Study plan

Name of study plan: Stavební inženýrství, obor Příprava, realizace a provoz staveb

Faculty/Institute/Others:
Department:
Branch of study guaranteed by the department: Welcome page
Garantor of the study branch:
Program of study: Civil Engineering
Type of study: Bachelor full-time
Required credits: 240
Elective courses credits: 0
Sum of credits in the plan: 240
Note on the plan: tento studijní plán platí pro nástup 2017 (rozdělení NNK) a 2018

Name of the block: Compulsory courses
Minimal number of credits of the block: 218
The role of the block: Z

Code of the group: BJ20130100
Name of the group: Stavební inženýrství, povinné předměty, 1. semestr
Requirement credits in the group: In this group you have to gain at least 28 credits
Requirement courses in the group: In this group you have to complete at least 5 courses
Credits in the group: 28
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
123CH01	**Chemistry** ***Milena Pavlíková***	Z,ZK	5	3P+1C	Z,L	z
101KG01	**Constructive Geometry** *Iva Křivková, Iva Malechová, Liya Gaynutdinova, Michal Zdražil, Iva Slámová, Hana Lakomá, Jana Čápová* ***Jana Čápová*** *Iva Křivková (Gar.)*	Z,ZK	5	2P+2C	Z,L	z
101MA01	**Mathematics 1** *Iva Křivková, Iva Malechová, Iva Slámová, Jana Čápová, Petr Kučera, František Bubeník, Zdeněk Skalák, Ondřej Zindulka, Ivana Pultarová, ...* ***Aleš Nekvinda*** *Aleš Nekvinda (Gar.)*	Z,ZK	6	2P+3C	Z,L	z
105SVAR	**Social Sciences and Architecture**	Z,ZK	6	4P+1C	L,Z	z
132SM01	**Structural Mechanics 1** *Michal Polák, Martin Válek, Daniel Rypl, Anna Kučerová, Matěj Lepš, Jan Sýkora, Tomáš Krejčí, Miroslav Čáp, Karel Pohl, ...* ***Michal Polák*** *Michal Polák (Gar.)*	Z,ZK	6	2P+2C	Z,L	z

Characteristics of the courses of this group of Study Plan: Code=BJ20130100 Name=Stavební inženýrství, povinné předměty, 1. semestr

123CH01	Chemistry	Z,ZK	5
ntroduction to general chemistry - chemical bond, compounds, reactions, equilibrium. Chemistry of environment - water, atmosphere, pedosphere. Chemistry of building materials - inorganic binders, glass, ceramic, metals, natural polymers, wood, synthetic polymers on C and Si basis. Introduction to degradation of building materials and to analytical chemistry.			
101KG01	Constructive Geometry	Z,ZK	5
Projections and projective methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. Simple problems in axonometry. Basics of lighting of solids and groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical surfaces. Quadrics. Surfaces in building industry.			
101MA01	Mathematics 1	Z,ZK	6
https://mat.fsv.cvut.cz/bubenik/mat1detail.htm			
105SVAR	Social Sciences and Architecture	Z,ZK	6
Subject introduces the fundamental principles of several social sciences: Economics, Economic Policy, Political Science and Law with an overview of architectural development. Economic section offers an introduction to market economy, economic policy and international economy. Lectures and seminars dedicated to Political Science explain Theory of state, political systems, democracy and totalitarianism. Law section comprises brief overview of development of Roman law with interpretation of the Constitution, Labor Code and Civil Code.			
132SM01	Structural Mechanics 1	Z,ZK	6
Concurrent forces, force systems acting on rigid bodies in space/plane, moment of a force about a point and line. Supports of a rigid body, reaction forces. Compound two-dimensional structures. Trusses. Reaction forces applying the principle of virtual work.			

Code of the group: BJ20130200
Name of the group: Stavební inženýrství, povinné předměty, 2. semestr

Requirement credits in the group: In this group you have to gain 28 credits
Requirement courses in the group: In this group you have to complete at least 5 courses
Credits in the group: 28
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
102FY01	**Physics** ***Pavel Demo***	Z,ZK	5	3P+1C	Z,L	z
101MA02	**Mathematics 2** *Iva Křivková, Iva Malechová, Iva Slámová, Hana Lakomá, Jana Čápová, Petr Kučera, František Bubeník, Zdeněk Skalák, Ondřej Zindulka, ...* ***Ivana Pultarová*** *Ivana Pultarová (Gar.)*	Z,ZK	6	2P+3C	L,Z	z
154SG01	**Land Surveying in Civil Engineering** *Rudolf Urban, Martin Štroner* ***Rudolf Urban*** *Rudolf Urban (Gar.)*	Z,ZK	6	2P+3C	Z,L	z
123SH01	**Building Materials** *Eva Vejmelková, Alena Vimmrová, Miloš Jerman* ***Alena Vimmrová*** *Alena Vimmrová (Gar.)*	Z,ZK	5	2P+2C	Z,L	z
132SM02	**Structural Mechanics 2** *Michal Polák, Martin Válek, Daniel Rypl, Anna Kučerová, Matěj Lepš, Jan Sýkora, Miroslav Čáp, Karel Pohl, Jitka Němečková, ...* ***Matěj Lepš*** *Michal Polák (Gar.)*	Z,ZK	6	2P+2C	L,Z	z

Characteristics of the courses of this group of Study Plan: Code=BJ20130200 Name=Stavební inženýrství, povinné předměty, 2. semestr

102FY01	Physics	Z,ZK	5
Mass, structure of matter. Motion of matter, kinematics, dynamics. Force field. Deformations and leak. Oscillations, elastic wawes, acoustics. Heat properties of matter.			
101MA02	Mathematics 2	Z,ZK	6
https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/			
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			
123SH01	Building Materials	Z,ZK	5
Building materials - basis course. Clasification of the materials. Structure of materials. Main properties of materials. Application of materials in building constructions. Introduction to material testing.			
132SM02	Structural Mechanics 2	Z,ZK	6
Internal forces diagrams of simple statically determinate plane structures and compound two-dimensional structures. Multiaxially loaded cantilever. Definition of normal stress and prepositions of its distribution in a cross section. Equivalence of internal forces. Geometry of mass and areas, centre of gravity and moments of inertia.			

Code of the group: BJ20130300
Name of the group: Stavební inženýrství, povinné předměty, 3. semestr
Requirement credits in the group: In this group you have to gain 30 credits
Requirement courses in the group: In this group you have to complete at least 5 courses
Credits in the group: 30
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
136DSUP	**Transport Structures and Urban Planning** ***Ludvík Vébr***	Z,ZK	6	5P+1C	L,Z	z
126EKMN	**Economics and Management** *Božena Kadeřábková, Petr Kalčev, Eduard Hromada, Pavlína Píchová, Pavlína Píchová* ***Eduard Hromada*** *Petr Kalčev (Gar.)*	Z,ZK	7	4P+2C		z
141HYA	**Hydraulics** *Aleš Havlík, Tomáš Picek, Václav Matoušek, Petr Sklenář, Anna Špačková, Jakub Novotný, Vojtěch Bareš, Jan Krupička, Veronika Skalová, ...* ***Václav Matoušek*** *Václav Matoušek (Gar.)*	Z,ZK	5	2P+2C	Z,L	z
101MA03	**Mathematics 3** *Iva Malechová, Petr Kučera, Ondřej Zindulka, Ivana Pultarová, Miloslav Vlasák, Aleš Nekvinda, Michal Beneš, Martin Hála, Martin Soukenka, ...* ***Michal Beneš*** *Michal Beneš (Gar.)*	Z,ZK	6	3P+2C	Z,L	z
132PRPE	**Strength of Materials** *Karel Pohl, Tomáš Plachý, Martin Doškář, Dagmar Jandeková, Tomáš Koudelka, Milan Jirásek, Michal Šejnoha, Petr Kabele, Lenka Melzerová, ...* ***Petr Kabele*** *Petr Kabele (Gar.)*	Z,ZK	6	3P+2C	Z,L	z

Characteristics of the courses of this group of Study Plan: Code=BJ20130300 Name=Stavební inženýrství, povinné předměty, 3. semestr

136DSUP	Transport Structures and Urban Planning	Z,ZK	6

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.			
141HYA	Hydraulics	Z,ZK	5
A course deals with issues of hydrostatics and hydrodynamics with aiming at civil engineering applications. There are analysed tasks related to hydrostatic and hydrodynamic loading of structures, pipeline flow, open channel flow and groundwater flow.			
101MA03	Mathematics 3	Z,ZK	6
https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/			
132PRPE	Strength of Materials	Z,ZK	6
Fundamentals of the theory of elasticity: stress and strain of straight beams subjected to bending and free torsion, ultimate plastic capacity of a member in bending, critical loads and buckling lengths of straight compression members. Basic assumptions, quantities, and equations describing the stress and strain state in 3D continuum, plates and walls.			

Code of the group: BJ20170400
Name of the group: Stavební inženýrství, povinné předměty, 4. semestr
Requirement credits in the group: In this group you have to gain 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: rozdělení 133NNK

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
124PS01	**Building Structures 1** ***Petr Hájek***	Z,ZK	7	4P+2C	Z,L	z
132SM3	**Structural Mechanics 3** *Tomáš Krejčí, Tomáš Plachý, Tomáš Koudelka, Milan Jirásek, Michal Šejnoha, Petr Kabele, Lenka Melzerová, Martin Lebeda, Eva Novotná, ...* ***Petr Kabele*** *Petr Kabele (Gar.)*	Z,ZK	5	2P+2C	L,Z	z
133NNKB	**Fundamentals of Structural Design - Concrete** *Martin Tipka, Jitka Vašková, Radek Štefan, Michal Ševula, Nicole Svobodová* ***Martin Tipka*** *Martin Tipka (Gar.)*	Z,ZK	4	2P+1C	L,Z	z
134NNKO	**Design of Supporting StructuresI - Steel** *František Wald, Martina Eliášová* ***Martina Eliášová*** *Martina Eliášová (Gar.)*	Z,ZK	3	2P+1C	L	z
135GEMZ	**Geology and soil mechanics** ***Jan Salák***	Z,ZK	7	4P+2C	Z,L	z
142VIZP	**Water and Environmental Engineering** *Aleš Havlík, Petr Nowak, Tomáš Dostál, Martin Dočkal, Martin Šanda, Pavel Fošumpaur, Bohumil Šťastný, Ladislav Satrapa, David Stránský, ...* *Ladislav Satrapa (Gar.)*	Z,ZK	4	3P+1C	Z,L	z

Characteristics of the courses of this group of Study Plan: Code=BJ20170400 Name=Stavební inženýrství, povinné předměty, 4. semestr

124PS01	Building Structures 1	Z,ZK	7
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.			
132SM3	Structural Mechanics 3	Z,ZK	5
Deformation and force method for the solution of reactions and internal forces on statically indeterminate beams, frames, and truss structures. Calculation of displacements of beams, frames, and truss structures using the principle of virtual works.			
133NNKB	Fundamentals of Structural Design - Concrete	Z,ZK	4
The content of the subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, including the determination of load effects. The properties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete are discussed. Design and reinforcement of concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceability limit states is in the end of this course. The course follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Materials, Building Structures).			
134NNKO	Design of Supporting StructuresI - Steel	Z,ZK	3
The basics of designing steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load effects, design differences due to the specific properties of individual materials.			
135GEMZ	Geology and soil mechanics	Z,ZK	7
Strength and deformation properties of soils, applications. Principles of design of geotecGeological and geotechnical model of the environment. Basic geological processes. Quaternary geology, hydrogeology.hnical structures.			
142VIZP	Water and Environmental Engineering	Z,ZK	4
During the teaching semester, students are introduced to the fields of water engineering, water management and environmental engineering. In particular, emphasis is placed on the practical aspects of water and environmental engineering in close relation to other branches of civil engineering. The course is taught in the form of lectures and tutorials. The lectures are divided thematically into 20 blocks according to the different branches of the discipline (13 times water engineering and 7 times environmental engineering). In the exercises, students work on basic problems in the field of hydrology, water supply and water structures, especially dams, hydropower and flood issues. All 4 "water" departments of K14x are involved in teaching the course.			

Code of the group: BL20130500
Name of the group: obor Příprava, realizace a provoz staveb, 5. semestr

Requirement credits in the group: In this group you have to gain 30 credits
Requirement courses in the group: In this group you have to complete at least 5 courses
Credits in the group: 30
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors, **authors** and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
122TS01	**Construction Technology 01** *Pavel Neumann, Tomáš Váchal, Rostislav Šulc, Václav Pospíchal **Rostislav Šulc** Rostislav Šulc (Gar.)*	Z,ZK	7	3P+3C	Z	z
124SF01	**Building Physics** *Jiří Novák, Jaroslav Vychytil, Jiří Nováček **Jiří Novák** Jiří Novák (Gar.)*	Z,ZK	6	3P+2C	Z	z
133RBZS	**Construction of Concrete and Masonry Structures** *Iva Broukalová, Petr Bílý, Michaela Frantová **Iva Broukalová** Iva Broukalová (Gar.)*	Z,ZK	6	3P+2C	Z	z
134ROD	**Steel and Timber Structures Construction** *Michal Netušil, Karel Mikeš **Jakub Dolejš** Michal Netušil (Gar.)*	Z,ZK	6	3P+2C	Z	z
135ZSVT	**Foundations** *Josef Jettmar, Jan Masopust, Jan Kos **Jan Kos** Jan Masopust (Gar.)*	Z,ZK	5	2P+2C	Z	z

Characteristics of the courses of this group of Study Plan: Code=BL20130500 Name=obor Příprava, realizace a provoz staveb, 5. semestr

122TS01	Construction Technology 01	Z,ZK	7

Division of processes, construction participants. Principles and drives of construction machines, efficiency, acquisition, deployment and use of machines. Earthworks, rock mining classes, excavation types. Machines for preparatory and earthworks. machine assemblies, flow charts. Arming - principles, individual types, procedures, construction and dismantling. Backfills, embankments, embankments, compaction, drainage. Machines for adjusting, profiling and improving the plain (scrapers, graders, ground stabilization cutters, compaction machines, asphalt finishers and cookers), machines for special foundation, machines for transport. Traditional and system formwork, application of formwork, shots, dimensioning principles. Placement of reinforcement. Placement of fresh concrete, compaction and treatment of fresh concrete. Central and local concrete production, primary and secondary transport. Lifting devices, tower and car cranes, elevators, turnstiles, footbridges. Assembly work, assembly methods. Construction of masonry structures, production and transport of mortars on the construction site Scaffolding, fencing, retaining structures.

124SF01	Building Physics	Z,ZK	6

Thermal performance of buildings Basic course on building physics. The first part of the course (lectures 1, 2) introduces basic principles of heat, air and moisture transfer in buildings and building components as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the design and construction of buildings and building components with respect to building physics related issues. Typical tasks of building design and construction process related with the topics of the course will be presented as well as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of buildings methods will be presented. Lighting technology deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirements and what are the options for verifying the time of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the assessment of daylight mainly in the interiors of buildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting opening. In acoustics, the listener is first introduced to the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sound in the free and diffuse field, the propagation of sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge regarding sound absorption structures and sound insulation properties of dividing structures will be applied.

133RBZS	Construction of Concrete and Masonry Structures	Z,ZK	6

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

134ROD	Steel and Timber Structures Construction	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 previous subject aimed on the basic design of elementary structural members.

135ZSVT	Foundations	Z,ZK	5

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

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Code of the group: BL20140600
Name of the group: obor L Příprava, realizace a provoz staveb, 6. semestr
Requirement credits in the group: In this group you have to gain 24 credits
Requirement courses in the group: In this group you have to complete at least 4 courses
Credits in the group: 24
Note on the group: BL20130600 #

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors, **authors** and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
122PR01	**Project Design L01** *Tomáš Váchal, Lucie Dobiášová, Ilona Koubková **Rostislav Šulc***	KZ	5	4C	L	z

122TES2	**Construction Technology 02** *Pavel Neumann, Rostislav Šulc, Pavel Svoboda, Jaroslav Synek* ***Rostislav Šulc*** *Rostislav Šulc (Gar.)*	Z,ZK	8	4P+2C	L	z
125TZBL	**Building services systems L** ***Hana Kabrhelová***	Z,ZK	5	2P+2C	L	z
126KNL	**Costing and Bidding L** *Renáta Schneiderová Heralová, Stanislav Vitásek, Lucie Brožová* ***Renáta Schneiderová Heralová*** *Renáta Schneiderová Heralová (Gar.)*	Z,ZK	6	2P+2C	L	z

Characteristics of the courses of this group of Study Plan: Code=BL20140600 Name=obor L Příprava, realizace a provoz staveb, 6. semestr

122PR01	Project Design L01	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.			
122TES2	Construction Technology 02	Z,ZK	8
125TZBL	Building services systems L	Z,ZK	5
Basic course in building services systems - water supply, drainage, gas supply and heating systems.			
126KNL	Costing and Bidding L	Z,ZK	6
The aim of the subject is to teach the student to use basic calculation techniques and procedures, to use normative and database. Another goal of the course is to teach the student pricing methods for tenders, to create a bill of quantities and a detailed estimate. Price, factors influencing price, types of prices, legislation. Valuation of building production in all stages of the project, data for valuation. Estimating, estimating basis. Hourly billing rates, bidding, software for costs estimation. Fees of project and engineering activities. Life cycle cost calculation (LCC) Data and bases for cost calculation - consumption of work and material, standards in construction. Wages and salaries. Costs and their classification, cost breakdown, 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.			

Code of the group: BL20130700
Name of the group: obor Příprava, realizace a provoz staveb, 7. semestr
Requirement credits in the group: In this group you have to gain 30 credits
Requirement courses in the group: In this group you have to complete at least 6 courses
Credits in the group: 30
Note on the group:

Code	**Name of the course / Name of the group of courses** ***(in case of groups of courses the list of codes of their members)*** *Tutors,* ***authors*** *and guarantors (gar.)*	**Completion**	**Credits**	**Scope**	**Semester**	**Role**
122MKST	**Quality Management System in Construction Company** *Tomáš Váchal, Pavel Svoboda, Linda Veselá* ***Tomáš Váchal*** *Pavel Svoboda (Gar.)*	Z,ZK	6	2P+3C	Z	z
122PR02	**Project Design L02** *Pavel Neumann, Tomáš Váchal, Václav Pospíchal, Miloslava Popenková* ***Rostislav Šulc*** *Miloslava Popenková (Gar.)*	KZ	5	4C	Z	z
122PSBL	**Facility Management** *Pavel Neumann, Michal Himmel, Matouš Kosina, Vít Kosina, Ondřej Štrup* ***Rostislav Šulc*** *Vít Kosina (Gar.)*	Z,ZK	6	3P+2C	Z	z
122TS03	**Construction Technology 03** *Pavel Neumann* ***Rostislav Šulc*** *Pavel Neumann (Gar.)*	Z,ZK	7	3P+3C	Z	z
126STMN	**Construction Management** *Renáta Schneiderová Heralová, Dana Měšťanová, Jaroslava Tománková, Zita Prostějovská, Václav Tatýrek* ***Zita Prostějovská*** *Dana Měšťanová (Gar.)*	Z,ZK	6	3P+2C	Z,L	z
100ODPR	**Industrial Training (3 weeks)** *Jan Růžička, Petr Hájek* ***Michal Jandera*** *Michal Jandera (Gar.)*	Z	0	6C	Z,L	z

Characteristics of the courses of this group of Study Plan: Code=BL20130700 Name=obor Příprava, realizace a provoz staveb, 7. semestr

122MKST	Quality Management System in Construction Company	Z,ZK	6
Current world trends in the field of quality management: quality management system (SMK) according to EN ISO 9001, Total Quality Management (TQM) and re-engineering in application to a construction company. Analysis of quality management system processes. Forms of familiarization with the subject on specific cases based on practical experience, namely: management of the organization so that quality management and assurance is reflected in the implementation of construction e meeting customer requirements that are defined in the contract continuous improvement of the effectiveness of SMK and training in the principles of quality policy, such as: Continuous satisfaction of external and internal customer requirements; execution of works; active involvement of all staff in quality improvement; creation of conditions by the management of the organization for flawless performance of all staff; application of the latest trends in achieving high quality processes and products; effective communication and teamwork in applying the process approach of the quality management system in the organisation; all-round training of employees in order to capture the current world trend; motivation of employees by management and differentiated remuneration for the results achieved in the performance of work tasks; growth of culture in the organisation, economic prosperity and the resulting social approach of management to employees.			

122PR02	Project Design L02	KZ	5

. Technological scheme: division into objects, sections, shots, technological stages, determination of the directions of construction procedures of staged processes. . List of main constructions in individual technological stages. . Determination of the main coefficients of the work queue for the main objects. . Design and assessment of lifting equipment . Part of the technological analysis sheet according to the statement of dimensions or budget with the calculation of labor for the 0th - 4th stage process. . Technological analysis, including decisive mechanisms, design of work crews with determination of their size, decisive materials (for transport) at the level of partial construction processes (manually with the transfer of items of the technological analysis sheet for the 0th - 4th stage process of the decisive object, hereinafter referred to as partial construction processes for remaining 5th - 9th stage process) . Analysis of transport processes. . Time plan - schedule in the structure of partial construction processes, according to the processed technological analysis. . Operational (detailed) space-time graph in the structure of partial construction processes . A complex space-time graph in the structure of stage processes . Graph of the deployment of workers and the need for specified materials over time, graph of the need for decisive machines and mechanisms. . Dimensioning of social and operational ZS. . Construction site equipment drawings (according to the assignment: for the construction phase), including a technical report at the level of project documentation for a building permit (part of the ZOV) and sizing for the specified stages (e.g. excavations, supporting structure, rough internal work and surface treatment and the end of construction); DIO, DIR. . The situation of wider relations with the assessment of transport routes . Technological procedure for the agreed construction process/ including: on determining construction readiness on the implementation description about the machine deployment plan (specific data from the rental company, etc.) o the deployment plan of decisive platoons o a detailed material supply plan (specifically, a list of all materials according to reality with comparison with calculations) o a detailed list of the necessary tools and auxiliary structures (in detail) o a quality control and measurement plan with reference to ČSN or ISO with citation of decisive articles about documents or measurements that must be delivered or carried out with the delivery of a specific construction o winter measures (if necessary) o OSH risks to the process and measures to eliminate them about the environmental aspects of the process and the possibility of minimizing their negative effects on the ŽP

122PSBL	Facility Management	Z,ZK	6
122TS03	Construction Technology 03	Z,ZK	7

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

126STMN	Construction Management	Z,ZK	6

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

100ODPR	Industrial Training (3 weeks)	Z	0

Professional practice is an important part of academic education in undergraduate degree programmes. The student will gain a basic understanding of duties and professional responsibilities. The professional practice evaluates the sum of all knowledge acquired through previous theoretical studies and is a proof of their acquisition.

Code of the group: BL20130800
Name of the group: obor Příprava, realizace a provoz staveb, 8. semestr
Requirement credits in the group: In this group you have to gain 18 credits
Requirement courses in the group: In this group you have to complete at least 3 courses
Credits in the group: 18
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
122BPS	**BOZP at work in construction company** *Tomáš Váchal, Pavel Svoboda, Petr Kubeček* ***Rostislav Šulc*** *Tomáš Váchal (Gar.)*	Z,ZK	7	4P+2C	L	z
122ITSL	**IT (Information Technology) L** *Pavel Neumann, Tomáš Váchal, Jaroslav Synek, Miroslav Vyčítal, Michal Kovářík* ***Čeněk Jarský*** *Pavel Neumann (Gar.)*	Z,ZK	5	2P+2C	L	z
124KKL	**Completing Constructions L** *Běla Stibůrková, Šárka Šilarová, Hana Gattermayerová, Vladimír Žďára, Lenka Hanzalová* ***Šárka Šilarová*** *Vladimír Žďára (Gar.)*	Z,ZK	6	2P+3C	L	z

Characteristics of the courses of this group of Study Plan: Code=BL20130800 Name=obor Příprava, realizace a provoz staveb, 8. semestr

122BPS	BOZP at work in construction company	Z,ZK	7

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. Within this subject, students are introduced to the application of OSH for a specific industry, namely the construction industry, to the obligations of employers and employees, to the performance of state professional supervision, to the issue of occupational accidents (processes of their registration, investigation and compensation), to the creation of a safe workplace, categorization of work , occupational medical care, occupational risks (obligations of the employer, identification and assessment of risks, measures to minimize them), with personal protective work equipment. Furthermore, they are familiarized with the basic requirements for health and safety during the implementation of construction activities, with the performance of the health and safety coordinator during the preparation and implementation of constructions, health and safety during the use and operation of construction machinery, technical equipment and dedicated technical equipment, with risks associated with construction activities, with fire risks during implementation buildings, with the application of OSH in the design of buildings and the design of their implementation, with transport on the construction site, OSH training.

122ITSL	IT (Information Technology) L	Z,ZK	5
BIM in construction, basic documents (CDE, BEP), data standard (SNIM), BIM protocol BIM and legislation in the Czech Republic, BIM and its use in the world Geometric model of construction, input data without modelling - scanning, point clouds, mixed reality N-D models and BIM (4D surveys and valuations, 5D scheduling, higher order n-D models) Working with building information model, documentation management systems in a common data environment BIM and quality control, submodel and linked model, model data control, spatial coordination of documentation Quality management and tools, construction operation management, quality control on BIM models, IT tools Modelling and simulation and their use in the BIM model, environmental and health and safety plans, , Machine control using BIM models, industrialisation and prefabrication using 3D construction model Acceptance and data transfer using information models, facility management Logistics and subcontractor management in a BIM environment, construction supply and supply chain management Industrialization and prefabrication using 3D models Digitalisation trends in the construction industry, software			
124KKL	Completing Constructions L	Z,ZK	6
In the first part, the subject deals with the complex design of indoor and high-rise buildings, especially the influence of marginal conditions on the choice of material and structural variants and with an emphasis on envelope structures. In the second, more extensive part, the principles of solutions for roofs, perimeter walls, opening fillings and internal completion structures for various types of buildings are clearly discussed.			

Name of the block: Povinná tělesná výchova, sportovní kurzy
Minimal number of credits of the block: 0
The role of the block: PT

Code of the group: BTV_POV
Name of the group: Povinná tělesná výchova
Requirement credits in the group:
Requirement courses in the group: In this group you have to complete at least 2 courses
Credits in the group: 0
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
TV1	**Physical Education**	Z	0	0+2	Z	PT
TV2	**Physical Education**	Z	0	0+2	L	PT

Characteristics of the courses of this group of Study Plan: Code=BTV_POV Name=Povinná tělesná výchova

TV1	Physical Education	Z	0
TV2	Physical Education	Z	0

Name of the block: Elective courses
Minimal number of credits of the block: 0
The role of the block: V

Code of the group: BF2013_KG
Name of the group: Výběrová konstruktivní geometrie
Requirement credits in the group:
Requirement courses in the group:
Credits in the group: 0
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
101YKG	**Constructive Geometry - Selective Course**	Z,ZK	5	2P+2C	Z	V

Characteristics of the courses of this group of Study Plan: Code=BF2013_KG Name=Výběrová konstruktivní geometrie

101YKG	Constructive Geometry - Selective Course	Z,ZK	5

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

Code of the group: BL20130600_1
Name of the group: obor Příprava, realizace a provoz staveb, povinně volitelné předměty
Requirement credits in the group: In this group you have to gain 6 credits
Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 6
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
122YTP	**Technology of preparatory processes** *Pavel Neumann, Tomáš Váchal, Václav Pospíchal, Mária Párová, Karel Polák* ***Václav Pospíchal*** *Václav Pospíchal (Gar.)*	Z,ZK	6	3P+3C	L	S
122YZS	**Special construction and technology** *Michal Procházka, Michal Kovářík* ***Michal Procházka*** *Michal Kovářík (Gar.)*	Z,ZK	6	3P+3C	L	S
126YMFL	**Managament in Construction Company 1** *Martin Časenský, Václav Tatýrek* ***Václav Tatýrek*** *Martin Časenský (Gar.)*	Z,ZK	6	3P+3C	L	S
134YDK	**Additional timber and metal structures** *Jakub Dolejš* ***Jakub Dolejš*** *Jakub Dolejš (Gar.)*	Z,ZK	6	3P+3C	L	S

Characteristics of the courses of this group of Study Plan: Code=BL20130600_1 Name=obor Příprava, realizace a provoz staveb, povinně volitelné předměty

122YTP	Technology of preparatory processes	Z,ZK	6
Technology of the preparatory process in the offer phase. Calculation of decisive works. Production of technological procedures. Supplier documentation. Provision of collection points, seizures, primary and secondary transport. TPP during construction - passporting, marking, quality control. OHS and PO. Environmental aspects, reduction of noise, dust, vibrations, traffic pollution, green protection. Tests, revisions, inspections during construction. Work in protective zones, work during operation. Auxiliary processes - production of reinforcement. Production of fresh concrete. Production and transport of mortars, putty, adhesives, PSV production plant.			
122YZS	Special construction and technology	Z,ZK	6
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.			
126YMFL	Managament in Construction Company 1	Z,ZK	6
The course provides a general overview of the problems of a business in the construction industry . The student is familiar and works actively with concepts strategy , strategic analysis , management - top , middle and operational; planning at all levels and implementation plans , organizational structure , management levels in the company , controlling, human resources management , marketing, process and project management , risk management in the company .			
134YDK	Additional timber and metal structures	Z,ZK	6
The course introduces students to the basics of design and use of steel, timber and aluminum members and structures with emphasis on temporary structures. The course is dedicated to the scaffolding, also timber and aluminum temporary structures.			

Name of the block: Jazyky
Minimal number of credits of the block: 4
The role of the block: J

Code of the group: BF_JAZYKY_1
Name of the group: povinně volitelný jazyk - 1. semestr
Requirement credits in the group: In this group you have to gain at least 2 credits
Requirement courses in the group: In this group you have to complete at least 1 course
Credits in the group: 2
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
104YC1A	**English 1** *Lucie Simerová* ***Petra Martincová***	Z	2	2C	Z,L	J
104YC1F	**French 1** ***Svatava Boboková-Bartíková***	Z	2	2C	Z,L	J
104YC1N	**German 1** ***Svatava Boboková-Bartíková***	Z	2	2C		J
104YC1R	**Russian 1** ***Věra Čermáková***	Z	2	2C		J
104YC1S	**Spanish 1** ***Miloslava Menclová***	Z	2	2C		J

Characteristics of the courses of this group of Study Plan: Code=BF_JAZYKY_1 Name=povinně volitelný jazyk - 1. semestr

104YC1A	English 1	Z	2
104YC1F	French 1	Z	2
104YC1N	German 1	Z	2
104YC1R	Russian 1	Z	2
104YC1S	Spanish 1	Z	2

Code of the group: BF_JAZYKY_2

Name of the group: povinně volitelný jazyk - 2. semestr
Requirement credits in the group: In this group you have to gain at least 2 credits
Requirement courses in the group: In this group you have to complete at least 1 course
Credits in the group: 2
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
104YC2A	**English 2** *Petra Martincová, Věra Čermáková, Petra Florianová, Sandra Giormani, Svatava Boboková-Bartíková, Hana Horká, Lucie Simerová, Michaela Németh, Anna Študentová, ...* ***Svatava Boboková-Bartíková*** *Sandra Giormani (Gar.)*	Z,ZK	2	2C		J
104YC2F	**French 2** ***Svatava Boboková-Bartíková***	Z,ZK	2	2C		J
104YC2N	**German 2** *Svatava Boboková-Bartíková* ***Sandra Giormani*** *Svatava Boboková-Bartíková (Gar.)*	Z,ZK	2	2C		J
104YC2R	**Russian 2** ***Věra Čermáková***	Z,ZK	2	2C		J
104YC2S	**Spanish 2** ***Miloslava Menclová***	Z,ZK	2	2C		J

Characteristics of the courses of this group of Study Plan: Code=BF_JAZYKY_2 Name=povinně volitelný jazyk - 2. semestr

104YC2A	English 2	Z,ZK	2
English 2 Course code: 104YC2A Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit and exam The aim of the compulsory English course is to enhance the knowledge of lexis and grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on professional language (i.e., ESP - technical style) and communicative competence within the construction industry. The course also seeks to teach students to read technical literature and to be able to produce essential written discourse and to express themselves in writing on issues in their field of study. The end of course requirements are a credit and an examination. Literature: Horká Hana, Giormani Sandra, Martincová Petra, Nivenová Renata : Professional English for Civil Engineering (Units 6 – 10)			
104YC2F	French 2	Z,ZK	2
104YC2N	German 2	Z,ZK	2
The compulsory course - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction industry, understanding professional texts, and learning the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Literature: A.Hanáková, J.Dressel: Deutsch im Bauwesen			
104YC2R	Russian 2	Z,ZK	2
104YC2S	Spanish 2	Z,ZK	2

Name of the block: Povinně volitelné předměty, doporučení S1
Minimal number of credits of the block: 12
The role of the block: S1

Code of the group: BL20130800_1
Name of the group: obor Příprava, realizace a provoz staveb, bakalářská práce
Requirement credits in the group: In this group you have to gain 12 credits
Requirement courses in the group: In this group you have to complete at least 1 course
Credits in the group: 12
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
122BAPL	**Bachelor Thesis** *Tomáš Váchal, Miloslava Popenková, Pavel Svoboda* ***Tomáš Váchal*** *Václav Pospíchal (Gar.)*	Z	12	10C	L,Z	S1
126BAPL	**Bachelor Thesis** ***Eduard Hromada*** *Daniel Macek (Gar.)*	Z	12	10C	L,Z	S1

Characteristics of the courses of this group of Study Plan: Code=BL20130800_1 Name=obor Příprava, realizace a provoz staveb, bakalářská práce

122BAPL	Bachelor Thesis	Z	12
126BAPL	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 project. The bachelor thesis connects to the chosen subjects of the study curricula. The partial results are further evaluated and appropriate conclusions are drawn. Min. 4 continuous consultations with the head of bachelor study, where the student submits bachelor study in progress. For students of branch L.			

List of courses of this pass:

Code	Name of the course	Completion	Credits
100ODPR	Industrial Training (3 weeks)	Z	0
Professional practice is an important part of academic education in undergraduate degree programmes. The student will gain a basic understanding of duties and professional responsibilities. The professional practice evaluates the sum of all knowledge acquired through previous theoretical studies and is a proof of their acquisition.			
101KG01	Constructive Geometry	Z,ZK	5
Projections and projective methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. Simple problems in axonometry. Basics of lighting of solids and groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical surfaces. Quadrics. Surfaces in building industry.			
101MA01	Mathematics 1	Z,ZK	6
https://mat.fsv.cvut.cz/bubenik/mat1detail.htm			
101MA02	Mathematics 2	Z,ZK	6
https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/			
101MA03	Mathematics 3	Z,ZK	6
https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/			
101YKG	Constructive Geometry - Selective Course	Z,ZK	5
102FY01	Physics	Z,ZK	5
Mass, structure of matter. Motion of matter, kinematics, dynamics. Force field. Deformations and leak. Oscillations, elastic wawes, acoustics. Heat properties of matter.			
104YC1A	English 1	Z	2
104YC1F	French 1	Z	2
104YC1N	German 1	Z	2
104YC1R	Russian 1	Z	2
104YC1S	Spanish 1	Z	2
104YC2A	English 2	Z,ZK	2
English 2 Course code: 104YC2A Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit and exam The aim of the compulsory English course is to enhance the knowledge of lexis and grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on professional language (i.e., ESP - technical style) and communicative competence within the construction industry. The course also seeks to teach students to read technical literature and to be able to produce essential written discourse and to express themselves in writing on issues in their field of study. The end of course requirements are a credit and an examination. Literature: Horká Hana, Giormani Sandra, Martincová Petra, Nivenová Renata : Professional English for Civil Engineering (Units 6 – 10)			
104YC2F	French 2	Z,ZK	2
104YC2N	German 2	Z,ZK	2
The compulsory course - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction industry, understanding professional texts, and learning the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Literature: A.Hanáková, J.Dressel: Deutsch im Bauwesen			
104YC2R	Russian 2	Z,ZK	2
104YC2S	Spanish 2	Z,ZK	2
105SVAR	Social Sciences and Architecture	Z,ZK	6
Subject introduces the fundamental principles of several social sciences: Economics, Economic Policy, Political Science and Law with an overview of architectural development. Economic section offers an introduction to market economy, economic policy and international economy. Lectures and seminars dedicated to Political Science explain Theory of state, political systems, democracy and totalitarianism. Law section comprises brief overview of development of Roman law with interpretation of the Constitution, Labor Code and Civil Code.			
122BAPL	Bachelor Thesis	Z	12
122BPS	BOZP at work in construction company	Z,ZK	7
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. Within this subject, students are introduced to the application of OSH for a specific industry, namely the construction industry, to the obligations of employers and employees, to the performance of state professional supervision, to the issue of occupational accidents (processes of their registration, investigation and compensation), to the creation of a safe workplace, categorization of work , occupational medical care, occupational risks (obligations of the employer, identification and assessment of risks, measures to minimize them), with personal protective work equipment. Furthermore, they are familiarized with the basic requirements for health and safety during the implementation of construction activities, with the performance of the health and safety coordinator during the preparation and implementation of constructions, health and safety during the use and operation of construction machinery, technical equipment and dedicated technical equipment, with risks associated with construction activities, with fire risks during implementation buildings, with the application of OSH in the design of buildings and the design of their implementation, with transport on the construction site, OSH training.			
122ITSL	IT (Information Technology) L	Z,ZK	5
BIM in construction, basic documents (CDE, BEP), data standard (SNIM), BIM protocol BIM and legislation in the Czech Republic, BIM and its use in the world Geometric model of construction, input data without modelling - scanning, point clouds, mixed reality N-D models and BIM (4D surveys and valuations, 5D scheduling, higher order n-D models) Working with building information model, documentation management systems in a common data environment BIM and quality control, submodel and linked model, model data control, spatial coordination of documentation Quality management and tools, construction operation management, quality control on BIM models, IT tools Modelling and simulation and their use in the BIM model, environmental and health and safety plans, , Machine control using BIM models, industrialisation and prefabrication using 3D construction model Acceptance and data transfer using information models, facility management Logistics and subcontractor management in a BIM environment, construction supply and supply chain management Industrialization and prefabrication using 3D models Digitalisation trends in the construction industry, software			
122MKST	Quality Management System in Construction Company	Z,ZK	6
Current world trends in the field of quality management: quality management system (SMK) according to EN ISO 9001, Total Quality Management (TQM) and re-engineering in application to a construction company. Analysis of quality management system processes. Forms of familiarization with the subject on specific cases based on practical experience, namely: management of the organization so that quality management and assurance is reflected in the implementation of construction e meeting customer requirements that are defined in the contract continuous improvement of the effectiveness of SMK and training in the principles of quality policy, such as: Continuous satisfaction of external and internal customer requirements; execution of works; active involvement of all staff in quality improvement; creation of conditions by the management of the organization for flawless performance of all staff; application of the latest trends in achieving high quality processes and products; effective communication and teamwork in applying the process approach of the quality management			

system in the organisation; all-round training of employees in order to capture the current world trend; motivation of employees by management and differentiated remuneration for the results achieved in the performance of work tasks; growth of culture in the organisation, economic prosperity and the resulting social approach of management to employees.

122PR01	Project Design L01	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.

122PR02	Project Design L02	KZ	5

. Technological scheme: division into objects, sections, shots, technological stages, determination of the directions of construction procedures of staged processes. . List of main constructions in individual technological stages. . Determination of the main coefficients of the work queue for the main objects. . Design and assessment of lifting equipment . Part of the technological analysis sheet according to the statement of dimensions or budget with the calculation of labor for the 0th - 4th stage process. . Technological analysis, including decisive mechanisms, design of work crews with determination of their size, decisive materials (for transport) at the level of partial construction processes (manually with the transfer of items of the technological analysis sheet for the 0th - 4th stage process of the decisive object, hereinafter referred to as partial construction processes for remaining 5th - 9th stage process) . Analysis of transport processes. . Time plan - schedule in the structure of partial construction processes, according to the processed technological analysis. . Operational (detailed) space-time graph in the structure of partial construction processes . A complex space-time graph in the structure of stage processes . Graph of the deployment of workers and the need for specified materials over time, graph of the need for decisive machines and mechanisms. . Dimensioning of social and operational ZS. . Construction site equipment drawings (according to the assignment: for the construction phase), including a technical report at the level of project documentation for a building permit (part of the ZOV) and sizing for the specified stages (e.g. excavations, supporting structure, rough internal work and surface treatment and the end of construction); DIO, DIR. . The situation of wider relations with the assessment of transport routes . Technological procedure for the agreed construction process/ including: on determining construction readiness on the implementation description about the machine deployment plan (specific data from the rental company, etc.) o the deployment plan of decisive platoons o a detailed material supply plan (specifically, a list of all materials according to reality with comparison with calculations) o a detailed list of the necessary tools and auxiliary structures (in detail) o a quality control and measurement plan with reference to ČSN or ISO with citation of decisive articles about documents or measurements that must be delivered or carried out with the delivery of a specific construction o winter measures (if necessary) o OSH risks to the process and measures to eliminate them about the environmental aspects of the process and the possibility of minimizing their negative effects on the ŽP

122PSBL	Facility Management	Z,ZK	6
122TES2	Construction Technology 02	Z,ZK	8
122TS01	Construction Technology 01	Z,ZK	7

Division of processes, construction participants. Principles and drives of construction machines, efficiency, acquisition, deployment and use of machines. Earthworks, rock mining classes, excavation types. Machines for preparatory and earthworks. machine assemblies, flow charts. Arming - principles, individual types, procedures, construction and dismantling. Backfills, embankments, embankments, compaction, drainage. Machines for adjusting, profiling and improving the plain (scrapers, graders, ground stabilization cutters, compaction machines, asphalt finishers and cookers), machines for special foundation, machines for transport. Traditional and system formwork, application of formwork, shots, dimensioning principles. Placement of reinforcement. Placement of fresh concrete, compaction and treatment of fresh concrete. Central and local concrete production, primary and secondary transport. Lifting devices, tower and car cranes, elevators, turnstiles, footbridges. Assembly work, assembly methods. Construction of masonry structures, production and transport of mortars on the construction site Scaffolding, fencing, retaining structures.

122TS03	Construction Technology 03	Z,ZK	7

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

122YTP	Technology of preparatory processes	Z,ZK	6

Technology of the preparatory process in the offer phase. Calculation of decisive works. Production of technological procedures. Supplier documentation. Provision of collection points, seizures, primary and secondary transport. TPP during construction - passporting, marking, quality control. OHS and PO. Environmental aspects, reduction of noise, dust, vibrations, traffic pollution, green protection. Tests, revisions, inspections during construction. Work in protective zones, work during operation. Auxiliary processes - production of reinforcement. Production of fresh concrete. Production and transport of mortars, putty, adhesives, PSV production plant.

122YZS	Special construction and technology	Z,ZK	6

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.

123CH01	Chemistry	Z,ZK	5

ntroduction to general chemistry - chemical bond, compounds, reactions, equilibrium. Chemistry of environment - water, atmosphere, pedosphere. Chemistry of building materials - inorganic binders, glass, ceramic, metals, natural polymers, wood, synthetic polymers on C and Si basis. Introduction to degradation of building materials and to analytical chemistry.

123SH01	Building Materials	Z,ZK	5

Building materials - basis course. Clasification of the materials. Structure of materials. Main properties of materials. Application of materials in building constructions. Introduction to material testing.

124KKL	Completing Constructions L	Z,ZK	6

In the first part, the subject deals with the complex design of indoor and high-rise buildings, especially the influence of marginal conditions on the choice of material and structural variants and with an emphasis on envelope structures. In the second, more extensive part, the principles of solutions for roofs, perimeter walls, opening fillings and internal completion structures for various types of buildings are clearly discussed.

124PS01	Building Structures 1	Z,ZK	7

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.

124SF01	Building Physics	Z,ZK	6

Thermal performance of buildings Basic course on building physics. The first part of the course (lectures 1, 2) introduces basic principles of heat, air and moisture transfer in buildings and building components as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the design and construction of buildings and building components with respect to building physics related issues. Typical tasks of building design and construction process related with the topics of the course will be presented as well as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of buildings methods will be presented. Lighting technology deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirements and what are the options for verifying the time of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the assessment of daylight mainly

	in the interiors of buildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting opening. In acoustics, the listener is first introduced to the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sound in the free and diffuse field, the propagation of sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge regarding sound absorption structures and sound insulation properties of dividing structures will be applied.		
125TZBL	Building services systems L	Z,ZK	5
	Basic course in building services systems - water supply, drainage, gas supply and heating systems.		
126BAPL	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 project. The bachelor thesis connects to the chosen subjects of the study curricula. The partial results are further evaluated and appropriate conclusions are drawn. Min. 4 continuous consultations with the head of bachelor study, where the student submits bachelor study in progress. For students of branch L.		
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.		
126KNL	Costing and Bidding L	Z,ZK	6
	The aim of the subject is to teach the student to use basic calculation techniques and procedures, to use normative and database. Another goal of the course is to teach the student pricing methods for tenders, to create a bill of quantities and a detailed estimate. Price, factors influencing price, types of prices, legislation. Valuation of building production in all stages of the project, data for valuation. Estimating, estimating basis. Hourly billing rates, bidding, software for costs estimation. Fees of project and engineering activities. Life cycle cost calculation (LCC) Data and bases for cost calculation - consumption of work and material, standards in construction. Wages and salaries. Costs and their classification, cost breakdown, 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.		
126STMN	Construction Management	Z,ZK	6
	Overview of selected concepts. Methods to support project management. Legal standards, ČSN and ISO standards. The essential aspects of Project Management. Construction as a project product. Objectives, strategies, phases and surroundings of the construction project. Project manager role. Purchases and contracts in the project. Quality management, risk management. Financial management and project evaluation. Feasibility study. Cost and resource management. Change procedures. The Act on Spatial Planning and Building Regulations, the Act on the Awarding of Public Contracts, and the definition of terms. Business obligation relationships, the conclusion of contracts, their form, and use of general business conditions. Business public competition, its influence on the obligations of participants. Securing the commitment - contractual penalty, guarantee. The main contract types in construction - are contract for the conclusion of a future contract, purchase contract, contract for work, and content of the contract.		
126YMFL	Managament in Construction Company 1	Z,ZK	6
	The course provides a general overview of the problems of a business in the construction industry . The student is familiar and works actively with concepts strategy , strategic analysis , management - top , middle and operational; planning at all levels and implementation plans , organizational structure , management levels in the company , controlling, human resources management , marketing, process and project management , risk management in the company .		
132PRPE	Strength of Materials	Z,ZK	6
	Fundamentals of the theory of elasticity: stress and strain of straight beams subjected to bending and free torsion, ultimate plastic capacity of a member in bending, critical loads and buckling lengths of straight compression members. Basic assumptions, quantities, and equations describing the stress and strain state in 3D continuum, plates and walls.		
132SM01	Structural Mechanics 1	Z,ZK	6
	Concurrent forces, force systems acting on rigid bodies in space/plane, moment of a force about a point and line. Supports of a rigid body, reaction forces. Compound two-dimensional structures. Trusses. Reaction forces applying the principle of virtual work.		
132SM02	Structural Mechanics 2	Z,ZK	6
	Internal forces diagrams of simple statically determinate plane structures and compound two-dimensional structures. Multiaxially loaded cantilever. Definition of normal stress and prepositions of its distribution in a cross section. Equivalence of internal forces. Geometry of mass and areas, centre of gravity and moments of inertia.		
132SM3	Structural Mechanics 3	Z,ZK	5
	Deformation and force method for the solution of reactions and internal forces on statically indeterminate beams, frames, and truss structures. Calculation of displacements of beams, frames, and truss structures using the principle of virtual works.		
133NNKB	Fundamentals of Structural Design - Concrete	Z,ZK	4
	The content of the subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, including the determination of load effects. The properties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete are discussed. Design and reinforcement of concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceability limit states is in the end of this course. The course follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Materials, Building Structures).		
133RBZS	Construction of Concrete and Masonry Structures	Z,ZK	6
	The subject is focused on the practical designing of basic concrete structural elements, relations of the design and behaviour of structural members, reinforcing and construction technology and execution. The principles of structural design are presented with an emphasis on simplified and empirical methods. The subject also includes designing of masonry structures, an introduction to the design of bridges and engineering structures, and the basic principles of prestressed concrete elements design.		
134NNKO	Design of Supporting StructuresI - Steel	Z,ZK	3
	The basics of designing steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load effects, design differences due to the specific properties of individual materials.		
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 previous subject aimed on the basic design of elementary structural members.		
134YDK	Additional timber and metal structures	Z,ZK	6
	The course introduces students to the basics of design and use of steel, timber and aluminum members and structures with emphasis on temporary structures. The course is dedicated to the scaffolding, also timber and aluminum temporary structures.		
135GEMZ	Geology and soil mechanics	Z,ZK	7
	Strength and deformation properties of soils, applications. Principles of design of geotecGeological and geotechnical model of the environment. Basic geological processes. Quaternary geology, hydrogeology.hnical structures.		
135ZSVT	Foundations	Z,ZK	5
	Introduction to the subject, literature, design principles, geotechnical categories Strength and deformation characteristics of foundation soils, slab foundations Limit states of flat foundations, calculation of bearing capacity and settlement of flat foundations Deep foundations - typology, pile foundations, drilled and driven pile technology Axial capacity of isolated piles, pile load tests Determination of bearing capacity of transversely loaded piles, pile group Micropiles, anchors, technology Conventional and jet grouting, underground walls Construction pits, technology of shoring of construction pits Principles for the design and assessment of shoring structures, earth pressure, water effect Calculation of shoring structures, pressure dependent methods Dewatering of construction pits Protection of foundation structures against the effects of aggressive environments		

136DSUP	Transport Structures and Urban Planning	Z,ZK	6
141HYA	Hydraulics	Z,ZK	5
A course deals with issues of hydrostatics and hydrodynamics with aiming at civil engineering applications. There are analysed tasks related to hydrostatic and hydrodynamic loading of structures, pipeline flow, open channel flow and groundwater flow.			
142VIZP	Water and Environmental Engineering	Z,ZK	4
During the teaching semester, students are introduced to the fields of water engineering, water management and environmental engineering. In particular, emphasis is placed on the practical aspects of water and environmental engineering in close relation to other branches of civil engineering. The course is taught in the form of lectures and tutorials. The lectures are divided thematically into 20 blocks according to the different branches of the discipline (13 times water engineering and 7 times environmental engineering). In the exercises, students work on basic problems in the field of hydrology, water supply and water structures, especially dams, hydropower and flood issues. All 4 "water" departments of K14x are involved in teaching the course.			
154SG01	Land Surveying in Civil Engineering	Z,ZK	6
The shape and size of the Earth, substitutive surfaces, cartographic projections Horizontal and vertical control, coordinate calculations Quality control, deviations and tolerations in build-up Angle and distance measurements Heighting measurements Other geodetic methods in build-up (GNSS, DPZ, ...) Photogrammetry and laser scanning Thematic mapping and present state documentation Geodetic works in build-up State map series of CR and thematic maps for build-up Geographic information systems and spatial planning Cadastre of real estates Laws and decrees for geodesy and build-up in Czech Republic			
TV1	Physical Education	Z	0
TV2	Physical Education	Z	0

For updated information see http://bilakniha.cvut.cz/en/FF.html
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