# Study plan

# Name of study plan: Stavitelství

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:

#### Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their Completion Credits Code members) Tutors, authors and guarantors (gar.) **Constructive Geometry** 101KGR Z,ZK lva K ivková, Michal Zdražil, Iva Malechová, Iva Slámová, Jozef Bobok, Hana Lakomá Hana Lakomá Iva K ivková (Gar.) Mathematics R1 101MAR1 Z,ZK Iva Malechová, Jozef Bobok, Jan Lama , Milan Bo ík, Yuliya Namlyeyeva, Monika Rencová Aleš Nekvinda Aleš Nekvinda (Gar.)

| 122MEST | <b>Mechanization of construction</b><br>Rostislav Šulc, Tomáš Váchal, Pavel Neumann, Jaroslav Synek <b>Rostislav</b><br><b>Šulc</b> Rostislav Šulc (Gar.) | Z,ZK | 5 | 2P+2C | Z   | Z |
|---------|---|------|---|-------|-----|---|
| 124PSR1 | Building Structures 1R<br>Ctislav Fiala, Jan R ži ka, Petr Hájek, Ji í Novák, B la Stib rková Ctislav<br>Fiala Petr Hájek (Gar.)                          | Z    | 3 | 2P+1C | Z,L | Z |
| 132SMR1 | Structural Mechanics R1<br>Pavel Padev t, Pavel Tesárek Pavel Padev t Pavel Padev t (Gar.)  | Z,ZK | 5 | 2P+2C | Z,L | Z |
| 141HYDR | Hydraulics<br>Vojt ch Bareš, Václav Matoušek, Tomáš Picek, Petr Sklená Václav Matoušek<br>Vojt ch Bareš (Gar.)  | Z,ZK | 6 | 2P+2C | Z   | Z |

Scope Semester

L,Z

Z,L

2P+2C

2P+3C

5

6

Role

Ζ

Ζ

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

101KGR Constructive Geometry Z,ZK 5 Projections and projective methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. Simple problems in axonometry. Basics of lighting of solids and groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical surfaces. Quadrics. Surfaces in building industry. Z,ZK 101MAR1 Mathematics R1 6 https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/MT01/ Z,ZK 122MEST Mechanization of construction 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       Z       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 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.         1232SMP1       Z 7K       5   |   |                     |                |       |                           |                    |  |
|---|---|---------------------|----------------|-------|---------------------------|--------------------|--|
| 132SMR1       Structural Mechanics R1       Z,ZK       5         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. |   |                     |                |       |                           |                    |  |
| A Course Hydraulics (Hydrau   | draulics<br>Ilika R) is focused on solutions of basic hydraulic problems related to a building practi-<br>cially water) under static conditions and also under motion.  | ce. The solutions a | are based o    | 1     | Z,ZK                      | 6<br>Il principles |  |
| 5   | p: Stavitelství, 2. semestr   |                     |                |       |                           |                    |  |
| -   | dits in the group: In this group you have to gain at I<br>rses in the group: In this group you have to comple   |                     |                | ses   |                           |                    |  |
| Credits in the group<br>Note on the group   | •   |                     |                |       |                           |                    |  |
| Code  | Name of the course / Name of the group of courses<br>(in case of groups of courses the list of codes of their<br>members)<br>Tutors, authors and guarantors (gar.)  | Completion          | Credits        | Scope | Semester                  | Role               |  |
| 101MAR2   | Mathematics R2<br>Iva Malechová, Jozef Bobok, Milan Bo ík, Yuliya Namlyeyeva, Monika Rencová,<br>Petr Mayer, Ivana Pultarová Ivana Pultarová Ivana Pultarová (Gar.)   | Z,ZK                | 6              | 2P+3C | L,Z                       | Z                  |  |
| 123SHR  | Building Materials R<br>Miloš Jerman, Martin Keppert Martin Keppert (Gar.)  | Z,ZK                | 6              | 3P+2C | Z                         | Z                  |  |
| 124PSR2   | Building Structures 2R<br>Ctislav Fiala, Petr Hájek, Veronika Ka ma íková, Ji í Pazderka, Zuzana Rácová<br>Ji í Pazderka Ji í Pazderka (Gar.)   | Z,ZK                | 4              | 2P+1C | L                         | Z                  |  |
| 132SMR2   | Structural Mechanics R2<br>Pavel Padev t, Aleš Jíra, Tomáš Janda, Zden k Prošek Aleš Jíra Pavel<br>Padev t (Gar.)   | Z,ZK                | 6              | 2P+2C | L,Z                       | Z                  |  |
| 135GM01   | Geomechanics 1<br>Kate ina Ková ová, Jan Jelínek, Svatoslav Chamra, Richard Malát Kate ina<br>Ková ová Kate ina Ková ová (Gar.)   | Z                   | 3              | 2P+1C | L                         | Z                  |  |
| 142VIZP   | Water and Environmental Engineering<br>Michal Sn hota, Petr Nowak, Tomáš Dostál, Martin Do kal, Martin Šanda,<br>Pavel Fošumpaur, Bohumil Šastný, Ladislav Satrapa, Martin Horský,<br>Martin Horský Ladislav Satrapa (Gar.) | Z,ZK                | 4              | 3P+1C | Z,L                       | Z                  |  |
|   | courses of this group of Study Plan: Code=BR20190002 Name   | e=Stavitelstv       | í, 2. seme     |       | Z,ZK                      | 6                  |  |
| https://mat.fsv.cvut.cz/vyuka/  | bakalari/eng/Is/MT02/   |                     |                |       | · · ·                     |                    |  |
|   | Iding Materials R<br>urse. Clasification of the materials. Structure of materials. Main properties of materials   | . Application of ma | aterials in bu |       | Z,ZK<br>tructions. Introd | 6<br>duction to    |  |
| 124PSR2         Building Structures 2R         Z,ZK         4           Staircases, sloping ramps, lift shafts - requirements, structural and material solutions, basics of typology, design principles, construction details, railing. Building foundations - foundation conditions, types of foundations, requirements, building plinth area (construction details). Basement - solution of basement walls, requirements, protection against water, waterproofing systems. Structural expansion joints in buildings - principles of joints design in bearing structures, thermal expansion, compensation of differences in settlement, construction details. Roof truss systems.  |   |                     |                |       |                           |                    |  |
| 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 deformation method. (SDN) exclusion   |   |                     |                |       |                           |                    |  |
| 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  |   |                     |                |       |                           |                    |  |
| 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.   |   |                     |                |       |                           |                    |  |
| the regional geology of the Czech Republic.         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: 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<br>(in case of groups of courses the list of codes of their<br>members)<br>Tutors, authors and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
|---------|--|------------|---------|-------|----------|------|
| 122TS1  | Construction Technology L1<br>Rostislav Šulc, Tornáš Váchal, Pavel Neumann, Václav Pospíchal, Mária Párová<br>Tomáš Váchal Václav Pospíchal (Gar.)                 | Z,ZK       | 5       | 2P+2C | Z        | Z    |
| 124SF1  | Building Physics 1<br>Zbyn k Svoboda, Jaroslav Vychytil Jaroslav Vychytil Zbyn k Svoboda<br>(Gar.)   | Z,ZK       | 5       | 2P+2C | Z        | Z    |
| 126BIMS | BIM for Building Engineering<br>Petr Mat jka, Josef Žák Josef Žák Petr Mat jka (Gar.)  | Z          | 1       | 1P+1C | L        | Z    |
| 132PRUR | <b>Theory of Elasticity</b><br>Petr Fajman, Milan Jirásek <b>Petr Fajman</b> Petr Fajman (Gar.)  | Z,ZK       | 6       | 3P+2C | Z,L      | Z    |
| 135GM2R | Geomechanics R2<br>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<br>Ludvík Vébr, František Pospíšil, Ond ej Bret František Pospíšil Ludvík Vébr<br>(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 p   | rocedures for earthworks processes, foundations and supporting structures. Basic auxiliary structures (bracketing, formwork, s   | scaffolding).   |  |
| 124SF1  | Building Physics 1   | Z,ZK  | 5  |
| Thermal Protection of   | f Buildings Heat transfer, Fourier laws, thermal resistance, thermal transmittance, mean thermal transmittance, energy perform   | ance of buildings,  | energy need for  |
| heating, energy use, p  | primary energy, diffusion and condensation of water vapor, internal surface temperature, risk of mould growth, thermal bridges ar  | nd joints. Daylighti  | ng and acoustics   |
| Solar radiation and its   | s importance. Determining the position of the Sun in the sky using numerical and graphical methods. Insolation. Meaning of ter   | ms, requirements  | . Daylighting.   |
| Criteria and limits. Lig  | hting systems. The principle of determining the daylight factor by calculation and measurement. Parts of the daylight factor. Qu   | alitative aspect of   | daylighting  |
| (uniformity, direction of   | of light incidence, etc.). Concepts of sound and noise. Criteria and limits. Acoustic quantities, symbols and calculation. Sound p   | propagation outdoo  | ors and indoors.   |
| Sound attenuation du  | e to aperture. Direct and diffuse sound field. Reverberation time and reverberation radius. Sound absorbing structures. Structur   | ral acoustics. Sou  | nd insulation.   |
| Sound reduction inde  | x. Impact noise. Indirect transmission.  |   |  |
| 126BIMS   | BIM for Building Engineering   | Z   | 1  |
| The course focuses of   | n teaching basic knowledge in the field of Building Information Management (BIM) in theoretical and practical areas, applicable  | e across different  | specialisations  |
| and disciplines of the  | construction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digit   | itized documents,   | raster and vector  |
| graphics, open data s   | ources in the Czech Republic, ICT and enterprise systems, information systems for the construction industry, but also the contex   | kt of BIM in the cur  | rent constructior  |
|   |  |   |  |
| industry in relation to   | the entire project life cycle and its specifics (delivery, expert focus, phases of construction projects, etc.) The theoretical knowle   | edge is compleme  | ented by practica  |
|   | the entire project life cycle and its specifics (delivery, expert focus, phases of construction projects, etc.) The theoretical knowle<br>astering and understanding the basic principles of object-oriented parametric modelling.   | edge is compleme  | nted by practica   |
|   |  | Z,ZK  | 6  |
| exercises aimed at main 132PRUR   | astering and understanding the basic principles of object-oriented parametric modelling.   | Z,ZK  | 6  |
| exercises aimed at m<br>132PRUR<br>In this course, studen   | astering and understanding the basic principles of object-oriented parametric modelling. Theory of Elasticity  | Z,ZK  | 6  |
| exercises aimed at m<br>132PRUR<br>In this course, studen   | astering and understanding the basic principles of object-oriented parametric modelling. Theory of Elasticity ts will learn the basic principles of mechanics and their application in the calculation of stresses in members and member stabil  | Z,ZK  | 6  |
| exercises aimed at m<br>132PRUR<br>In this course, studen<br>be covered, including<br>135GM2R   | astering and understanding the basic principles of object-oriented parametric modelling. Theory of Elasticity ts will learn the basic principles of mechanics and their application in the calculation of stresses in members and member stabil loads and basic assumptions for designing structures on the computer.  | Z,ZK  | 6<br>typology will also  |
| exercises aimed at m<br>132PRUR<br>In this course, studen<br>be covered, including<br>135GM2R<br>Basic course of Soil N   | astering and understanding the basic principles of object-oriented parametric modelling. Theory of Elasticity ts will learn the basic principles of mechanics and their application in the calculation of stresses in members and member stabil loads and basic assumptions for designing structures on the computer. Geomechanics R2  | Z,ZK  | 6<br>typology will also  |
| exercises aimed at m<br>132PRUR<br>In this course, studen<br>be covered, including<br>135GM2R<br>Basic course of Soil N   | astering and understanding the basic principles of object-oriented parametric modelling. Theory of Elasticity ts will learn the basic principles of mechanics and their application in the calculation of stresses in members and member stabil loads and basic assumptions for designing structures on the computer. Geomechanics R2 Mechanics for Civil Engineers. Introduction to origin of soils, soil description, multi-phase media behaviour, soil classification, cor  | Z,ZK  | 6<br>typology will also  |
| exercises aimed at m<br>132PRUR<br>In this course, studen<br>be covered, including<br>135GM2R<br>Basic course of Soil M<br>soil testing, earth pres<br>136DSUZ  | astering and understanding the basic principles of object-oriented parametric modelling. Theory of Elasticity ts will learn the basic principles of mechanics and their application in the calculation of stresses in members and member stabil loads and basic assumptions for designing structures on the computer. Geomechanics R2 Aechanics for Civil Engineers. Introduction to origin of soils, soil description, multi-phase media behaviour, soil classification, cor ssures, assessment of stability and deformation of soil mass, applications in civil engineering.   | Z,ZK       lity. Wall and slab       Z,ZK       mpressibility and s       Z,ZK  | 6<br>typology will also<br>4<br>shear resistance   |
| exercises aimed at m<br>132PRUR<br>In this course, studen<br>be covered, including<br>135GM2R<br>Basic course of Soil M<br>soil testing, earth pres<br>136DSUZ<br>The course 136DSUZ  | astering and understanding the basic principles of object-oriented parametric modelling. Theory of Elasticity ts will learn the basic principles of mechanics and their application in the calculation of stresses in members and member stabil loads and basic assumptions for designing structures on the computer. Geomechanics R2 Aechanics for Civil Engineers. Introduction to origin of soils, soil description, multi-phase media behaviour, soil classification, cor ssures, assessment of stability and deformation of soil mass, applications in civil engineering. Transport Structures and Urban Planning   | Z,ZK         lity. Wall and slab         Z,ZK         mpressibility and s         Z,ZK         ads and rail transp  | 6<br>typology will also<br>4<br>shear resistance<br>7<br>port - scope 3+1  |
| exercises aimed at m<br>132PRUR<br>In this course, studen<br>be covered, including<br>135GM2R<br>Basic course of Soil M<br>soil testing, earth pres<br>136DSUZ<br>The course 136DSUZ<br>and the area of urban   | astering and understanding the basic principles of object-oriented parametric modelling. Theory of Elasticity ts will learn the basic principles of mechanics and their application in the calculation of stresses in members and member stabil loads and basic assumptions for designing structures on the computer. Geomechanics R2 Aechanics for Civil Engineers. Introduction to origin of soils, soil description, multi-phase media behaviour, soil classification, cor ssures, assessment of stability and deformation of soil mass, applications in civil engineering. Transport Structures and Urban Planning t is composed of 3 issues, which build on each other and complement each other. These are the area of transport structures (roometee)   | Z,ZK         lity. Wall and slab         Z,ZK         mpressibility and s         Z,ZK         ads and rail transp         g section does not   | 6<br>typology will also<br>4<br>shear resistance<br>7<br>port - scope 3+1<br>a end with credit.  |
| exercises aimed at m<br>132PRUR<br>In this course, studen<br>be covered, including<br>135GM2R<br>Basic course of Soil M<br>soil testing, earth pres<br>136DSUZ<br>The course 136DSUZ<br>and the area of urban<br>Transport Structures   | astering and understanding the basic principles of object-oriented parametric modelling. Theory of Elasticity ts will learn the basic principles of mechanics and their application in the calculation of stresses in members and member stabil loads and basic assumptions for designing structures on the computer. Geomechanics R2 Aechanics for Civil Engineers. Introduction to origin of soils, soil description, multi-phase media behaviour, soil classification, cor ssures, assessment of stability and deformation of soil mass, applications in civil engineering. Transport Structures and Urban Planning t is composed of 3 issues, which build on each other and complement each other. These are the area of transport structures (root planning and spatial planning (scope 2+0). Unlike the road construction and railroad construction sections, the urban planning   | Z,ZK         lity. Wall and slab         Z,ZK         mpressibility and s         Z,ZK         vads and rail transp         g section does not ations, their impact   | 6<br>typology will also<br>4<br>shear resistance<br>7<br>port - scope 3+1<br>and with credit.<br>t on road design  |
| exercises aimed at m<br>132PRUR<br>In this course, studen<br>be covered, including<br>135GM2R<br>Basic course of Soil M<br>soil testing, earth pres<br>136DSUZ<br>The course 136DSUZ<br>and the area of urban<br>Transport Structures<br>Design categories of   | astering and understanding the basic principles of object-oriented parametric modelling. Theory of Elasticity ts will learn the basic principles of mechanics and their application in the calculation of stresses in members and member stabil loads and basic assumptions for designing structures on the computer. Geomechanics R2 Aechanics for Civil Engineers. Introduction to origin of soils, soil description, multi-phase media behaviour, soil classification, cor ssures, assessment of stability and deformation of soil mass, applications in civil engineering. Transport Structures and Urban Planning t is composed of 3 issues, which build on each other and complement each other. These are the area of transport structures (roo planning and spatial planning (scope 2+0). Unlike the road construction and railroad construction sections, the urban planning Roads (R): Introduction to basic terminology in the part of roads, history. Road Act and related legislative and technical regula  | Z,ZK         lity. Wall and slab         Z,ZK         mpressibility and s         Z,ZK         vads and rail transp         g section does not ations, their impacts, their impacts, earthwork - dimensional transports, earthwork - dimensional transports, earthwork - dimensional transports | 6<br>typology will also<br>4<br>shear resistance<br>7<br>port - scope 3+1<br>and with credit.<br>t on road design<br>ensions, shapes   |
| exercises aimed at m<br>132PRUR<br>In this course, studen<br>be covered, including<br>135GM2R<br>Basic course of Soil M<br>soil testing, earth pres<br>136DSUZ<br>The course 136DSUZ<br>and the area of urban<br>Transport Structures<br>Design categories of<br>drainage. Urban road   | astering and understanding the basic principles of object-oriented parametric modelling. Theory of Elasticity ts will learn the basic principles of mechanics and their application in the calculation of stresses in members and member stabil loads and basic assumptions for designing structures on the computer. Geomechanics R2 Aechanics for Civil Engineers. Introduction to origin of soils, soil description, multi-phase media behaviour, soil classification, cor ssures, assessment of stability and deformation of soil mass, applications in civil engineering. Transport Structures and Urban Planning t is composed of 3 issues, which build on each other and complement each other. These are the area of transport structures (roo planning and spatial planning (scope 2+0). Unlike the road construction and railroad construction sections, the urban planning Roads (R): Introduction to basic terminology in the part of roads, history. Road Act and related legislative and technical regula roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways   | Z,ZK<br>lity. Wall and slab<br>Z,ZK<br>mpressibility and s<br>Z,ZK<br>vads and rail transp<br>g section does not<br>ations, their impac<br>s, earthwork - dimo<br>principles. Safety  | 6<br>typology will also<br>4<br>shear resistance<br>7<br>port - scope 3+1<br>and with credit.<br>t on road design<br>ensions, shapes<br>equipment,   |
| exercises aimed at m<br>132PRUR<br>In this course, studen<br>be covered, including<br>135GM2R<br>Basic course of Soil M<br>soil testing, earth pres<br>136DSUZ<br>The course 136DSUZ<br>and the area of urban<br>Transport Structures<br>Design categories of<br>drainage. Urban road<br>junctions and crossing<br>Tram transport - histo | astering and understanding the basic principles of object-oriented parametric modelling. Theory of Elasticity ts will learn the basic principles of mechanics and their application in the calculation of stresses in members and member stabil loads and basic assumptions for designing structures on the computer. Geomechanics R2 Mechanics for Civil Engineers. Introduction to origin of soils, soil description, multi-phase media behaviour, soil classification, cor seures, assessment of stability and deformation of soil mass, applications in civil engineering. Transport Structures and Urban Planning Lis composed of 3 issues, which build on each other and complement each other. These are the area of transport structures (root planning and spatial planning (scope 2+0). Unlike the road construction and railroad construction sections, the urban planning Roads (R): Introduction to basic terminology in the part of roads, history. Road Act and related legislative and technical regula roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways s, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design f gs. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view ry, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principles | Z,ZK<br>lity. Wall and slab<br>Z,ZK<br>mpressibility and s<br>Z,ZK<br>vads and rail transp<br>g section does not<br>ations, their impac<br>s, earthwork - dimo<br>principles. Safety<br>w of security, desig<br>ciples and parame   | 6<br>typology will also<br>4<br>shear resistance<br>7<br>port - scope 3+1<br>and with credit.<br>t on road design<br>ensions, shapes<br>equipment,<br>yn and operation<br>ters, metro lines  |
| exercises aimed at m<br>132PRUR<br>In this course, studen<br>be covered, including<br>135GM2R<br>Basic course of Soil M<br>soil testing, earth pres<br>136DSUZ<br>The course 136DSUZ<br>and the area of urban<br>Transport Structures<br>Design categories of<br>drainage. Urban road<br>junctions and crossing<br>Tram transport - histo | astering and understanding the basic principles of object-oriented parametric modelling. Theory of Elasticity ts will learn the basic principles of mechanics and their application in the calculation of stresses in members and member stabil loads and basic assumptions for designing structures on the computer. Geomechanics R2 Mechanics for Civil Engineers. Introduction to origin of soils, soil description, multi-phase media behaviour, soil classification, cor ssures, assessment of stability and deformation of soil mass, applications in civil engineering. Transport Structures and Urban Planning t is composed of 3 issues, which build on each other and complement each other. These are the area of transport structures (root planning and spatial planning (scope 2+0). Unlike the road construction and railroad construction sections, the urban planning Roads (R): Introduction to basic terminology in the part of roads, history. Road Act and related legislative and technical regula roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways s, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p gs. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view   | Z,ZK<br>lity. Wall and slab<br>Z,ZK<br>mpressibility and s<br>Z,ZK<br>vads and rail transp<br>g section does not<br>ations, their impac<br>s, earthwork - dimo<br>principles. Safety<br>w of security, desig<br>ciples and parame   | 6<br>typology will also<br>4<br>shear resistance<br>7<br>port - scope 3+1<br>a end with credit<br>t on road design<br>ensions, shapes<br>equipment,<br>yn and operation<br>ters, metro lines |

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<br>(in case of groups of courses the list of codes of their<br>members)<br>Tutors, authors and guarantors (gar.)    | Completion | Credits | Scope | Semester | Role |
|---------|---|------------|---------|-------|----------|------|
| 122TSR  | Construction Technology R<br>Rostislav Šulc, Tomáš Váchal, Pavel Neumann, Mária Párová, Jan Konvalinka<br>Rostislav Šulc Rostislav Šulc (Gar.)                        | Z,ZK       | 6       | 3P+2C | Z        | Z    |
| 124KKR  | Completing Constructions<br>Šárka Šilarová, Pavel Kopecký <b>Pavel Kopecký</b> Šárka Šilarová (Gar.)  | Z,ZK       | 6       | 2P+3C | Z        | Z    |
| 126EKMN | Economics and Management<br>Eduard Hromada, Martin ásenský, Božena Kade ábková, Petr Kal ev, Pavlína<br>Píchová, Pavlína Píchová Eduard Hromada Eduard Hromada (Gar.) | Z,ZK       | 7       | 4P+2C |          | Z    |
| 133NKRB | Load-bearing Structures Design - Concrete<br>Martin Tipka, Radek Štefan Martin Tipka Martin Tipka (Gar.)  | Z,ZK       | 4       | 2P+1C | L,Z      | Z    |
| 134NKRO | Load-bearing Structures Design - Steel<br>František Wald, Michal Jandera Martina Eliášová (Gar.)  | Z,ZK       | 3       | 2P+1C | Z,L      | Z    |
| 135ZSE  | Foundations E<br>Josef Jettmar, Jan Kos, Jan Masopust Jan Kos (Gar.)  | Z,ZK       | 4       | 2P+2C | Z        | Z    |

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

| 124KKR         Completing Constructions         Z,ZK         6           Construction principles of the design of nod coverings for flat, sloping and steep roofs. The design of additional elements and details of rood 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         7           The aim of the course is to provide students with an introduction to economics and management problems in the construction industry and to familiarize them with basic economic terms and their details.         2,ZK         7           133NKRB         Load-bearing Structures Design - Concrete         Z,ZK         4           133NKRB         Load-bearing Structures Design - Concrete         Z,ZK         4           134NKRD         Load-bearing Structures Design - Stocetes         Study tropperties of concrete reinforcement and its interaction with concrete are discussed. Design and reinforcement of the subject are the basics of load-bearing concrete, the properties of concrete, the properties of concrete reinforcement and tis interaction with concrete are discussed. Design and reinforcement of concrete structures design with a focus on building realization and the design of load detamates, Building Materials, Building Materials, Building Structures).  | 122TSR   | Construction Technology R  | Z,ZK                   | 6                   |  |  |  |  |
|---|--|--|------------------------|---------------------|--|--|--|--|
| static, fire, acoustic, biological, chemical, lifetime and recycling. Principles of design of additional elements and details of roof coverings of flat, stoping 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       7         The aim of the course is to provide students with an introduction to economics and management problems in the construction industry. The will acquire basic information about the method of pricing construction works and master the basic construction-management problems in the construction industry. The will acquire basic information about the method of pricing construction industry.       2,ZK       4         133NKRB       Load-bearing Structures Design - Concrete       Z,ZK       4         The onith 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, Ela | 124KKR   | Completing Constructions   | Z,ZK                   | 6                   |  |  |  |  |
| 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       7         The aim of the course is to provide students with an introduction to economics and 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 terms and their practical applications. Students will be prepared to solve basic construction company. Emphasis is placed on understanding the principle of economic terms and the construction industry.         133NKRB       Load-bearing Structures Design - Concrete       Z,ZK       4         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 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).             | 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, |  |                        |                     |  |  |  |  |
| 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         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.           133NKRB         Load-bearing Structures Design - Concrete         Z,ZK         4           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, 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         3           134NKRO         Load                           | static, fire, acoustic, bio  | logical, chemical, lifetime and recycling. Principles of design of additional elements and details of roof coverings of flat, slopir | ng and steep roofs     | s based on the      |  |  |  |  |
| structures and their details.       2,ZK       7         126EKMN       Economics and Management       Z,ZK       7         The aim of the course is to provide students with an introduction to economics and management problems 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.         133NKRB       Load-bearing Structures Design - Concrete       Z,ZK       4         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 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       3         The basics of designing steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load effects, configur  | stated requirements and  | d given boundary conditions. Designing and the ability to select suitable assembly structures based on the theories of design        | principles and th      | e principles of     |  |  |  |  |
| 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.           133NKRB         Load-bearing Structures Design - Concrete         Z,ZK         4           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         3           135ZSE         Foundations E         Z,ZK         4           Uvod do p edm tu, literatura, zásady navrthování, geotechnické kategorie Pevnostní a deforma ní charakte   | solving individual group   | s of elements from the area of assembly structures. This involves the creation of insulation systems, windows and doors, inte        | rnal dividing walls    | s, floors and floor |  |  |  |  |
| 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.          133NKRB       Load-bearing Structures Design - Concrete       Z,ZK       4         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       4         145ZSE       Foundations E       Z,ZK       4         Úvód 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 edání plošných základ Hlubinné základy - typologie, pilotové základy, technologie vrtaných a  | structures and their deta  | ails.  |                        |                     |  |  |  |  |
| 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.          133NKRB       Load-bearing Structures Design - Concrete       Z,ZK       4         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       3         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.       Z,ZK       4         135ZSE       Foundations E       Z,ZK       4         Úvod do p edm tu, literatura, zásady navrhování, geotechnické kategorie Pevnostní a deforma ní charakteristiky základové p dy, plošné základy Mezní s   | 126EKMN  | Economics and Management   | Z,ZK                   | 7                   |  |  |  |  |
| 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.         133NKRB       Load-bearing Structures Design - Concrete       Z,ZK       4         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       3         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.       3         135ZSE       Foundations E       Z,ZK       4         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 únosnos   | 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 econo       | mic terms and       |  |  |  |  |
| relation to the construction industry.       Z,ZK       4         133NKRB       Load-bearing Structures Design - Concrete       Z,ZK       4         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       3         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.       4         135ZSE       Foundations E       Z,ZK       4         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 únosnosto sam lých pilot, zat žovací zkoušky pilot Stanovení únosnosti p í n zatížených pilot, skupina pilot Mikropiloty, kotvy, technologie lnjek   | their practical applicatio   | ns. Students will be prepared to solve basic construction-management problems in the construction industry. They will acquir         | re basic information   | on about the        |  |  |  |  |
| 133NKRB       Load-bearing Structures Design - Concrete       Z,ZK       4         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       3         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.       3         135ZSE       Foundations E       Z,ZK       4         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 p í n zatížených pilot, skupina pilot Mikropiloty, kotvy, technologie Injektáž klasická a trysková, podzemní st ny Stavební jámy, technologie pažení stavebních jam Zásady pro návrh a po   | method of pricing const  | ruction works and master the basic methods of managing a construction company. Emphasis is placed on understanding the               | principle of econ      | omic thinking in    |  |  |  |  |
| 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       3         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.       Z,ZK       4         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 p í n 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 závilých tlak       Odvod ování stavebních jam Ochrana základových                | relation to the construct  | ion industry.  |                        |                     |  |  |  |  |
| 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       3         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       Z,ZK       4         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 p í n zatížených pilot, skupina pilot Mikropiloty, kotvy, technologie lnjektáž 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  | 133NKRB  | Load-bearing Structures Design - Concrete  | Z,ZK                   | 4                   |  |  |  |  |
| 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<br>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<br>Structures).<br>134NKRO Load-bearing Structures Design - Steel Z,ZK 3<br>The basics of designing steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load effects, configuration differences<br>due to the specific properties of individual materials.<br>135ZSE Foundations E Z,ZK 4<br>Úvod do p edm tu, literatura, zásady navrhování, geotechnické kategorie Pevnostní a deforma ní charakteristiky základové p dy, plošné základy Mezní stavy plošných základ ,<br>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<br>pilot Stanovení únosnosti p í n zatížených pilot, skupina pilot Mikropiloty, kotvy, technologie lnjektáž klasická a trysková, podzemní st ny Stavební jámy, technologie pažení stavebních<br>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   | The content of the subje   | ect are the basics of load-bearing concrete structures design with a focus on building realization and the design methodology        | ,<br>according to vali | d standards,        |  |  |  |  |
| 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       3         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       Z,ZK       4         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 p í n zatížených pilot, skupina pilot Mikropiloty, kotvy, technologie lnjektáž 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  | including the determina  | tion of load effects. The properties of concrete, the production and testing of concrete, the properties of concrete reinforceme     | nt and its interacti   | on with concrete    |  |  |  |  |
| Structures).         134NKRO       Load-bearing Structures Design - Steel       Z,ZK       3         The basics of designing steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load effects, configuration differences due to the specific properties of individual materials.         135ZSE       Foundations E       Z,ZK       4         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 p í n zatížených pilot, skupina pilot Mikropiloty, kotvy, technologie lnjektáž 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   | are discussed. Design a  | and reinforcement of concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course      | e. An introduction     | to serviceability   |  |  |  |  |
| 134NKRO       Load-bearing Structures Design - Steel       Z,ZK       3         The basics of designing steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load effects, configuration differences due to the specific properties of individual materials.       3         135ZSE       Foundations E       Z,ZK       4         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 p í n zatížených pilot, skupina pilot Mikropiloty, kotvy, technologie lnjektáž 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  | limit states is in the end   | of this course. The course follows the introductory subject of study programme (Structural Mechanics, Elasticity and Strengt         | h, Building Materi     | als, Building       |  |  |  |  |
| 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       4         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 p í n zatížených pilot, skupina pilot Mikropiloty, kotvy, technologie lnjektáž 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  | Structures).   |  |                        |                     |  |  |  |  |
| due to the specific properties of individual materials.         135ZSE       Foundations E         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 p í n 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  | 134NKRO  | Load-bearing Structures Design - Steel   | Z,ZK                   | 3                   |  |  |  |  |
| 135ZSE       Foundations E       Z,ZK       4         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       Hubinné základy - typologie, pilotové základy, technologie vrtaných a ražených pilot Osová únosnost osam lých pilot, zat žovací zkoušky pilot Stanovení únosnosti p í n 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  | The basics of designing  | steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of loa       | d effects, configur    | ation differences   |  |  |  |  |
| Úvod do p edm tu, literatura, zásady navrhování, geotechnické kategorie Pevnostní a deforma ní charakteristiky základové p dy, plošné základy Mezní stavy plošných základ ,<br>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<br>pilot Stanovení únosnosti p í n zatížených pilot, skupina pilot Mikropiloty, kotvy, technologie Injektáž klasická a trysková, podzemní st ny Stavební jámy, technologie pažení stavebních<br>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  | due to the specific prop   | erties of individual materials.  |                        |                     |  |  |  |  |
| 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 p í n 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   | 135ZSE   | Foundations E  | Z,ZK                   | 4                   |  |  |  |  |
| 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   | Úvod do p edm tu, literatura, zásady navrhování, geotechnické kategorie Pevnostní a deforma ní charakteristiky základové p dy, plošné základy Mezní stavy plošných základ ,                      |  |                        |                     |  |  |  |  |
| 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   | 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 p í n zatížených pilot, skupina pilot Mikropiloty, kotvy, technologie Injektáž klasická a trysková, podzemní st ny Stavební jámy, technologie pažení stavebních        |  |                        |                     |  |  |  |  |
| konstrukcí p ed ú inky agresivního prost edí  | 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 a   | 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:

| itete en ale gree | •  |            |         |       |          |      |
|-------------------|--|------------|---------|-------|----------|------|
| Code              | Name of the course / Name of the group of courses<br>(in case of groups of courses the list of codes of their<br>members)<br>Tutors, authors and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
| 122BPPS           | Health and Safety during Project Implementation<br>Tomáš Váchal, Pavel Neumann, Pavel Svoboda Tomáš Váchal Pavel<br>Svoboda (Gar.)                                 | Z,ZK       | 6       | 3P+2C | Z        | Z    |
| 122ORVY           | Organization of construction<br>Pavel Neumann en k Jarský Pavel Neumann (Gar.)   | Z,ZK       | 6       | 3P+2C | Z        | Z    |
| 133RBZS           | Construction of Concrete and Masonry Structures<br>Iva Broukalová, Petr Bílý, Michaela Frantová Iva Broukalová Iva Broukalová<br>(Gar.)                            | Z,ZK       | 6       | 3P+2C | Z        | Z    |
| 134ROD            | Steel and Timber Structures Construction<br>Michal Netušil, Karel Mikeš Michal Netušil Michal Netušil (Gar.)   | Z,ZK       | 6       | 3P+2C | Z        | Z    |
| 154SG01           | Land Surveying in Civil Engineering<br>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=StaviteIství, 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 indiv   | dual segments of the  | e implementation    |  |  |  |  |  |
| of civil and engineering constructions. Defining a safe workplace in terms of implementation, but also the use and maintenance of buildings. Deter   |                       |                     |  |  |  |  |  |
| on the analysis of technological procedures, including the determination of PPE for the given activities. Familiarization with the safe operation of cons  |                       | on. Familiarization |  |  |  |  |  |
| with the principles of initial training on the construction site and communication with workers in the provision of health and safety during implement   | itation.              |                     |  |  |  |  |  |
| 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 com  | olex building proces  | s. Technological    |  |  |  |  |  |
| and time structure of object and complex construction process. Technological stages for congruent and incongruent objects. Modeling construction   | -                     |                     |  |  |  |  |  |
| project and its main documents, analysis and risk detection. Quality control of construction production. Environmental and health and safety plan  | •                     | °                   |  |  |  |  |  |
| Preparation and management of the construction of investment units. Designing principles of construction organization respecting the basic principle   |                       |                     |  |  |  |  |  |
| of construction. Handing over and taking over the construction site, construction manager, foreman and their duties. Basic principles of the theor   |                       |                     |  |  |  |  |  |
| in practice. Modeling the construction progress using spatio-temporal graphs. Simulation of the construction process using network graphs, cons  |                       | • ·                 |  |  |  |  |  |
| The use of computers in the modeling of building construction. Principles of designing construction site equipment for a building and an investment in the modeling of building and an investment in the model | nit. Information mode | eling 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 memb  |                       |                     |  |  |  |  |  |
| technology and execution. The principles of structural design are presented with an emphasis on simplified and empirical methods. The subject a  | 0                     | ng 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  | Z,ZK                  | 6                   |  |  |  |  |  |
| The subject is aimed on the basis of the design of steel and timber structures and their construction. Subject increases the knowledge the previo  | is subject aimed on   | the basic design    |  |  |  |  |  |
| of elementary structural members.  |                       |                     |  |  |  |  |  |
| 154SG01 Land Surveying in Civil Engineering  | Z,ZK                  | 6                   |  |  |  |  |  |
| The shape and size of the Earth, substitutive surfaces, cartographic projections Horizontal and vertical control, coordinate calculations Quality control, deviations and tolerations in   |                       |                     |  |  |  |  |  |
| build-up Angle and distance measurements Heighting measurements Other geodetic methods in build-up (GNSS, DPZ,) Photogrammetry and laser scanning Thematic mapping   |                       |                     |  |  |  |  |  |
| and present state documentation Geodetic works in build-up State map series of CR and thematic maps for build-up Geographic information systems and spatial planning Cadastre  |                       |                     |  |  |  |  |  |
| of real estates Laws and decrees for geodesy and build-up in Czech Republic  |                       |                     |  |  |  |  |  |
|  |                       |                     |  |  |  |  |  |

#### Code of the group: BR20190006

## Name of the group: Stavitelství, 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:

| Code    | Name of the course / Name of the group of courses<br>(in case of groups of courses the list of codes of their<br>members)<br>Tutors, authors and guarantors (gar.)                              | Completion | Credits | Scope | Semester | Role |
|---------|---|------------|---------|-------|----------|------|
| 122PJ1R | Project R1<br>Tomáš Váchal, Pavel Neumann, Václav Pospíchal, Ctislav Fiala, Ji í Novák,<br>Petr Mondschein, Pavel Kopecký, Martin Tipka, Martin Králík, Tomáš<br>Váchal Václav Pospíchal (Gar.) | κz         | 5       | 4C    | L        | Z    |
| 125TZBR | Building Services System R<br>Stanislav Frolík, Daniel Adamovský, Bohumír Garlík, Karel Kabele Karel<br>Kabele Karel Kabele (Gar.)  | Z,ZK       | 7       | 4P+2C | L        | Z    |
| 126KANR | Costing and Bidding L<br>Dana ápová, Renáta Schneiderová Heralová, Lucie Brožová, Stanislav Vitásek<br>Lucie Brožová Renáta Schneiderová Heralová (Gar.)  | Z,ZK       | 6       | 2P+3C | L        | Z    |
| 136RPK  | Road Structures Construction<br>Petr Mondschein Petr Mondschein (Gar.)  | Z,ZK       | 6       | 3P+2C | Z        | Z    |
| 142RVS  | Realization of Water Management Structures<br>Pavel Fošumpaur, Karel K íž, Tomáš Dally Karel K íž Pavel Fošumpaur<br>(Gar.)   | Z,ZK       | 6       | 3P+2C |          | Z    |

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

| 122PJ1R  | Project R1   | KZ                    | 5                  |  |  |  |  |
|--|--|-----------------------|--------------------|--|--|--|--|
| 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   |  |                       |                    |  |  |  |  |
| 125TZBR  | Building Services System R   | Z,ZK                  | 7                  |  |  |  |  |
| Basic course in building   | Basic course in building services systems - water supply, drainage, gas supply and heating systems.  |                       |                    |  |  |  |  |
| 126KANR  | Costing and Bidding L  | Z,ZK                  | 6                  |  |  |  |  |
| The aim of the subject i   | s to teach the student to use basic calculation techniques and procedures, to use normative and database. Another goal of the  | ne course is to tea   | ach the student    |  |  |  |  |
| pricing methods for tend   | lers, to create a bill of quantities and a detailed estimate. Price, factors influencing price, types of prices, legislation. Valuation  | of building produc    | tion in all stages |  |  |  |  |
| of the project, data for v   | aluation. Estimating, estimating basis. Hourly billing rates, bidding, software for costs estimation. Fees of project and enginee  | ring activities. Life | e cycle cost       |  |  |  |  |
| calculation (LCC) Data   | and bases for cost calculation - consumption of work and material, standards in construction. Wages and salaries. Costs and th   | eir classification,   | cost breakdown,    |  |  |  |  |
| common calculation me  | common calculation methods and techniques, calculation bases. Dynamization of calculation, calculation of machine costs, individual cost calculation, calculation schema, content of |                       |                    |  |  |  |  |
| individual cost components. 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.      |  |                       |                    |  |  |  |  |

|   | alization of Water Management Structures  |                     |                |               | 771/          | 6                 |
|---|---|---------------------|----------------|---------------|---------------|-------------------|
|   | alization of Water Management Structures<br>chnological procedures in the realization of water management structures. The course  | is divided into two | parts The f    |               | Z,ZK          | 6<br>plementation |
|   | tures and the second part explains the procedures for the implementation of hydraulic   |                     |                | inot part loo |               | plomonation       |
| ,   |   |                     |                |               |               |                   |
| Code of the group   | D <sup>.</sup> BR20190007   |                     |                |               |               |                   |
| • •   | p: Stavitelství, 7. semestr   |                     |                |               |               |                   |
| •   | •   |                     |                |               |               |                   |
| •   | dits in the group: In this group you have to gain at I  |                     |                |               |               |                   |
| Requirement cou   | rses in the group: In this group you have to comple   | ete at leas         | t 5 cou        | rses          |               |                   |
| Credits in the gro  | up: 28  |                     |                |               |               |                   |
| Note on the group   | •   |                     |                |               |               |                   |
| Note on the group   |   | 1                   |                |               |               | 1                 |
|   | Name of the course / Name of the group of courses<br>(in case of groups of courses the list of codes of their   |                     |                |               |               |                   |
| Code  | members)  | Completion          | Credits        | Scope         | Semester      | r Role            |
|   | Tutors, <b>authors</b> and guarantors (gar.)  |                     |                |               |               |                   |
|   | BIM in a Construction Praxis  |                     |                |               |               |                   |
| 122BIMP   | Pavel Neumann, Jaroslav Synek, Petr Zavadil, Vja eslav Usmanov, Michal  | Z,ZK                | 6              | 2P+3C         |               | Z                 |
|   | Ková ík Jaroslav Synek Jaroslav Synek (Gar.)  |                     |                |               |               |                   |
| 122ICPS   | Engineering Activities for Building Construction<br>Rostislav Šulc, Tomáš Váchal, Lenka St elbová Tomáš Váchal Tomáš  | Z,ZK                | 6              | 2P+3C         | Z             | z                 |
|   | Váchal (Gar.)   | ,                   |                |               |               |                   |
| 400M//OT  | Quality Management System in Construction Company   | 7 71/               |                | 2P+3C         | z             | _                 |
| 122MKST   | Tomáš Váchal, Pavel Svoboda, Linda Veselá <b>Tomáš Váchal</b> Pavel Svoboda (Gar.)  | Z,ZK                | 6              | 28+30         | 2             | Z                 |
|   | Project R2  |                     |                |               |               |                   |
| 122PJ2R   | Rostislav Šulc, Tomáš Váchal, Pavel Neumann, Miloslava Popenková Rostislav  | KZ                  | 4              | 4C            | Z             | Z                 |
|   | Šulc Václav Pospíchal (Gar.)  |                     |                |               |               |                   |
| 126STMN   | Construction Management   | Z,ZK                | 6              | 3P+2C         | Z,L           | z                 |
| 120011011   | Renáta Schneiderová Heralová, Zita Prost jovská, Dana M š anová, Jaroslava<br>Tománková, Václav Tatýrek <b>Martin ásenský</b> Zita Prost jovská (Gar.)                              | 2,213               | 0              | 51 +20        | 2,2           | 2                 |
|   |   |                     |                |               |               |                   |
|   | courses of this group of Study Plan: Code=BR20190007 Name   | e=Stavitelstv       | í, 7. sem      |               | ,             |                   |
|   | I in a Construction Praxis  |                     |                |               | Z,ZK          | 6                 |
|   | e requirements for the effective use of BIM models of buildings in the life cycle of the b  | -                   |                | -             |               | -                 |
|   | the building, i.e. on the needs and requirements of the preparation, production and ope   |                     |                | -             | ction and ope | ration of the     |
|   | s information about applications used in the digital environment to fulfill the requireme<br>gineering Activities for Building Construction   |                     | building me    |               | Z,ZK          | 6                 |
|   | according to legal regulations, flow diagram of the preparation and authorization of the  | e contract Building | 1 Act - nerfoi |               |               | -                 |
|   | - building regulations Implementing legislation to the Building Act - design phase Imple  | -                   |                |               |               |                   |
|   | Act - construction Roads Act - basic provisions and special use - implementation proces   |                     |                |               | -             |                   |
|   | tions of the designer, contractual relationship in variants Air Protection Act, Waste Act   |                     |                |               |               |                   |
|   | land fund, law on forests and water law - permit process Act on State Monument Care   | and Act on Enviro   | nmental Imp    | oact Assess   | ment - permit | process Civil     |
| Code - contract   | ality Managament System in Construction Company   |                     |                |               | 7 71/         | 0                 |
|   | ality Management System in Construction Company<br>eld of quality management: quality management system (SMK) according to EN ISO §   | 2001 Total Quality  | Managom        |               | Z,ZK          | 6<br>oring in     |
|   | company. Analysis of quality management system processes. Forms of familiarization  |                     | -              |               | -             | -                 |
|   | organization so that quality management and assurance is reflected in the implementati  |                     |                |               | -             | -                 |
| 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 |   |                     |                |               |               |                   |
|   | orks; active involvement of all staff in quality improvement; creation of conditions by th  | -                   | -              |               | -             |                   |
|   | trends in achieving high quality processes and products; effective communication and te   |                     |                |               |               | -                 |
|   | Il-round training of employees in order to capture the current world trend; motivation of<br>rmance of work tasks; growth of culture in the organisation, economic prosperity and t |                     | •              |               |               |                   |
|   | piect R2  | The resulting socia |                |               | KZ            | 4                 |
|   | ject rize including pre-production and production preparation of the contractor   |                     |                | I             |               | 4                 |
|   | nstruction Management   |                     |                |               | Z,ZK          | 6                 |
|   | ots. Methods to support project management. Legal standards, SN and ISO standard  | ls. The essential a | spects of P    |               | · ·           | -                 |
|   | strategies, phases and surroundings of the construction project. Project manager role.  |                     | -              | -             | -             |                   |
| management. Financial management and project evaluation. Feasibility study. Cost and resource management. Change procedures. The Act on Spatial Planning and Building                   |   |                     |                |               |               |                   |

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: StaviteIství, 8. semestr

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

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<br>(in case of groups of courses the list of codes of their<br>members)<br>Tutors, authors and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
|--------|--|------------|---------|-------|----------|------|
| 122ROP | Guided Professional Practice<br>Rostislav Šulc Rostislav Šulc (Gar.)   | Z          | 18      | 15C   | L        | Z    |

Ζ

18

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

|  |  | 122ROP | Guided Professional Practice |
|--|--|--------|------------------------------|
|--|--|--------|------------------------------|

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

| 144BTIS                   |         | Trenchless technologies for underground utilities<br>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              |
| Characteristics of        | f the   | courses of this group of Study Plan: Code=BR20230007_1 Na   | me=Stavitels          | ství, povi    | nn volit         | elný p ed       | m t            |
| 105PRA                    | Lav     | 1   |                       |               |                  | Z               | 2              |
| 105YSAS                   | Soc     | ciology and Psychology  |                       |               |                  | Z               | 2              |
|                           |         | soregy and r by choregy   | chology of work :     | and organiz   | ation mana       | 1               |                |
|                           |         | ychology in corporate communication. In the part of sociology, attention is focused or  |                       |               |                  | • • •           |                |
| and selected themes fro   |         |   | i ale secletegy el    |               | i ilio rogioli,  |                 | erneaenig      |
| 122YTPP                   | 1       | hnology of preparatory processes  |                       |               |                  | Z               | 2              |
|                           |         | fications, financial and criminal responsibility, rights and obligations according to law   | and contract proc     | occos porfe   | <br>armod by the |                 |                |
| -                         |         | its and obligations, job description. Technical supervision of the builder, construction  | -                     |               | -                |                 | -              |
|                           | , 0     | cts, requirements of contracting authorities, offer of construction contracts for individu  |                       |               |                  |                 | 0 1            |
| contractor.               | contre  |   |                       |               |                  |                 |                |
| 122YZST                   | 1 Sn    | noial construction and toobhalagu   |                       |               |                  | Z               | 2              |
| _                         |         | ecial construction and technology   | ologion upod in th    |               | ion of non tr    | - 1             |                |
|                           |         | cedures resulting from the latest construction research. Introduction to modern techn<br>requirements. Special methods of production of monolithic, prefabricated and combine             | -                     |               |                  |                 | -              |
|                           |         | es of erection of steel structures. Special technologies used in the construction of ne   |                       | -             |                  | -               |                |
|                           | -       | gressive materials and technological procedures for interior and finishing works result   | -                     |               |                  | -               |                |
| -                         | -       |   | iting nom the late:   | si developii  |                  |                 |                |
| 124YKSD                   |         | nplex Structural Detail   |                       |               |                  | Z               | 2              |
|                           |         | ttend the knowledge gained in previous courses - it is intended for students who have   | -                     |               |                  | -               |                |
|                           |         | ntent of the course is focused on the complex solution of construction details, followin  | ig all legislative re | quirements    | and taking i     | nto account t   | the maximum    |
| efficiency and durability |         |   |                       |               |                  |                 |                |
| 124YLOP                   |         | ntweight Building Envelope  |                       |               |                  | Z               | 2              |
|                           |         | isics needed for the design of light outer skins, glazed roofs and skylights, it is focuse  |                       |               |                  |                 | • •            |
|                           |         | on. Students are introduced to the requirements for these constructions, the design p   |                       |               |                  |                 | including a    |
| concrete example of a c   | desigr  | solution and a suitable material base Students are shown the possibilities of using g   | lass in architectur   | re, including | realized co      | nstructions.    |                |
| 125YNST                   | HV      | AC and services design  |                       |               |                  | Z               | 2              |
| Basic principles of the c | desigr  | ing of sanitary systems, heating and ventilation. Design of the heat source, heat emit  | ters, potable wate    | r demand,     | amount of ve     | entilation air, | design of      |
| air-handling unit and de  | esign o | of indoor systems.  |                       |               |                  |                 |                |
| 126YPER                   | Hu      | nan resource management   |                       |               | Z                | Z,ZK            | 2              |
| Main intention is to mak  | ke stu  | dents familiar with practical HR management in construction company with focus on h   | iring, adaptation,    | motivation,   | leadership a     | and remunera    | ation. Within  |
| classes theory is combi   | ined w  | ith trainings (model situations).   |                       |               |                  |                 |                |
| 126YVSF                   | Sm      | all Business Management   |                       |               |                  | Z               | 2              |
|                           |         | tures 1 hour per week and exercises 1 hour per week. Lectures take place according  | to the course out     | line listed b | elow. In the     | exercise. stud  | dents prepare  |
|                           |         | selected business activity according to the specified syllabus. They draw up a plan fo  |                       |               |                  |                 |                |
| self-employed person a    | and a l | egal entity, e.g. Ltd. The financial plan is prepared in Excel, and the credit condition is   | the presentation      | of the busir  | ness plan in j   | power point i   | n front of the |
| auditorium.               |         |   | ·                     |               |                  |                 |                |
| 142YKGV                   | Str     | uctural and Geotechnical Issues of Hydraulic Structures   |                       |               |                  | Z               | 2              |
| -                         |         | ecifics, risks and design challenges in the design, implementation, operation and rep   | air of water works    | through ex    | amples of fa     |                 |                |
|                           |         | bublic and abroad. The course includes a detailed discussion of successfully applied n  |                       |               |                  |                 |                |
| their substructure        |         |   |                       |               |                  |                 |                |
| 144BTIS                   | Tro     | nchless technologies for underground utilities  |                       |               |                  | Z               | 2              |
|                           |         |   | deraround utilitie    | e Within the  | <br>lacturas th  | 1               |                |
|                           |         | asic clarification of individual trenchless methods for the laying and rehabilitation of ur<br>ity for individual applications, requirements for construction readiness, and their limits | -                     |               |                  |                 |                |
|                           |         |   | and hans die UIS      | CUSSEC 101 1  | nuiviuuai me     | anous. As pa    |                |
|                           |         | eal cases implemented variant proposals of methods.   |                       |               |                  | 7               | <u>^</u>       |
| 210YDIR                   |         |   |                       |               |                  | Ζ               | 2              |
|                           |         | urement and instrumentation of testing structures. Theory of experimental work, measurement and instrumentation of testing structures.  |                       | -             | -                | -               |                |
|                           |         | ng devices, tenzometers, inductive senzors etc. Static and dynamic loading testing of   |                       | -             |                  |                 | -              |
| -                         |         | engineering structures. Excursion on site or on the building structure. Concept of mar  |                       |               |                  | -               | -              |
|                           |         | ojects, building process and finished structures. Acreditation process of the testing la  | boratories. Certific  | cation of the | e quality syst   | tems of produ   | uction and     |
| certification of products | S.      |   |                       |               |                  |                 |                |
|                           |         |   |                       |               |                  |                 |                |

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<br>(in case of groups of courses the list of codes of their<br>members)<br>Tutors, authors and guarantors (gar.)  | Completion | Credits | Scope | Semester | Role |
|---------|---|------------|---------|-------|----------|------|
| 104YCA1 | English 1<br>Karolína Synková, Alexandra Steinerová, Elena Da eva, Jarmila Fu íková,<br>Sandra Giormani, Hana Horká, Petra Martincová, V ra ermáková, Michaela<br>Németh, Svatava Boboková Bartíková Sandra Giormani (Gar.) | Z          | 1       | 2C    | Z,L      | J    |
| 104YCN1 | <b>German 1</b><br>Svatava Boboková Bartíková <b>Svatava Boboková Bartíková</b> Svatava<br>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

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) Ζ

1

#### 104YCN1 German 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<br>(in case of groups of courses the list of codes of their<br>members)<br>Tutors, authors and guarantors (gar.)  | Completion | Credits | Scope | Semester | Role |
|---------|---|------------|---------|-------|----------|------|
| 104YC2A | English 2<br>Karolína Synková, Alexandra Steinerová, Elena Da eva, Jarmila Fu íková,<br>Sandra Giormani, Hana Horká, Petra Martincová, V ra ermáková, Michaela<br>Németh, Svatava Boboková Bartíková Sandra Giormani (Gar.) | Z,ZK       | 2       | 2C    |          | J    |
| 104YC2N | German 2<br>Svatava Boboková Bartíková Sandra Giormani Svatava Boboková Bartíková<br>(Gar.)   | Z,ZK       | 2       | 2C    |          | J    |

#### Characteristics of the courses of this group of Study Plan: Code=BF20190302 J Name=Povinn voliteIný 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                   |   |                      |                   |  |  |  |
| the knowledge of lexis a   | nd grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall fc | cus is on professi   | onal language     |  |  |  |
| (i.e., ESP - technical sty   | le) and communicative competence within the construction industry. The course also seeks to teach students to read technic    | cal literature and t | o be able to      |  |  |  |
| produce essential writte   | n discourse and to express themselves in writing on issues in their field of study. The end of course requirements are a cred | it and an examina    | tion. Literature: |  |  |  |
| Horká Hana, Giormani S   | 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 profession     |   |                      |                   |  |  |  |
| 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<br>(in case of groups of courses the list of codes of their<br>members)<br>Tutors, authors and guarantors (gar.)                            | Completion | Credits | Scope | Semester | Role |
|---------|---|------------|---------|-------|----------|------|
| 122BAPR | Bachelor Thesis<br>Pavel Svoboda Tomáš Váchal Rostislav Šulc (Gar.)   | Z          | 12      | 10C   | L,Z      | S1   |
| 124BAPR | Bachelor Thesis<br>Lenka Hanzalová, Jaroslav Vychytil Petr Hájek  | Z          | 12      | 10C   | L,Z      | S1   |
| 125BAPR | Bachelor Thesis<br>Stanislav Frolík Stanislav Frolík (Gar.)   | Z          | 12      | 10C   | L,Z      | S1   |
| 126BAPR | Bachelor Thesis<br>Eduard Hromada, Daniel Macek Eduard Hromada Daniel Macek (Gar.)  | Z          | 12      | 10C   | L,Z      | S1   |
| 133BAPR | Bachelor Thesis<br>Jitka Vašková  | Z          | 12      | 10C   | L,Z      | S1   |
| 134BAPR | Bachelor Thesis<br>Jakub Dolejš <b>Michal Jandera</b> Jakub Dolejš (Gar.)   | Z          | 12      | 10C   | L,Z      | S1   |
| 136BAPR | Bachelor Thesis<br>Michal Uhlík Petr Mondschein (Gar.)  | Z          | 12      | 10C   | L,Z      | S1   |
| 137BAPR | Bachelor Thesis<br>Vít Lojda Vít Lojda (Gar.)   | Z          | 12      | 10C   | L,Z      | S1   |
| 141BAPR | Bachelor Thesis   | Z          | 12      | 10C   | L,Z      | S1   |
| 142BAPR | Bachelor Thesis<br>Pavel Fošumpaur, Tomáš Dally, Jitka Ku erová Pavel Fošumpaur   | Z          | 12      | 10C   | L,Z      | S1   |
| 143BAPR | Bachelor Project<br>Michal Sn hota, Tomáš Dostál, Martin Do kal, Martin Šanda, Milena Císlerová,<br>Václav David, Petr Kavka, Petr Koudelka, Josef Krása, Martin Šanda<br>Tomáš Dostál (Gar.) | z          | 12      | 10C   | L,Z      | S1   |
| 210BAPR | Bachelor Thesis<br>Ji í Litoš, Pavel Reiterman <b>Ji í Litoš</b>  | Z          | 12      | 10C   | L,Z      | S1   |

## Characteristics of the courses of this group of Study Plan: Code=BR20190008\_1 Name=StaviteIství, bakalá ská práce

| 122BAPR  | Bachelor Thesis   | Z  | 12  |
|--|---|--|---|
| 124BAPR  | Bachelor Thesis   | Z  | 12  |
| The topics of bachele  | or's theses are based on the needs of practice or the scientific research activities of the department, scope and difficulty corre  | spond to the stude   | nt's knowledge  |
| acquired during bach   | nelor's studies. The supervisor of the bachelor's thesis can designate additional consultants to the student.   |  |   |
| 125BAPR  | Bachelor Thesis   | Z  | 12  |
| 3achelor Thesis is th  | e result of the Bachelor degree study programme. It should prove student's ability to work independently in the area of Buildin   | g Services Systen  | ns. The thesis ca   |
| over theoretical asp   | ects or to focus on practical application on an object within building services systems. Students consult the supervisor and sp   | ecialists from othe  | r departments.  |
| The thesis is present  | ted in front of the commission.   |  |   |
| 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 study on the real proje  | ect. The bachelor t  | nesis connects to   |
| he chosen subjects   | of the study curricula. The partial results are further evaluated and appropriate conclusions are drawn. For students of branch   | R.   |   |
| 133BAPR  | Bachelor Thesis   | Z  | 12  |
| A bachelor thesis is t   | the qualification thesis of a bachelor's degree. It can take the form of processing the structural design project or research stud  | y on the topic of de   | signing and   |
| application of a struc   | tural element with a variant comparative analysis or parametric study or performing and analysing experiments, etc.   |  |   |
| 134BAPR  | Bachelor Thesis   | Z  | 12  |
| 134DAFN  |   |  | 1   |
|  | nt formulates a bachelor's thesis that is necessary to reach the bachelor's degree.   |  |   |
|  | nt formulates a bachelor's thesis that is necessary to reach the bachelor's degree. Bachelor Thesis   | Z  | 12  |
| n this course, studer  |   |  | 1   |
| n this course, studer<br>136BAPR<br>The assigned topic of  | Bachelor Thesis   | lutions of road stru   | ctures, laborator   |
| n this course, studer<br>136BAPR<br>The assigned topic of<br>ests to verify the fun  | Bachelor Thesis<br>f bachelor theses can be a project, traffic surveys, research of selected issues with application in practice for various technical so   | lutions of road stru<br>design of a new co   | ctures, laborator   |
| n this course, studer<br>136BAPR<br>The assigned topic of<br>ests to verify the fun<br>reconstruction of a so  | Bachelor Thesis<br>f bachelor theses can be a project, traffic surveys, research of selected issues with application in practice for various technical so<br>actionality of various materials for pavements, etc. In terms of design, the most common topics of theses are, for example, the  | lutions of road stru<br>design of a new co<br>struction or recons  | ctures, laborator   |
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| n this course, studer<br>136BAPR<br>The assigned topic of<br>ests to verify the fun<br>reconstruction of a sin<br>ntersections, the des<br>of different material s<br>of a particular material<br>137BAPR<br>A bachelor's thesis is<br>professional text, cita<br>141BAPR  | Bachelor Thesis f bachelor Thesis f bachelor theses can be a project, traffic surveys, research of selected issues with application in practice for various technical so inctionality of various materials for pavements, etc. In terms of design, the most common topics of theses are, for example, the elected section of a road (bypass, flyover), the design of a road network in a selected area of the city, the design of a new con sign of an airport, heliport, etc. In terms of pavement structures and road construction technologies, the most frequent topics o olutions for asphalt or concrete pavements, including the relevant composite materials or input components (binders, aggregates ial or type of structure by laboratory methods, or carrying out simulations, etc. Bachelor Thesis s the first comprehensive work prepared by students during their university studies on a chosen topic. The basic tasks are: learnin ation standards, etc. execution and evaluation of specified laboratory tests). Bachelor Thesis  | Lutions of road stru<br>design of a new co<br>struction or recons<br>f work are, for exa<br>s, etc.), assessmer<br>Z<br>ng to work with liter  | tures, laborator<br>onstruction or<br>struction of<br>mple, compariso<br>at of the behaviou<br>12<br>ature, processin   |
| n this course, studer<br>136BAPR<br>The assigned topic of<br>ests to verify the fun<br>reconstruction of a so<br>intersections, the des<br>of different material so<br>of a particular material<br>137BAPR<br>A bachelor's thesis is<br>professional text, cita<br>141BAPR<br>Preparation of a back<br>142BAPR   | Bachelor Thesis         f bachelor theses can be a project, traffic surveys, research of selected issues with application in practice for various technical so iccionality of various materials for pavements, etc. In terms of design, the most common topics of theses are, for example, the elected section of a road (bypass, flyover), the design of a road network in a selected area of the city, the design of a new con sign of an airport, heliport, etc. In terms of pavement structures and road construction technologies, the most frequent topics o olutions for asphalt or concrete pavements, including the relevant composite materials or input components (binders, aggregates ial or type of structure by laboratory methods, or carrying out simulations, etc.         Bachelor Thesis         ethe first comprehensive work prepared by students during their university studies on a chosen topic. The basic tasks are: learning ation standards, etc. execution and evaluation of specified laboratory tests).         Bachelor Thesis         helor thesis in the field of hydraulics, hydrology, water flows or flood protection solutions.  | Lutions of road stru<br>design of a new co<br>struction or recons<br>f work are, for exa<br>s, etc.), assessmer<br>Z<br>ng to work with liter<br>Z   | tures, laborator<br>onstruction or<br>struction of<br>mple, compariso<br>tt of the behaviou<br>12<br>ature, processin<br>12   |
| n this course, studer<br>136BAPR<br>The assigned topic of<br>ests to verify the fun<br>econstruction of a so<br>intersections, the des<br>of different material so<br>of a particular material<br>137BAPR<br>A bachelor's thesis is<br>professional text, cita<br>141BAPR<br>Preparation of a back<br>142BAPR<br>The course includes   | Bachelor Thesis         f bachelor theses can be a project, traffic surveys, research of selected issues with application in practice for various technical so iccionality of various materials for pavements, etc. In terms of design, the most common topics of theses are, for example, the elected section of a road (bypass, flyover), the design of a road network in a selected area of the city, the design of a new con sign of an airport, heliport, etc. In terms of pavement structures and road construction technologies, the most frequent topics o olutions for asphalt or concrete pavements, including the relevant composite materials or input components (binders, aggregates ial or type of structure by laboratory methods, or carrying out simulations, etc.         Bachelor Thesis         the first comprehensive work prepared by students during their university studies on a chosen topic. The basic tasks are: learning ation standards, etc. execution and evaluation of specified laboratory tests).         Bachelor Thesis         helor thesis in the field of hydraulics, hydrology, water flows or flood protection solutions.         Bachelor Thesis         individual work of the student and consultations related to the work on the bachelor thesis.  | Lutions of road stru<br>design of a new co<br>struction or recons<br>f work are, for exa<br>s, etc.), assessmer<br>Z<br>ng to work with liter<br>Z   | tures, laborator<br>onstruction or<br>struction of<br>mple, compariso<br>tt of the behaviou<br>12<br>ature, processin<br>12   |
| n this course, studer<br>136BAPR<br>The assigned topic of<br>ests to verify the fun<br>econstruction of a so<br>intersections, the des<br>of different material so<br>of a particular material<br>137BAPR<br>A bachelor's thesis is<br>professional text, cita<br>141BAPR<br>Preparation of a back<br>142BAPR<br>The course includes<br>143BAPR  | Bachelor Thesis         f bachelor theses can be a project, traffic surveys, research of selected issues with application in practice for various technical so iccionality of various materials for pavements, etc. In terms of design, the most common topics of theses are, for example, the elected section of a road (bypass, flyover), the design of a road network in a selected area of the city, the design of a new con sign of an airport, heliport, etc. In terms of pavement structures and road construction technologies, the most frequent topics o olutions for asphalt or concrete pavements, including the relevant composite materials or input components (binders, aggregates ial or type of structure by laboratory methods, or carrying out simulations, etc.         Bachelor Thesis         sthe first comprehensive work prepared by students during their university studies on a chosen topic. The basic tasks are: learnin ation standards, etc. execution and evaluation of specified laboratory tests).         Bachelor Thesis         helor thesis in the field of hydraulics, hydrology, water flows or flood protection solutions.         Bachelor Thesis         individual work of the student and consultations related to the work on the bachelor thesis.  | Lutions of road stru<br>design of a new co<br>struction or recons<br>f work are, for exai<br>s, etc.), assessmer<br>Z<br>ng to work with liter<br>Z<br>Z<br>Z  | tures, laborator<br>onstruction or<br>struction of<br>nple, compariso<br>it of the behaviou<br>12<br>ature, processin<br>12<br>12<br>12   |
| n this course, studer<br>136BAPR<br>The assigned topic of<br>ests to verify the fun<br>econstruction of a so<br>intersections, the des<br>of different material so<br>of a particular material<br>137BAPR<br>A bachelor's thesis is<br>professional text, cita<br>141BAPR<br>Preparation of a back<br>142BAPR<br>The course includes<br>143BAPR<br>Final thesis of bache                                   | Bachelor Thesis         f bachelor theses can be a project, traffic surveys, research of selected issues with application in practice for various technical so iccionality of various materials for pavements, etc. In terms of design, the most common topics of theses are, for example, the elected section of a road (bypass, flyover), the design of a road network in a selected area of the city, the design of a new con sign of an airport, heliport, etc. In terms of pavement structures and road construction technologies, the most frequent topics o olutions for asphalt or concrete pavements, including the relevant composite materials or input components (binders, aggregates ial or type of structure by laboratory methods, or carrying out simulations, etc.         Bachelor Thesis         the first comprehensive work prepared by students during their university studies on a chosen topic. The basic tasks are: learning ation standards, etc. execution and evaluation of specified laboratory tests).         Bachelor Thesis         helor thesis in the field of hydraulics, hydrology, water flows or flood protection solutions.         Bachelor Thesis         individual work of the student and consultations related to the work on the bachelor thesis.  | Lutions of road stru<br>design of a new co<br>struction or recons<br>f work are, for exai<br>s, etc.), assessmer<br>Z<br>ng to work with liter<br>Z<br>Z<br>Z  | tures, laborator<br>onstruction or<br>struction of<br>nple, compariso<br>it of the behaviou<br>12<br>ature, processin<br>12<br>12<br>12   |
| n this course, studer<br>136BAPR<br>The assigned topic of<br>ests to verify the fun<br>econstruction of a so<br>futersections, the des<br>of different material so<br>of a particular material<br>137BAPR<br>A bachelor's thesis is<br>professional text, cita<br>141BAPR<br>Preparation of a back<br>142BAPR<br>The course includes<br>143BAPR<br>Final thesis of bache<br>responsible supervise          | Bachelor Thesis         f bachelor theses can be a project, traffic surveys, research of selected issues with application in practice for various technical so iccionality of various materials for pavements, etc. In terms of design, the most common topics of theses are, for example, the elected section of a road (bypass, flyover), the design of a road network in a selected area of the city, the design of a new consign of an airport, heliport, etc. In terms of pavement structures and road construction technologies, the most frequent topics or olutions for asphalt or concrete pavements, including the relevant composite materials or input components (binders, aggregates and or type of structure by laboratory methods, or carrying out simulations, etc.         Bachelor Thesis         is the first comprehensive work prepared by students during their university studies on a chosen topic. The basic tasks are: learning the relevant, etc. execution and evaluation of specified laboratory tests).         Bachelor Thesis         helor thesis in the field of hydraulics, hydrology, water flows or flood protection solutions.         Bachelor Thesis         individual work of the student and consultations related to the work on the bachelor thesis.         Bachelor Project         Hor study usually is a continuation of study and pre-diploma seminar. Student selects the topic from offer given by selected degor, student works on chosen topic.  | Lutions of road stru<br>design of a new co<br>struction or recons<br>f work are, for exai<br>s, etc.), assessmer<br>Z<br>ng to work with liter<br>Z<br>Z<br>Z  | tures, laborator<br>onstruction or<br>struction of<br>nple, compariso<br>it of the behaviou<br>12<br>ature, processin<br>12<br>12<br>12   |
| n this course, studer<br>136BAPR<br>The assigned topic of<br>ests to verify the fun<br>econstruction of a so<br>futersections, the des<br>of different material so<br>of a particular material<br>137BAPR<br>A bachelor's thesis is<br>professional text, cita<br>141BAPR<br>Preparation of a back<br>142BAPR<br>The course includes<br>143BAPR<br>Final thesis of bache<br>esponsible supervis<br>210BAPR | Bachelor Thesis         f bachelor theses can be a project, traffic surveys, research of selected issues with application in practice for various technical so iccionality of various materials for pavements, etc. In terms of design, the most common topics of theses are, for example, the elected section of a road (bypass, flyover), the design of a road network in a selected area of the city, the design of a new con sign of an airport, heliport, etc. In terms of pavement structures and road construction technologies, the most frequent topics o olutions for asphalt or concrete pavements, including the relevant composite materials or input components (binders, aggregates ial or type of structure by laboratory methods, or carrying out simulations, etc.         Bachelor Thesis         sthe first comprehensive work prepared by students during their university studies on a chosen topic. The basic tasks are: learnin ation standards, etc. execution and evaluation of specified laboratory tests).         Bachelor Thesis         helor thesis in the field of hydraulics, hydrology, water flows or flood protection solutions.         Bachelor Thesis         individual work of the student and consultations related to the work on the bachelor thesis.         Bachelor Project         Hor study usually is a continuation of study and pre-diploma seminar. Student selects the topic from offer given by selected dependent of study usually is a continuation of study and pre-diploma seminar. | Interim Section Sectio | ctures, laborator         onstruction or         struction of         mple, compariso         to f the behaviou         12         ature, processin         12         12         cooperation with         12         12         12         12         12         12         12         12         12         12         12         12         12 |

# List of courses of this pass:

| Code   | Name of the course  | Completion   | Credits  |
|--|---|--|--|
|  | Constructive Geometry<br>rojective methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. Sim<br>of solids and groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical su<br>building industry.   |  | -  |
| 101MAR1  | Mathematics R1<br>https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/MT01/   | Z,ZK   | 6  |
| 101MAR2  | Mathematics R2<br>https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/   | Z,ZK   | 6  |
| 104YC2A  | English 2   | Z,ZK   | 2  |
| English 2 Course of the knowledge of l<br>(i.e., ESP - techn                                       | wode: 104YC2A Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit and exam The aim of the compulsory<br>exis and grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall focu<br>ical style) and communicative competence within the construction industry. The course also seeks to teach students to read technica<br>written discourse and to express themselves in writing on issues in their field of study. The end of course requirements are a credit a<br>Horká Hana, Giormani Sandra, Martincová Petra, Nivenová Renata : Professional English for Civil Engineering (Units 6 10  | English course is<br>s is on professiona<br>al literature and to l<br>nd an examination      | to enhance<br>I language<br>be able to                       |
| 104YC2N  | German 2  | Z,ZK   | 2  |
| The compulsory contexts, and learning  | urse - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction indus<br>the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Liter<br>Deutsch im Bauwesen   | try, understanding   | professional   |
| 104YCA1  | English 1   | Z  | 1  |
| of lexis and gram<br>technical style) and<br>written discourse ar<br>104YCN1<br>The compulsory cou | ade: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English course<br>mar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on profess<br>communicative competence within the construction industry. The course also seeks to teach students to read technical literature and<br>ad to express themselves in writing on issues in their field of study. The end of course requirements are a credit. Literature: Horká Hana<br>Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5)<br>German 1<br>urse - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction indus<br>the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Liter | sional language (i.<br>to be able to produ<br>, Giormani Sandra,<br>Z<br>try, understanding  | e., ESP -<br>ce essential<br>Martincová<br>1<br>professional |
|  | Deutsch im Bauwesen   | _  |  |
| 105PRA   | Law   | Z  | 2  |
|  | Sociology and Psychology<br>ceived as a synthesis of selected chapters from psychology and sociology. He deals with the psychology of work and organization, r<br>e use of psychology in corporate communication. In the part of sociology, attention is focused on the sociology of the city and the reg<br>and selected themes from sociology of the company.   |  |  |
| 122BAPR  | Bachelor Thesis   | Z  | 12   |
| 122BIMP  | BIM in a Construction Praxis  | Z,ZK   | 6  |
| completed digital n  | 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<br>nodels 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.preparation, production and the subject is information about applications used in the digital environment to fulfill the requirements of users of the building.  | oduction and oper  | -  |
| 122BPPS  | Health and Safety during Project Implementation   | Z,ZK   | 6  |
| subject is to acqua<br>the principles of OS<br>of civil and enginee<br>on the analysis of te       | k on the construction site is key in the conditions of the modern construction industry and precisely in relation to our integration into l<br>int students with the currently valid legislation in the field of construction preparation and implementation. Familiarization with the role<br>of plan development, as a management platform for creating a safe workplace and coordinating safe work, namely in the individual se<br>ring constructions. Defining a safe workplace in terms of implementation, but also the use and maintenance of buildings. Determination<br>chnological procedures, including the determination of PPE for the given activities. Familiarization with the safe operation of construction<br>the principles of initial training on the construction site and communication with workers in the provision of health and safety during i   | e of the OSH coord<br>egments of the imp<br>on of occupational<br>mechanization. Fa          | linator, with<br>lementation<br>risks based                  |
| 122ICPS  | Engineering Activities for Building Construction  | Z,ZK   | 6  |
| Basic regulations,<br>spatial planning Bui<br>legislation to the Co<br>in variants Rights a        | concepts according to legal regulations, flow diagram of the preparation and authorization of the contract Building Act - performance<br>Iding Act - building regulations Implementing legislation to the Building Act - design phase Implementing legislation to the Building Act<br>nstruction Act - construction Roads Act - basic provisions and special use - implementation process Rights and obligations of the client,<br>nd obligations of the designer, contractual relationship in variants Air Protection Act, Waste Act and Nature and Landscape Protection<br>ricultural land fund, law on forests and water law - permit process Act on State Monument Care and Act on Environmental Impact Ass<br>Code - contract  | e of public administ<br>- permit process In<br>builder, contractual<br>on Act - permit proc  | ration and<br>plementing<br>relationship<br>ess Law on       |
| 122MEST  | Mechanization of construction   | Z,ZK   | 5  |
| work, energy sour<br>preparatory and au<br>processing of liquid<br>control using digit             | ith the issue of mechanization of construction processes. It introduces the principles of construction and use of construction machinery<br>ces for machinery, machinery for main, auxiliary and service processes. The machines represent, according to the progress of work<br>xiliary work, to machines for earthworks, preparation and sheeting of construction pits and foundations, machines for rough construct<br>mixtures, internal and finishing work. Gets acquainted with machines for transport and handling of materials and products. It also pre-<br>tal data, the possibilities of automation and robotics, incl. the impact of mechanization of construction work on the environment. Part<br>e for selecting suitable machine sets and the possibility of acquiring machines, issues of performance of machine sets and the princ  | on the construction<br>tion, production, tra-<br>sents the principles<br>of the course is to | a site, from<br>ansport and<br>of machine<br>clarify the     |
| application to a co<br>namely: manageme  | Quality Management System in Construction Company<br>ends in the field of quality management: quality management system (SMK) according to EN ISO 9001, Total Quality Management (<br>instruction company. Analysis of quality management system processes. Forms of familiarization with the subject on specific cases b<br>ent of the organization so that quality management and assurance is reflected in the implementation of construction e meeting custome<br>tinuous improvement of the effectiveness of SMK and training in the principles of quality policy, such as: Continuous satisfaction of e   | ased on practical e<br>r requirements that   | xperience,<br>are defined                                    |

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 6 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 Ζ 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** Z,ZK 6 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 Ζ **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** 7.7K 4 Staircases, sloping ramps, lift shafts - requirements, structural and material solutions, basics of typology, design principles, construction details, railing. Building foundations - foundation conditions, types of foundations, requirements, building plinth area (construction details). Basement - solution of basement walls, requirements, protection against water, waterproofing systems. Structural expansion joints in buildings - principles of joints design in bearing structures, thermal expansion, compensation of differences in settlement, construction details. Roof truss systems. 124SF1 **Building Physics 1** Z,ZK 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 guantities, 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. 124YLOP Lightweight Building Envelope Ζ 2 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.

| 125BAPR               | Bachelor Thesis  | Z                      | 12           |
|-----------------------|--|------------------------|--------------|
| Bachelor Thesis is    | the result of the Bachelor degree study programme. It should prove student's ability to work independently in the area of Building Ser   | vices 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 specia   | lists from other dep   | artments.    |
|                       | The thesis is presented in front of the commission.  |                        |              |
| 125TZBR               | Building Services System R   | Z,ZK                   | 7            |
| (05)(1)OT             | 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   | nt of ventilation air, | design of    |
| 126BAPR               | air-handling unit and design of indoor systems.<br>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. Th   | I I                    |              |
|                       | e chosen subjects of the study curricula. The partial results are further evaluated and appropriate conclusions are drawn. For students  |                        |              |
| 126BIMS               | BIM for Building Engineering   | Z                      | 1            |
|                       | es on teaching basic knowledge in the field of Building Information Management (BIM) in theoretical and practical areas, applicable a  | I I                    | ialisations  |
|                       | he construction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digitized  | -                      |              |
| graphics, open data   | a sources in the Czech Republic, ICT and enterprise systems, information systems for the construction industry, but also the context of  | BIM in the current of  | onstruction  |
| industry in relation  | to the entire project life cycle and its specifics (delivery, expert focus, phases of construction projects, etc.) The theoretical knowledge   | e 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            |
|                       | urse is to provide students with an introduction to economics and management in the construction industry and to familiarize them with a subscription of the second state of the second st |                        |              |
|                       | plications. Students will be prepared to solve basic construction-management problems in the construction industry. They will acquire  |                        |              |
|                       | construction works and master the basic methods of managing a construction company. Emphasis is placed on understanding the pri<br>relation to the construction industry.  |                        | uninking in  |
| 126KANR               | 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  | I ' I                  |              |
|                       | r tenders, to create a bill of quantities and a detailed estimate. Price, factors influencing price, types of prices, legislation. Valuation of b  |                        |              |
|                       | ata for valuation. Estimating, estimating basis. Hourly billing rates, bidding, software for costs estimation. Fees of project and engineer  |                        | -            |
| calculation (LCC)     | Data and bases for cost calculation - consumption of work and material, standards in construction. Wages and salaries. Costs and their   | classification, cost   | oreakdown,   |
| common calculation    | on methods and techniques, calculation bases. Dynamization of calculation, calculation of machine costs, individual cost calculation, of   | calculation schema     | , content of |
|                       | 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 project<br>Financial management and project evaluation. Feasibility study. Cost and resource management. Change procedures. The Act on Spa  |                        |              |
| -                     | Act on the Awarding of Public Contracts, and the definition of terms. Business obligation relationships, the conclusion of contracts, th   | -                      | -            |
| -                     | ns. Business public competition, its influence on the obligations of participants. Securing the commitment - contractual penalty, guara  |                        | -            |
|                       | in construction - are contract for the conclusion of a future contract, purchase contract, contract for work, and content of the cor   |                        | ,,           |
| 126YPER               | Human resource management  | Z,ZK                   | 2            |
| Main intention is t   | o make students familiar with practical HR management in construction company with focus on hiring, adaptation, motivation, leaders  | ship and remunerat     | ion. Within  |
|                       | classes theory is combined with trainings (model situations).  |                        |              |
| 126YVSF               | Small Business Management  | Z                      | 2            |
| -                     | ded 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   | -                      |              |
| sell-employed per     | 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 auditorium.  | n in power point in    | front of the |
| 132PRUR               | Theory of Elasticity   | Z,ZK                   | 6            |
|                       | ents will learn the basic principles of mechanics and their application in the calculation of stresses in members and member stability.  |                        |              |
|                       | be covered, including loads and basic assumptions for designing structures on the computer.  |                        | gy un aloo   |
| 132SMR1               | Structural Mechanics R1  | Z,ZK                   | 5            |
|                       | palance of forces, moments, reactions of a mass point. 2. Connections of rigid plates and material points. Calculation of rigid plate rea  |                        |              |
| calculation of react  | ions 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. Interr     | nal 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 th  | ne spatial   |
| cantilever. 8. Interr | hal forces on planar composite systems. 9. Calculations of the position of the center of gravity on planar figures. Moments of inertia ar  | nd ellipse of inertia. | 10. Stress   |
|                       | analysis of a section loaded with normal force and moment.   |                        |              |
| 132SMR2               | Structural Mechanics R2  | Z,ZK                   | 6            |
|                       | virtual works. 2. Calculation of deformation of structures using the principle of virtual works. 3. Betti's and Maxwell's theorem. 4. Basic  |                        |              |
|                       | principle. 5. Calculation of internal forces on a straight beam using the force method. 6. Force method and its application to a statically<br>n. 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 deformation  |                        |              |
| F                     | of internal forces on continuous beams. 13. SDM, calculation of internal forces on planar frame structures.  |                        |              |
| 133BAPR               | Bachelor Thesis  | Z                      | 12           |
|                       | s is the qualification thesis of a bachelor's degree. It can take the form of processing the structural design project or research study o   | I I                    |              |
|                       | application of a structural element with a variant comparative analysis or parametric study or performing and analysing experime   | nts, etc.              |              |
| 133NKRB               | 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 a  | -                      |              |
| e e                   | mination of load effects. The properties of concrete, the production and testing of concrete, the properties of concrete reinforcement a   |                        |              |
|                       | 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,<br>Structures).  | , Dunung Materials     | , building   |
| 1                     | Orradiates).   |                        |              |

| 133RBZS  | Construction of Concrete and Masonry Structures   | Z,ZK   | 6  |  |  |  |  |  |
|--|---|--|--|--|--|--|--|--|
|  | cused on the practical designing of basic concrete structural elements, relations of the design and behaviour of structural members,  | •  |  |  |  |  |  |  |
|  | xecution. The principles of structural design are presented with an emphasis on simplified and empirical methods. The subject also in   |  | of masonry   |  |  |  |  |  |
| structures, an introduction to the design of bridges and engineering structures, and the basic principles of prestressed concrete elements design.   |   |  |  |  |  |  |  |  |
| 134BAPR  | Bachelor Thesis<br>In this course, student formulates a bachelor's thesis that is necessary to reach the bachelor's degree.   | Z  | 12   |  |  |  |  |  |
| 134NKRO  |   | Z.ZK   | 3  |  |  |  |  |  |
|  | Load-bearing Structures Design - Steel<br>Ining steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load el  | 1 '  | -  |  |  |  |  |  |
|  | due to the specific properties of individual materials.   | nooto, oonngulalloi  |  |  |  |  |  |  |
| 134ROD   | Steel and Timber Structures Construction  | Z,ZK   | 6  |  |  |  |  |  |
|  | ed on the basis of the design of steel and timber structures and their construction. Subject increases the knowledge the previous sub   | 1 7  | -  |  |  |  |  |  |
|  | of elementary structural members.   |  |  |  |  |  |  |  |
| 135GM01  | Geomechanics 1  | Z  | 3  |  |  |  |  |  |
| The course focuses   | s on the understanding of basic geological laws and principles in relation to architecture, civil engineering and urban planning. Empha   | asis is placed on ex   | plaining the   |  |  |  |  |  |
|  | ical processes, both endogenous and exogenous, on the rock environment and how the geological situation affects the design of struct  |  |  |  |  |  |  |  |
| 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  | includes a brief inti  | roduction to   |  |  |  |  |  |
| 1250M2D  | the regional geology of the Czech Republic.<br>Geomechanics R2  | 7 71/  | 4  |  |  |  |  |  |
| 135GM2R  | I Mechanics for Civil Engineers. Introduction to origin of soils, soil description, multi-phase media behaviour, soil classification, compr   | Z,ZK   | 4  |  |  |  |  |  |
|  | soil testing, earth pressures, assessment of stability and deformation of soil mass, applications in civil engineering.   | essibility and shea  | r resistarice,   |  |  |  |  |  |
| 135ZSE   | Foundations E   | Z,ZK   | 4  |  |  |  |  |  |
|  | tu, literatura, zásady navrhování, geotechnické kategorie Pevnostní a deforma ní charakteristiky základové p dy, plošné základy Me  |  |  |  |  |  |  |  |
|  | a sedání plošných základ Hlubinné základy - typologie, pilotové základy, technologie vrtaných a ražených pilot Osová únosnost osam  |  |  |  |  |  |  |  |
| pilot Stanovení úno  | snosti pín zatížených pilot, skupina pilot Mikropiloty, kotvy, technologie Injektáž klasická a trysková, podzemní st ny Stavební jámy,  | technologie pažen  | í stavebních   |  |  |  |  |  |
| 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  |  |  |  |  |  |
|  | konstrukcí p ed ú inky agresivního prost edí  | 1  |  |  |  |  |  |  |
| 136BAPR  | Bachelor Thesis   | Z  | 12   |  |  |  |  |  |
|  | of bachelor theses can be a project, traffic surveys, research of selected issues with application in practice for various technical solution   |  | -  |  |  |  |  |  |
|  | e functionality of various materials for pavements, etc. In terms of design, the most common topics of theses are, for example, the design of a pave example, the design of a pave example.   | •  |  |  |  |  |  |  |
|  | 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<br>lesign of an airport, heliport, etc. In terms of pavement structures and road construction technologies, the most frequent topics of worl  |  |  |  |  |  |  |  |
|  | I 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.  | ,,   |  |  |  |  |  |  |
| 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)   |  |  |  |  |  |
| and the area of urt  | ban planning and spatial planning (scope 2+0). Unlike the road construction and railroad construction sections, the urban planning se   | 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.  |   |  |  |  |  |  |  |  |
| -  |   | is, their impact on i  | road design.   |  |  |  |  |  |
| Design categories  | of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, ea   | is, their impact on i<br>arthwork - dimensio   | road design.<br>ons, shapes,   |  |  |  |  |  |
| Design categories<br>drainage. Urban   | of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, ea<br>roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p   | is, their impact on i<br>arthwork - dimensic<br>rinciples. Safety ec   | road design.<br>ons, shapes,<br>quipment,  |  |  |  |  |  |
| Design categories<br>drainage. Urban<br>junctions and cross  | of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, ea<br>roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p<br>sings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of  | ns, their impact on n<br>arthwork - dimensio<br>rinciples. Safety ec<br>security, design an  | road design.<br>ons, shapes,<br>quipment,<br>d operation.  |  |  |  |  |  |
| Design categories<br>drainage. Urban<br>junctions and cross<br>Tram transport - his  | of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, ea<br>roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p   | is, their impact on i<br>arthwork - dimensic<br>rinciples. Safety ec<br>security, design an<br>s and parameters,   | road design.<br>ons, shapes,<br>quipment,<br>d operation.<br>metro lines.  |  |  |  |  |  |
| Design categories<br>drainage. Urban<br>junctions and cross<br>Tram transport - his  | of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, ea<br>roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p<br>sings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of<br>story, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principle  | is, their impact on i<br>arthwork - dimensic<br>rinciples. Safety ec<br>security, design an<br>s and parameters,   | road design.<br>ons, shapes,<br>quipment,<br>d operation.<br>metro lines.  |  |  |  |  |  |
| Design categories<br>drainage. Urban<br>junctions and cross<br>Tram transport - his  | of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, ea<br>roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p<br>sings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of<br>story, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principle<br>ons - an introduction to the design and construction of a railway track in the conditions of the Czech Republic, the basic elements of the  | is, their impact on i<br>arthwork - dimensic<br>rinciples. Safety ec<br>security, design an<br>s and parameters,   | road design.<br>ons, shapes,<br>quipment,<br>d operation.<br>metro lines.  |  |  |  |  |  |
| Design categories<br>drainage. Urban<br>junctions and cross<br>Tram transport - his<br>Railway constructio<br>136RPK   | of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, ea<br>roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p<br>sings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of<br>story, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principle<br>ons - an introduction to the design and construction of a railway track in the conditions of the Czech Republic, the basic elements of the<br>Planning (SP): Teaching spatial planning and urban planning, spatial planning tools and procedures for their acquisition.   | is, their impact on i<br>arthwork - dimensio<br>rinciples. Safety ec<br>security, design an<br>s and parameters,<br>railway superstruc<br>Z,ZK   | road design.<br>ons, shapes,<br>quipment,<br>d operation.<br>metro lines.<br>cture. Spatial  |  |  |  |  |  |
| Design categories<br>drainage. Urban<br>junctions and cross<br>Tram transport - his<br>Railway construction<br>136RPK<br>The theoretical par<br>137BAPR  | of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, ea<br>roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p<br>sings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of<br>story, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principle<br>ons - an introduction to the design and construction of a railway track in the conditions of the Czech Republic, the basic elements of the<br>Planning (SP): Teaching spatial planning and urban planning, spatial planning tools and procedures for their acquisition.<br>Road Structures Construction<br>t of the course introduces students to materials used in road construction, their properties, testing and use. In the exercises, the knowled<br>Bachelor Thesis  | is, their impact on i<br>arthwork - dimensio<br>rinciples. Safety ec<br>security, design an<br>s and parameters,<br>railway superstruct<br>Z,ZK<br>edge of designing is<br>Z   | road design.<br>ons, shapes,<br>juipment,<br>d operation.<br>metro lines.<br>ture. Spatial<br>6<br>s deepened.<br>12   |  |  |  |  |  |
| Design categories<br>drainage. Urban<br>junctions and cross<br>Tram transport - his<br>Railway construction<br>136RPK<br>The theoretical par<br>137BAPR  | of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, eas<br>roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p<br>sings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of<br>story, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principle<br>ons - an introduction to the design and construction of a railway track in the conditions of the Czech Republic, the basic elements of the<br>Planning (SP): Teaching spatial planning and urban planning, spatial planning tools and procedures for their acquisition.<br><b>Road Structures Construction</b><br>t of the course introduces students to materials used in road construction, their properties, testing and use. In the exercises, the knowled<br><b>Bachelor Thesis</b><br>is the first comprehensive work prepared by students during their university studies on a chosen topic. The basic tasks are: learning to b   | is, their impact on i<br>arthwork - dimensio<br>rinciples. Safety ec<br>security, design an<br>s and parameters,<br>railway superstruct<br>Z,ZK<br>edge of designing is<br>Z   | road design.<br>ons, shapes,<br>juipment,<br>d operation.<br>metro lines.<br>ture. Spatial<br>6<br>s deepened.<br>12   |  |  |  |  |  |
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| Design categories<br>drainage. Urban<br>junctions and cross<br>Tram transport - his<br>Railway construction<br>136RPK<br>The theoretical par<br>137BAPR<br>A bachelor's thesis<br>141BAPR<br>141HYDR<br>A Course Hydrauli<br>142BAPR<br>142RVS<br>The course focuses<br>142VIZP<br>During the teachin<br>practical aspects of<br>are divided them<br>students work on<br>142YKGV<br>The course introc                                    | of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, ear<br>roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design p<br>sings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of<br>story, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principles<br>ons - an introduction to the design and construction of a railway track in the conditions of the Czech Republic, the basic elements of the<br>Planning (SP): Teaching spatial planning and urban planning, spatial planning tools and procedures for their acquisition.<br><b>Road Structures Construction</b><br>tof the course introduces students to materials used in road construction, their properties, testing and use. In the exercises, the knowle<br><b>Bachelor Thesis</b><br>is the first comprehensive work prepared by students during their university studies on a chosen topic. The basic tasks are: learning to<br>professional text, citation standards, etc. execution and evaluation of specified laboratory tests).<br><b>Bachelor Thesis</b><br>Preparation of a bachelor thesis in the field of hydraulics, hydrology, water flows or flood protection solutions.<br><b>Hydraulics</b><br>cs (Hydraulika R) is focused on solutions of basic hydraulic problems related to a building practice. The solutions are based on an ap<br>of behaviour of liquids (especially water) under static conditions and also under motion.<br><b>Bachelor Thesis</b><br>The course includes individual work of the student and consultations related to the work on the bachelor thesis.<br><b>Realization of Water Management Structures</b><br>s on the technological procedures in the realization of water management structures. The course is divided into two parts. The first part<br>of sanitary engineering structures and the second part explains the procedures for the implementation of hydraulic engineering s          | is, their impact on in arthwork - dimension inciples. Safety experimental security, design and security and parameters, and parameters, and the security and the security of the | road design.<br>ons, shapes,<br>quipment,<br>d operation.<br>metro lines.<br>ture. Spatial<br>6<br>s deepened.<br>12<br>, processing<br>12<br>6<br>al principles<br>12<br>6<br>lementation<br>4<br>aced on the<br>The lectures<br>exercises,<br>f K14x are<br>2<br>struction of                      |  |  |  |  |  |
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| Design categories<br>drainage. Urban<br>junctions and cross<br>Tram transport - his<br>Railway construction<br>136RPK<br>The theoretical par<br>137BAPR<br>A bachelor's thesis<br>141BAPR<br>141HYDR<br>A Course Hydrauli<br>142BAPR<br>142RVS<br>The course focuses<br>142VIZP<br>During the teachin<br>practical aspects of<br>are divided them<br>students work on<br>142YKGV<br>The course introcov<br>water works in the<br>143BAPR | of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, ear 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. <b>Road Structures Construction</b> to the design and use. In the exercises, the knowle <b>Bachelor Thesis</b> 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). <b>Bachelor Thesis</b> Preparation of a bachelor thesis in the field of hydraulics, hydrology, water flows or flood protection solutions. <b>Hydraulics</b> chydraulik R) is focused on solutions of basic hydraulic problems related to a building practice. The solutions are based on an ap of behaviour of liquids (especially water) under static conditions and also under motion. <b>Bachelor Thesis</b> S on the technological procedures in the realization of Water Management Structures is divided into two parts. The first part of sanitary engineering structures and the second part explains the procedures for the implementation of hydraulic engineering structures and the second part explains (1) times water engineering and 7) times constructures <b>Realization of Water Management Structures</b> structures is divided into two parts. The first part of sanitary engineering in close relation to other branches of civil e  | is, their impact on in arthwork - dimension inciples. Safety experimental security, design and security and parameters, and the security and the security of the security o | road design.<br>ons, shapes,<br>quipment,<br>d operation.<br>metro lines.<br>ture. Spatial<br>6<br>s deepened.<br>12<br>, processing<br>12<br>6<br>al principles<br>12<br>6<br>lementation<br>4<br>aced on the<br>The lectures<br>exercises,<br>f K14x are<br>2<br>struction of<br>te dams and<br>12 |  |  |  |  |  |

| 144BTIS  | Trenchless technologies for underground utilities   | Z                   | 2             |  |  |  |  |
|--|---|---------------------|---------------|--|--|--|--|
| The subject is focus   | 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 condit   | ions, 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 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  |   |                     |               |  |  |  |  |
| 210BAPR  | Bachelor Thesis   | Z                   | 12            |  |  |  |  |
| Students will get the opportunity to organize complex process of experimental work from the beginning of production, experimental investigation to of the 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 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.   |   |                     |               |  |  |  |  |
| TV1  | Physical Education  | Z                   | 0             |  |  |  |  |
| TV2  | Physical Education  | Z                   | 0             |  |  |  |  |

For updated information see <u>http://bilakniha.cvut.cz/en/FF.html</u> Generated: day 2025-06-30, time 23:57.