and member stability.	Nall and slab typo	logy will also
132SMR1	be covered, including loads and basic assumptions for designing structures on the computer.  Structural Mechanics R1	Z,ZK	5
	oll determines it is a second of a mass point. 2. Connections of rigid plates and material points. Calculation of rigid plate reactions of a mass point. 2. Connections of rigid plates and material points.		
	ons and connections on complex systems. 4. Calculation of reactions on lattice structures. Internal forces of lattice structures, method of	•	
	al forces on straight beams. 6. Internal forces on bent and inclined beams. 7. Reaction to the spatial cantilever and calculation of the		
cantilever. 8. Intern	al forces on planar composite systems. 9. Calculations of the position of the center of gravity on planar figures. Moments of inertia a analysis of a section loaded with normal force and moment.	na ellipse of inertia	a. 10. Stress
132SMR2	Structural Mechanics R2	Z,ZK	6
	rirtual works. 2. Calculation of deformation of structures using the principle of virtual works. 3. Betti's and Maxwell's theorem. 4. Basic		orce method,
•	principle. 5. Calculation of internal forces on a straight beam using the force method. 6. Force method and its application to a staticall	•	
	. 8. Planar frame, calculation of internal forces using the force method. 9. Force method, lattice structures, use of symmetry. 10. Deriva displacements. 11. Deformation method, simplified deformation method on statically indeterminate structures. 12. Simplified deforma		
F	of internal forces on continuous beams. 13. SDM, calculation of internal forces on planar frame structures.		,
133BAPR	Bachelor Thesis	Z	12
A bachelor thesis	s is the qualification thesis of a bachelor's degree. It can take the form of processing the structural design project or research study of a structural element with a variant comparative analysis or parametric study or performing and analysing experime	-	igning and
133NKRB	application of a structural element with a variant comparative analysis or parametric study or performing and analysing experime  Load-bearing Structures Design - Concrete	Z,ZK	4
	e subject are the basics of load-bearing concrete structures design with a focus on building realization and the design methodology		1
including the deterr	mination of load effects. The properties of concrete, the production and testing of concrete, the properties of concrete reinforcement a	and its interaction v	with concrete
	sign and reinforcement of concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. A he end of this course. The course follows the introductory subject of study programme (Structural Mechanics, Elasticity and Strength		- 1
States 15 II1 U	structures).	, Dununy Material	o, ביווטווווען
	, , , , , , , , , , , , , , , , , , ,		

133RBZS The subject is for	Construction of Concrete and Masonry Structures cused on the practical designing of basic concrete structural elements, relations of the design and behaviour of structural members,	Z,ZK	6
•	ecution. The principles of structural design are presented with an emphasis on simplified and empirical methods. The subject also in	•	
S	structures, an introduction to the design of bridges and engineering structures, and the basic principles of prestressed concrete elem	ents design.	_
134BAPR	Bachelor Thesis	Z	12
124NIKDO	In this course, student formulates a bachelor's thesis that is necessary to reach the bachelor's degree.	Z,ZK	3
134NKRO The basics of design	Load-bearing Structures Design - Steel  ning steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load el	,	-
g	due to the specific properties of individual materials.	,g	
134ROD	Steel and Timber Structures Construction	Z,ZK	6
The subject is aime	ed on the basis of the design of steel and timber structures and their construction. Subject increases the knowledge the previous subject increases the knowledge that the knowledge th	ect aimed on the l	basic design
10501101	of elementary structural members.	_	
135GM01	Geomechanics 1 s on the understanding of basic geological laws and principles in relation to architecture, civil engineering and urban planning. Empha	Z	3
	ical processes, both endogenous and exogenous, on the rock environment and how the geological situation affects the design of struc	=	1
	ent. At the same time, attention is paid to the technical properties of rocks with regard to their practical applications. The course also the regional geology of the Czech Republic.		
135GM2R	Geomechanics R2	Z,ZK	4
Basic course of Soi	Mechanics for Civil Engineers. Introduction to origin of soils, soil description, multi-phase media behaviour, soil classification, compr	essibility and shea	r resistance,
425705	soil testing, earth pressures, assessment of stability and deformation of soil mass, applications in civil engineering.  Foundations E	7 71/	1
135ZSE	FOUTIGATIONS E tu, literatura, zásady navrhování, geotechnické kategorie Pevnostní a deforma ní charakteristiky základové p dy, plošné základy Me	Z,ZK zní stavy plošných	4 základ
	a sedání plošných základ Hlubinné základy - typologie, pilotové základy, technologie vrtaných a ražených pilot Osová únosnost osam		
•	snosti pín zatížených pilot, skupina pilot Mikropiloty, kotvy, technologie Injektáž klasická a trysková, podzemní st ny Stavební jámy,		
jam Zásady pro náv	vrh a posouzení pažicích konstrukcí, zemní tlak, ú inek vody Výpo et pažicích konstrukcí, metody závislých tlak Odvod ování staveb	ních jam Ochrana	základových
136BAPR	konstrukcí p ed ú inky agresivního prost edí  Bachelor Thesis	Z	12
	Dachelor theses can be a project, traffic surveys, research of selected issues with application in practice for various technical solution	l	1
	functionality of various materials for pavements, etc. In terms of design, the most common topics of theses are, for example, the des		- 1
	of a selected section of a road (bypass, flyover), the design of a road network in a selected area of the city, the design of a new const		
	esign of an airport, heliport, etc. In terms of pavement structures and road construction technologies, the most frequent topics of world and the structure of	=	
oi dinerent materiai	solutions for asphalt or concrete pavements, including the relevant composite materials or input components (binders, aggregates, etc. of a particular material or type of structure by laboratory methods, or carrying out simulations, etc.	), assessment or tr	ie benaviour
136DSUZ	Transport Structures and Urban Planning	Z,ZK	7
The course 136DS	UZ 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)
	pan planning and spatial planning (scope 2+0). Unlike the road construction and railroad construction sections, the urban planning se		
•	ss - Roads (R): Introduction to basic terminology in the part of roads, history. Road Act and related legislative and technical regulation of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, ea	s, their impact on i	road design.
		rthwork - dimension	nne shanes
	roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p		
-		rinciples. Safety ed	quipment,
junctions and cross Tram transport - his	roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p ings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of story, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principle	rinciples. Safety ed security, design an s and parameters,	quipment, d operation. metro lines.
junctions and cross Tram transport - his	roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p ings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of story, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principle ons - an introduction to the design and construction of a railway track in the conditions of the Czech Republic, the basic elements of the	rinciples. Safety ed security, design an s and parameters,	quipment, d operation. metro lines.
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junctions and cross Tram transport - his Railway constructio	roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p ings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of story, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principle ons - an introduction to the design and construction of a railway track in the conditions of the Czech Republic, the basic elements of the	rinciples. Safety ed security, design an s and parameters, railway superstruc Z,ZK	quipment, and operation. metro lines. eture. Spatial
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junctions and cross Tram transport - his Railway constructio 136RPK The theoretical part 137BAPR	roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p sings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of story, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principle ons - an introduction to the design and construction of a railway track in the conditions of the Czech Republic, the basic elements of the Planning (SP): Teaching spatial planning and urban planning, spatial planning tools and procedures for their acquisition.  Road Structures Construction  t of the course introduces students to materials used in road construction, their properties, testing and use. In the exercises, the knowled Bachelor Thesis is the first comprehensive work prepared by students during their university studies on a chosen topic. The basic tasks are: learning to the course introduced in the condition of the course introduced in the co	rinciples. Safety ed security, design an s and parameters, railway superstruct Z,ZK edge of designing is	quipment, ad operation. metro lines. sture. Spatial 6 s deepened. 12
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junctions and cross Tram transport - his Railway constructio  136RPK The theoretical part 137BAPR A bachelor's thesis  141BAPR 141HYDR A Course Hydraulic  142BAPR  142RVS	roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p ings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of story, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principle ons - an introduction to the design and construction of a railway track in the conditions of the Czech Republic, the basic elements of the Planning (SP): Teaching spatial planning and urban planning, spatial planning tools and procedures for their acquisition.  Road Structures Construction  of the course introduces students to materials used in road construction, their properties, testing and use. In the exercises, the knowled Bachelor Thesis  is the first comprehensive work prepared by students during their university studies on a chosen topic. The basic tasks are: learning to professional text, citation standards, etc. execution and evaluation of specified laboratory tests).  Bachelor Thesis  Preparation of a bachelor thesis in the field of hydraulics, hydrology, water flows or flood protection solutions.  Hydraulics  cs (Hydraulika R) is focused on solutions of basic hydraulic problems related to a building practice. The solutions are based on an apof behaviour of liquids (especially water) under static conditions and also under motion.  Bachelor Thesis  The course includes individual work of the student and consultations related to the work on the bachelor thesis.  Realization of Water Management Structures  so on the technological procedures in the realization of water management structures. The course is divided into two parts. The first part	rinciples. Safety ed security, design and sand parameters, railway superstructors, railway superstruct	quipment, d operation. metro lines. sture. Spatial 6 s deepened. 12 , processing 12 6 al principles 12
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144BTIS	Trenchless technologies for underground utilities	Z	2		
The subject is focu	sed on a basic clarification of individual trenchless methods for the laying and rehabilitation of underground utilities. Within the lectures	s, the benefits and	applicability		
in specific cond	itions, suitability for individual applications, requirements for construction readiness, and their limits and risks are discussed for individ	lual methods. As p	art of the		
	exercises, there are specific real cases implemented variant proposals of methods.				
154SG01	Land Surveying in Civil Engineering	Z,ZK	6		
The shape and s	ze of the Earth, substitutive surfaces, cartographic projections Horizontal and vertical control, coordinate calculations Quality control,	deviations and tol	erations in		
build-up Angle ar	d distance measurements Heighting measurements Other geodetic methods in build-up (GNSS, DPZ,) Photogrammetry and laser	scanning Themati	ic mapping		
and present state	documentation Geodetic works in build-up State map series of CR and thematic maps for build-up Geographic information systems a	and spatial plannin	g Cadastre		
	of real estates Laws and decrees for geodesy and build-up in Czech Republic				
210BAPR	Bachelor Thesis	Z	12		
Students will get th	e opportunity to organize complex process of experimental work from the beginning of production, experimental investigation to of th	e data. Thesis are	designed to		
fit scientific and research activity of the Experimental Centre.					
210YDIR		Z	2		
Basics of experimental measurement and instrumentation of testing structures. Theory of experimental work, measurements, data exploatation and processing of results. Structures					
and principal beh	avior of testing devices, tenzometers, inductive senzors etc. Static and dynamic loading testing of structures and their parts. Destructi	ve and nondestruc	tive testing		
methods. Diagnos	ics of civil engineering structures. Excursion on site or on the building structure. Concept of management of quality, system of quality	of the building firm	ns, phase of		
control of the qua	ality of the projects, building process and finished structures. Acreditation process of the testing laboratories. Certification of the qualit	y systems of produ	uction and		
	certification of products.				
TV1	Physical Education	Z	0		
TV2	Physical Education	7	0		

For updated information see <a href="http://bilakniha.cvut.cz/en/FF.html">http://bilakniha.cvut.cz/en/FF.html</a> Generated: day 2025-04-07, time 18:52.