Study plan

Name of study plan: Management a ekonomika ve stavebnictví

Faculty/Institute/Others:
Department:
Branch of study guaranteed by the department: Welcome page
Garantor of the study branch:
Program of study: Management and Economics in 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: platí pro nástup v akademickém roce 2021

Name of the block: Compulsory courses
Minimal number of credits of the block: 117
The role of the block: Z

Code of the group: BE20210100
Name of the group: Management a ekonomika ve stavebnictví, 1. semestr
Requirement credits in the group: In this group you have to gain at least 29 credits
Requirement courses in the group: In this group you have to complete at least 6 courses
Credits in the group: 29
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
101KG01	**Constructive Geometry** *Iva Křivková, Iva Malechová, Jana Čápová, Liya Gaynutdinova, Michal Zdražil, Iva Slámová, Hana Lakomá, Petra Vacková* ***Jana Čápová*** *Iva Křivková (Gar.)*	Z,ZK	5	2P+2C	Z,L	z
126DOMT	**Development, property valuation and real estate market** *Renáta Schneiderová Heralová, Eduard Hromada, Pavlína Píchová* ***Eduard Hromada*** *Renáta Schneiderová Heralová (Gar.)*	Z,ZK	5	4P+1C	Z	z
101MA01	**Mathematics 1** *Iva Malechová, Jana Čápová, Iva Slámová, Petra Vacková, Zdeněk Skalák, Ivana Pultarová, Ondřej Zindulka, Jan Chleboun, Miloslav Vlasák, ...* ***Aleš Nekvinda*** *Aleš Nekvinda (Gar.)*	Z,ZK	6	2P+3C	Z,L	z
123CHE	**Chemistry** *Jana Nábělková, Martin Keppert, Milena Pavlíková* ***Milena Pavlíková*** *Milena Pavlíková (Gar.)*	Z,ZK	4	3P+1C	L	z
132SM01	**Structural Mechanics 1** *Michal Polák, Martin Válek, Daniel Rypl, Matěj Lepš, Jan Sýkora, Tomáš Koudelka, Aleš Palička, Ondřej Faltus, Miroslav Čáp, ...* ***Michal Polák*** *Michal Polák (Gar.)*	Z,ZK	6	2P+2C	Z,L	z
135GM01	**Geomechanics 1** *Kateřina Kovářová, Jan Jelínek, Svatoslav Chamra, Richard Malát* ***Kateřina Kovářová*** *Kateřina Kovářová (Gar.)*	Z	3	2P+1C	L	z

Characteristics of the courses of this group of Study Plan: Code=BE20210100 Name=Management a ekonomika ve stavebnictví, 1. semestr

101KG01	Constructive Geometry	Z,ZK	5
Projections and projective methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. Simple problems in axonometry. Basics of lighting of solids and groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical surfaces. Quadrics. Surfaces in building industry.			
126DOMT	Development, property valuation and real estate market	Z,ZK	5
The subject provides basic knowledge about the functioning of the commercial and residential real estate market, supplemented by examples from practice in individual market segments. The development process and its individual phases from acquisition, through planning, own construction and exit - practical examples. Compilation of the cash flow of the development project. Financing options for development projects and existing investment properties, different aspects of individual types of investors in real estate projects. The development project consists of a description of the considered development in the specified area, including a layout design, market analysis, financing proposal, budget and project valuation. Development project (in the form of consultations during the entire semester)			
101MA01	Mathematics 1	Z,ZK	6
https://mat.fsv.cvut.cz/bubenik/mat1detail.htm			

123CHE	Chemistry	Z,ZK	4
Introduction to general chemistry - chemical bond, compounds, reactions, equilibrium. Chemistry of environment - water, atmosphere, pedosphere. Chemistry of building materials - inorganic binders, glass, ceramic, metals, natural polymers, wood, synthetic polymers on C and Si basis. Introduction to degradation of building materials and to analytical chemistry.			
132SM01	Structural Mechanics 1	Z,ZK	6
Concurrent forces, force systems acting on rigid bodies in space/plane, moment of a force about a point and line. Supports of a rigid body, reaction forces. Compound two-dimensional structures. Trusses. Reaction forces applying the principle of virtual work.			
135GM01	Geomechanics 1	Z	3
The course focuses on the understanding of basic geological laws and principles in relation to architecture, civil engineering and urban planning. Emphasis is placed on explaining the influence of geological processes, both endogenous and exogenous, on the rock environment and how the geological situation affects the design of structures and their interaction with the rock environment. At the same time, attention is paid to the technical properties of rocks with regard to their practical applications. The course also includes a brief introduction to the regional geology of the Czech Republic.			

Code of the group: BE20210200
Name of the group: Management a ekonomika ve stavebnictví, 2. semestr
Requirement credits in the group: In this group you have to gain at least 28 credits
Requirement courses in the group: In this group you have to complete at least 6 courses
Credits in the group: 28
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
101MA02	**Mathematics 2** *Iva Křivková, Iva Malechová, Jana Čápová, Iva Slámová, Hana Lakomá, Zdeněk Skalák, Ivana Pultarová, Ondřej Zindulka, Miloslav Vlasák, ...* ***Ivana Pultarová*** *Ivana Pultarová (Gar.)*	Z,ZK	6	2P+3C	L,Z	z
102FYI	**Physics** *Pavel Novák, Jiří Konfršt, Petr Pokorný, Pavel Demo* ***Pavel Novák*** *Pavel Novák (Gar.)*	Z,ZK	4	3P+1C	L	z
123SH01	**Building Materials** *Eva Vejmelková, Alena Vimmrová, Miloš Jerman* ***Alena Vimmrová*** *Alena Vimmrová (Gar.)*	Z,ZK	5	2P+2C	Z,L	z
126BIM1	**BIM** *Josef Žák* ***Josef Žák*** *Josef Žák (Gar.)*	Z	1	1P+1C	Z	z
132SM02	**Structural Mechanics 2** *Michal Polák, Martin Válek, Daniel Rypl, Matěj Lepš, Jan Sýkora, Tomáš Koudelka, Aleš Palička, Ondřej Faltus, Miroslav Čáp, ...* ***Matěj Lepš*** *Michal Polák (Gar.)*	Z,ZK	6	2P+2C	L,Z	z
154SG01	**Land Surveying in Civil Engineering** *Rudolf Urban, Martin Štroner* ***Rudolf Urban*** *Rudolf Urban (Gar.)*	Z,ZK	6	2P+3C	Z,L	z

Characteristics of the courses of this group of Study Plan: Code=BE20210200 Name=Management a ekonomika ve stavebnictví, 2. semestr

101MA02	Mathematics 2	Z,ZK	6
https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/			
102FYI	Physics	Z,ZK	4
This is a basic physics course for students of the study programmes Civil Engineering; Management and Economics in Construction. The course focuses on mechanics and basic thermodynamics. The following areas are covered in the course: Mechanics of material points (particles) and deformable bodies. Discrete and continuous model of matter. Kinematics and dynamics of a material point (particle). Mechanical force fields. Gravitational field. Mechanical vibrations. Material deformation. Elastic waves. Acoustics. Hydromechanics. Fundamentals of thermodynamics. Heat transfer.			
123SH01	Building Materials	Z,ZK	5
Building materials - basis course. Clasification of the materials. Structure of materials. Main properties of materials. Application of materials in building constructions. Introduction to material testing.			
126BIM1	BIM	Z	1
The course focuses on teaching basic knowledge in the field of Building Information Management (BIM) in theoretical and practical areas, applicable across different specialisations and disciplines of the construction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digitized documents, raster and vector graphics, open data sources in the Czech Republic, ICT and enterprise systems, information systems for the construction industry, but also the context of BIM in the current construction industry in relation to the entire project life cycle and its specifics (delivery, expert focus, phases of construction projects, etc.) The theoretical knowledge is complemented by practical exercises aimed at mastering and understanding the basic principles of object-oriented parametric modelling.			
132SM02	Structural Mechanics 2	Z,ZK	6
Internal forces diagrams of simple statically determinate plane structures and compound two-dimensional structures. Multiaxially loaded cantilever. Definition of normal stress and prepositions of its distribution in a cross section. Equivalence of internal forces. Geometry of mass and areas, centre of gravity and moments of inertia.			
154SG01	Land Surveying in Civil Engineering	Z,ZK	6
The shape and size of the Earth, substitutive surfaces, cartographic projections Horizontal and vertical control, coordinate calculations Quality control, deviations and tolerations in build-up Angle and distance measurements Heighting measurements Other geodetic methods in build-up (GNSS, DPZ, ...) Photogrammetry and laser scanning Thematic mapping and present state documentation Geodetic works in build-up State map series of CR and thematic maps for build-up Geographic information systems and spatial planning Cadastre of real estates Laws and decrees for geodesy and build-up in Czech Republic			

Code of the group: BE20210300
Name of the group: Management a ekonomika ve stavebnictví, 3. semestr
Requirement credits in the group: In this group you have to gain at least 30 credits

Requirement courses in the group: In this group you have to complete at least 6 courses
Credits in the group: 30
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
101MA03	**Mathematics 3** *Iva Malechová, Zdeněk Skalák, Ivana Pultarová, Ondřej Zindulka, Miloslav Vlasák, Michal Beneš, Martin Hála, Martin Soukenka, Petr Mayer, ...* ***Michal Beneš*** *Michal Beneš (Gar.)*	Z,ZK	6	3P+2C	Z,L	z
124PSI1	**Building Structures 1I** *Petr Hájek, Ctislav Fiala, Jan Růžička, Běla Stibůrková, Jaroslav Vychytil* ***Jan Růžička*** *Petr Hájek (Gar.)*	Z	4	2P+1C	Z	z
132PRPE	**Strength of Materials** *Tomáš Koudelka, Zdeněk Prošek, Milan Jirásek, Michal Šejnoha, Petr Kabele, Jan Vorel, Eva Novotná, Michal Šmejkal, Martin Doškář, ...* ***Milan Jirásek*** *Petr Kabele (Gar.)*	Z,ZK	6	3P+2C	Z,L	z
135GM2I	**Geomechanics 2I** *Jiří Košťál, Jan Salák, Ivan Vaníček, Martin Vaníček* ***Ivan Vaníček*** *Ivan Vaníček (Gar.)*	Z,ZK	5	2P+1C	Z	z
141HYA	**Hydraulics** *Aleš Havlík, Tomáš Picek, Václav Matoušek, Petr Sklenář, Martin Fencl, Anna Špačková, Jakub Novotný, Vojtěch Bareš, Jan Krupička* ***Václav Matoušek*** *Václav Matoušek (Gar.)*	Z,ZK	5	2P+2C	Z,L	z
142VIZP	**Water and Environmental Engineering** *Aleš Havlík, Michal Sněhota, Petr Nowak, Tomáš Dostál, Martin Dočkal, Martin Šanda, Pavel Fošumpaur, Bohumil Šťastný, Ladislav Satrapa, ... Ladislav Satrapa (Gar.)*	Z,ZK	4	3P+1C	Z,L	z

Characteristics of the courses of this group of Study Plan: Code=BE20210300 Name=Management a ekonomika ve stavebnictví, 3. semestr

101MA03	Mathematics 3	Z,ZK	6
https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/			
124PSI1	Building Structures 1I	Z	4
The concept of design of building structures with a comprehensive consideration of the functional requirements imposed on individual elements. Requirements for building structures, structural system, interaction of elements, spatial effect of the structural system. Vertical load-bearing structures (functions, requirements, principles of the structural design of walls, columns), floor structures (functions, requirements, principles of the structural design of vaults, wooden ceilings, reinforced concrete ceilings, ceramic concrete ceilings, steel and steel concrete ceilings). Expansion joints in load-bearing systems. Structural systems of single and multi-storey buildings, structural systems of long-span structures.			
132PRPE	Strength of Materials	Z,ZK	6
Fundamentals of the theory of elasticity: stress and strain of straight beams subjected to bending and free torsion, ultimate plastic capacity of a member in bending, critical loads and buckling lengths of straight compression members. Basic assumptions, quantities, and equations describing the stress and strain state in 3D continuum, plates and walls.			
135GM2I	Geomechanics 2I	Z,ZK	5
Formation of soils, basic properties of soils, water in soil, strength and deformation properties of soils and their determination, improvement of soil properties, application tasks			
141HYA	Hydraulics	Z,ZK	5
A course deals with issues of hydrostatics and hydrodynamics with aiming at civil engineering applications. There are analysed tasks related to hydrostatic and hydrodynamic loading of structures, pipeline flow, open channel flow and groundwater flow.			
142VIZP	Water and Environmental Engineering	Z,ZK	4
During the teaching semester, students are introduced to the fields of water engineering, water management and environmental engineering. In particular, emphasis is placed on the practical aspects of water and environmental engineering in close relation to other branches of civil engineering. The course is taught in the form of lectures and tutorials. The lectures are divided thematically into 20 blocks according to the different branches of the discipline (13 times water engineering and 7 times environmental engineering). In the exercises, students work on basic problems in the field of hydrology, water supply and water structures, especially dams, hydropower and flood issues. All 4 "water" departments of K14x are involved in teaching the course.			

Code of the group: BE20210400
Name of the group: Management a ekonomika ve stavebnictví, 4. semestr
Requirement credits in the group: In this group you have to gain at least 30 credits
Requirement courses in the group: In this group you have to complete at least 6 courses
Credits in the group: 30
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
124PSI2	**Building Structures 2I** *Petr Hájek, Ctislav Fiala, Malila Noori, Jiří Nováček, Jaroslav Vychytil, Tereza Pavlů, Jiří Pazderka, Veronika Kačmaříková* ***Jiří Pazderka*** *Jiří Pazderka (Gar.)*	Z,ZK	4	2P+1C	L	z
126EKMN	**Economics and Management** *Eduard Hromada, Pavlína Píchová, Martin Časenský, Božena Kadeřábková, Petr Kalčev, Pavlína Píchová* ***Eduard Hromada*** *Petr Kalčev (Gar.)*	Z,ZK	7	4P+2C		z

132SM3	**Structural Mechanics 3** *Tomáš Koudelka, Milan Jirásek, Michal Šejnoha, Petr Kabele, Jan Vorel, Eva Novotná, Michal Šmejkal, Martin Horák, Dagmar Jandeková, ... **Petr Kabele** Petr Kabele (Gar.)*	Z,ZK	5	2P+2C	L,Z	Z
133NNKB	**Fundamentals of Structural Design - Concrete** *Martin Tipka, Radek Štefan, Jitka Vašková, Michal Ševula **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
136DSUZ	**Transport Structures and Urban Planning** *Ludvík Vébr, František Pospíšil, Ondřej Bret **František Pospíšil** Ludvík Vébr (Gar.)*	Z,ZK	7	5P+1C	L,Z	Z

Characteristics of the courses of this group of Study Plan: Code=BE20210400 Name=Management a ekonomika ve stavebnictví, 4. semestr

124PSI2	Building Structures 2I	Z,ZK	4

Staircases, sloping ramps, lift shafts - requirements, structural and material solutions, basics of typology, design principles, construction details, railing. Building foundations - foundation conditions, types of foundations, requirements, building plinth area (construction details). Basement - solution of basement walls, requirements, protection against water, waterproofing systems. Structural expansion joints in buildings - principles of joints design in bearing structures, thermal expansion, compensation of differences in settlement, construction details. Roof truss systems.

126EKMN	Economics and Management	Z,ZK	7

The aim of the course is to provide students with an introduction to economics and management in the construction industry and to familiarize them with basic economic terms and their practical applications. Students will be prepared to solve basic construction-management problems in the construction industry. They will acquire basic information about the method of pricing construction works and master the basic methods of managing a construction company. Emphasis is placed on understanding the principle of economic thinking in relation to the construction industry.

132SM3	Structural Mechanics 3	Z,ZK	5

Deformation and force method for the solution of reactions and internal forces on statically indeterminate beams, frames, and truss structures. Calculation of displacements of beams, frames, and truss structures using the principle of virtual works.

133NNKB	Fundamentals of Structural Design - Concrete	Z,ZK	4

The content of the subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, including the determination of load effects. The properties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete are discussed. Design and reinforcement of concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceability limit states is in the end of this course. The course follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Materials, Building Structures).

134NNKO	Design of Supporting StructuresI - Steel	Z,ZK	3

The basics of designing steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load effects, design differences due to the specific properties of individual materials.

136DSUZ	Transport Structures and Urban Planning	Z,ZK	7

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

Name of the block: Compulsory courses in the program
Minimal number of credits of the block: 116
The role of the block: P

Code of the group: BE20210500
Name of the group: Management a ekonomika ve stavebnictví, 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 7 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
122TSEK	**Technology of Construction - E** *Mária Párová, Václav Pospíchal, Rostislav Šulc **Rostislav Šulc** Mária Párová (Gar.)*	Z,ZK	6	4P+2C	Z	P
126EKST	**Economic Statistics** *Božena Kadeřábková, Daniel Macek **Božena Kadeřábková** Daniel Macek (Gar.)*	Z,ZK	4	1P+2C	Z	P
126OCS1	**Construction Pricing 1** *Iveta Střelcová, Lucie Brožová, Stanislav Vitásek **Lucie Brožová** Lucie Brožová (Gar.)*	Z,ZK	5	2P+2C	Z	P

126RSPR	**Construction Project Management** *Zita Prostějovská, Jaroslava Tománková* ***Zita Prostějovská*** *Zita Prostějovská (Gar.)*	Z,ZK	5	2P+2C	Z	P
126SRPB	**Facility Management and Operation** *Daniel Macek, Aleš Choutka* ***Daniel Macek*** *Daniel Macek (Gar.)*	Z,ZK	4	1P+2C	Z	P
126SLEG	**Building Legislation** *Dana Měšťanová* ***Dana Měšťanová*** *Dana Měšťanová (Gar.)*	Z	2	2P	Z	P
135ZSE	**Foundations E** *Josef Jettmar, Jan Kos, Jan Masopust* ***Jan Pruška*** *Jan Kos (Gar.)*	Z,ZK	4	2P+2C	Z	P

Characteristics of the courses of this group of Study Plan: Code=BE20210500 Name=Management a ekonomika ve stavebnictví, 5. semestr

122TSEK	Technology of Construction - E	Z,ZK	6
Earthwork, design of pit excavation and supporting´s technologies. Design of formwork. Concrete mixer plant, concrete conveying, concreting. Brickwork´s technologies, Roofing work, tin work.			
126EKST	Economic Statistics	Z,ZK	4
The content of the subject is applied economic statistics. Familiarization with statistical theory and subsequent application to solved examples.			
126OCS1	Construction Pricing 1	Z,ZK	5
Costs are operation-related consumption of work and resources, valued and expressed in monetary units. The aim of the course is to teach the student to use basic calculation techniques and procedures. Furthermore, use the normative and data base, and adapt the normative base for new materials and technologies, or creating. Basic principles of cost calculation in the construction industry. Organization and standardization of work in the company, production process, time consumption. Standardization of labor consumption, methods of setting standards, examples, documents. Standardization of material consumption, examples, documents. Standardization of the need for machines - productivity, capacity standards, examples, documents. Salary costs - payroll system, job catalog, wage rate calculation. Costs - breakdown of costs, calculation methods and techniques, calculation bases. Dynamic and normative method of calculation, examples, documents. Individual costing - costing formula, content of components, examples, documents. Methods of non-absorption costing (ABC, method of variable costs), examples. Influencing the amount of material costs, wages, machine operation, overhead. Cost modeling, break-even analysis, examples. Managerial concept of costs.			
126RSPR	Construction Project Management	Z,ZK	5
The subject provides a basic overview of project management. It defines the life cycle of a construction project. Content of individual phases of the project life cycle. Preparation and evaluation of the construction project.			
126SRPB	Facility Management and Operation	Z,ZK	4
The content of the subject is the management and control of the operation of buildings using the support of modern technologies. Familiarization with the issues of implementation and operation of facility management using the CAFM system. The focus of the software support will be both on the passportization of basic property data and, in particular, on the planning, management and evaluation of the most frequently used facility management processes.			
126SLEG	Building Legislation	Z	2
Territorial planning and construction code law. Public procurement law. Definition of terms. Commercial contractual relationships. Main contract types in construction - contract of the conclusion of a future contract, purchase contract, contract for work, Contents of the contract.			
135ZSE	Foundations E	Z,ZK	4
Úvod do předmětu, literatura, zásady navrhování, geotechnické kategorie Pevnostní a deformační charakteristiky základové půdy, plošné základy Mezní stavy plošných základů, výpočet únosnosti a sedání plošných základů Hlubinné základy - typologie, pilotové základy, technologie vrtaných a ražených pilot Osová únosnost osamělých pilot, zatěžovací zkoušky pilot Stanovení únosnosti příčně zatížených pilot, skupina pilot Mikropiloty, kotvy, technologie Injektáž klasická a trysková, podzemní stěny Stavební jámy, technologie pažení stavebních jam Zásady pro návrh a posouzení pažicích konstrukcí, zemní tlak, účinek vody Výpočet pažicích konstrukcí, metody závislých tlaků Odvodňování stavebních jam Ochrana základových konstrukcí před účinky agresivního prostředí			

Code of the group: BE20230600
Name of the group: Management a ekonomika ve stavebnictví, 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 7 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**
124KKT	**Completing Constructions** *Malila Noori, Šárka Šilarová, Pavel Kopecký* ***Šárka Šilarová*** *Šárka Šilarová (Gar.)*	Z,ZK	6	2P+3C	L	P
126IMAB	**Building Information Management (BIM)** *Josef Žák, Petr Matějka* ***Josef Žák*** *Josef Žák (Gar.)*	Z,ZK	5	1P+3C	L	P
126OCS2	**Construction Pricing 2** *Renáta Schneiderová Heralová, Iveta Střelcová, Lucie Brožová, Stanislav Vitásek* ***Lucie Brožová*** *Renáta Schneiderová Heralová (Gar.)*	Z,ZK	7	2P+4C	L	P
126PJMS	**Marketing in construction - project** *Eduard Hromada, Kateřina Eklová* ***Eduard Hromada*** *Eduard Hromada (Gar.)*	KZ	3	2C	L	P
126SWPX	**Software for Business Practice** *Petr Dlask* ***Petr Dlask*** *Petr Dlask (Gar.)*	Z	2	2C	L	P
126VEIN	**Public Investment Construction** *Renáta Schneiderová Heralová, Zita Prostějovská* ***Zita Prostějovská*** *Renáta Schneiderová Heralová (Gar.)*	Z,ZK	3	2P+1C	L	P
133BZE	**Concrete and Masonry Structures E** *Michaela Frantová* ***Michaela Frantová*** *Michaela Frantová (Gar.)*	Z,ZK	4	2P+2C	L	P

Characteristics of the courses of this group of Study Plan: Code=BE20230600 Name=Management a ekonomika ve stavebnictví, 6. semestr

124KKT	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.			
126IMAB	Building Information Management (BIM)	Z,ZK	5
The subject deals with the issue of Building Information Modeling (BIM) as a modern tool for the design, construction and operation of construction projects. It focuses on advanced applications of information technology in construction and design companies. Software tools that are used for quality control, measurement, preparation of measurement statements, simulation of construction progress, robotics in land and transport constructions and cybercrime, its risks and measures in construction projects. Part of the content of the subject is information on the contractual provision of digitization on construction projects.			
126OCS2	Construction Pricing 2	Z,ZK	7
Price and its importance, price factors, price strategies, types of contract, estimating at different stages of project, price setting data. Price creation - oriented to costs, demand and competition, method of price creation. Methods of creating the bid price. Labor and equipment rates per hour. IT support for estimating. Engineering and design activities pricing.			
126PJMS	Marketing in construction - project	KZ	3
The course introduces students to basic concepts and techniques in the field of marketing, the links between marketing and other activities in the construction company, its role in the construction company and in society. Students should learn to find market opportunities, segment the market, evaluate market opportunities, build a simple marketing mix, i.e. know and master promotion methods, master pricing principles, correctly define the product and determine distribution channels.			
126SWPX	Software for Business Practice	Z	2
Modern construction practice requires the application of various supporting tools and methods. The course is focused on acquire practical skills in user control not only of office applications (especially MS Excel). The aim is to improve their existing skills and acquire new ones to save time at work. The main goal is to focus on such skills that are applicable in continuing subjects and practice. It includes the verification of knowledge when creating examples in the exercise.			
126VEIN	Public Investment Construction	Z,ZK	3
Public sector investment project. Evaluation of revenues and costs, income and expenses in individual phases of the life cycle of the construction project. Risk and uncertainty in investment decision-making.			
133BZE	Concrete and Masonry Structures E	Z,ZK	4
The course lectures is focused on the design of one-way and two-way slabs, staircases, reinforcing walls, foundations, precast structures, halls and prestressed concrete. The course also covers masonry construction and an introduction to the design of civil engineering structures and bridges. The content of the practicum is the application of the knowledge and skills acquired in lectures to a specific project that students also work with in other courses as part of their studies.			

Code of the group: BE20230700
Name of the group: Management a ekonomika ve stavebnictví, 7. 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 8 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
124PE1	**Structural design project E** *Malila Noori, Lenka Hanzalová, Běla Stibůrková, Šárka Šilarová **Jiří Pazderka** Jiří Pazderka (Gar.)*	KZ	4	4C	Z	P
125TBUE	**Building Services Systems E** *Karel Kabele, Ilona Koubková, Zuzana Veverková **Daniel Adamovský** Ilona Koubková (Gar.)*	Z,ZK	5	2P+2C	Z	P
126DUCE	**Tax System and Accounting** *Jana Frková, Olga Heralová **Olga Heralová** Jana Frková (Gar.)*	Z,ZK	4	2P+1C	L	P
126PJOC	**Construction Pricing Project** *Iveta Střelcová, Dana Čápová **Iveta Střelcová** Iveta Střelcová (Gar.)*	KZ	4	4C	L	P
126PRS	**Construction Planning and Management** *Lucie Brožová, Jaroslava Tománková **Lucie Brožová** Jaroslava Tománková (Gar.)*	Z,ZK	5	2P+3C	L	P
126RPRO	**Construction Process Management** *Michal Vondruška **Michal Vondruška** Michal Vondruška (Gar.)*	Z,ZK	3	1P+1C	Z	P
134ODKM	**Steel and Timber Structures** *Anna Kuklíková, Michal Netušil **Michal Netušil** Anna Kuklíková (Gar.)*	Z,ZK	5	2P+2C	Z,L	P
100ODPR	**Industrial Training (3 weeks)** *Petr Hájek, Jan Růžička **Michal Jandera** Michal Jandera (Gar.)*	Z	0	6C	Z,L	P

Characteristics of the courses of this group of Study Plan: Code=BE20230700 Name=Management a ekonomika ve stavebnictví, 7. semestr

124PE1	Structural design project E	KZ	4
Converting an architectural study of a smaller or medium-sized building for housing, administration, education, culture or sports into a detailed design of a building structure based on static analysis, interaction of load-bearing and non-load-bearing elements and building physics. Focus on complex approach to practical design, analysis and optimalization of a building structures. Design of variants of the load-bearing system, preliminary static analysis (calculation of load-bearing elements - slabs, columns, walls, etc), calculation of foundations, design of structures on the building envelope with respect to thermal protection of buildings, building physics, fire protection of buildings and protection against water and soil moisture. Elaboration of detailed drawings including floor plans, sections and details.			
125TBUE	Building Services Systems E	Z,ZK	5
Basic course in building services systems - water supply, drainage, gas supply , heating and ventilation systems.			

126DUCE	Tax System and Accounting	Z,ZK	4
The subject is divided into lectures 1 hour per week and exercises 1 hour per week. Lectures take place according to the course outline listed below. In the exercise, students prepare their own business plan for a selected business activity according to the specified syllabus. Firstly students will work in team with intention to understand connections among tax, expenditure policy and will suggest tax adjustments to reduce deficit. The will learn how to prepare Income tax return, Social security and Health Insurance return. Students will train how to read and evaluate Financial Statements and compute VAT.			
126PJOC	Construction Pricing Project	KZ	4
The aim of this course is to introduce students to the budgeting and cost planning of building structures and construction works. Students will carry out their own projects and draw up three budget plans using the software KROS. The main task of students will be to create a bill of quantities according to the regulation 169/2016 and to correctly use the URS CZ database. The students will use the project documentation of real building structures (the estimate budget should be more than 15 million).			
126PRS	Construction Planning and Management	Z,ZK	5
Construction project management, project life cycle, engineering, design phase, methods of time scheduling, cost management, procurement systems and contracts, contractor management. Safety, quality and environmental management.			
126RPRO	Construction Process Management	Z,ZK	3
The course will focus on managerial and technical-economic planning during the basic technological processes of construction. The main focus will be on managerial skills in the management and control of building capacities and mechanization from the point of view of the contractor. Students will be acquainted with the principles of practical cost calculation of individual technological processes of construction. Teaching topics will be explained in case studies.			
134ODKM	Steel and Timber Structures	Z,ZK	5
Steel structures - pros and contras, material properties, fabrication, connections, industrial steel buildings, cables, high strength steel, buildings in terms of water engineering - load, protection, utilization. Timber - loadings, material propertie, limit states methodology, design, connections, bracings, protection of structural timber, timber bridges.			
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: BE20240800
Name of the group: Management a ekonomika ve stavebnictví, 8. semestr
Requirement credits in the group: In this group you have to gain at least 14 credits
Requirement courses in the group: In this group you have to complete at least 3 courses
Credits in the group: 14
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
126FINK	**Financing, Investing, Contracts** ***Aleš Tomek***	Z,ZK	5	2P+2C	L	P
126OINS	**Pricing of Civil Engineering Works** ***Iveta Střelcová***	Z,ZK	4	2P+2C	L	P
126PJRS	**Construction Preparation and Management Project** *Lucie Brožová, Jaroslava Tománková, Dana Čápová* ***Lucie Brožová***	KZ	5	4C	L	P

Characteristics of the courses of this group of Study Plan: Code=BE20240800 Name=Management a ekonomika ve stavebnictví, 8. semestr

126FINK	Financing, Investing, Contracts	Z,ZK	5
126OINS	Pricing of Civil Engineering Works	Z,ZK	4
Cost database of transportation structures I – normative prices, aggregated items Cost database of transportation structures II – OTSKP catalogue Schedule of works and bill of quantities – requirements and sources Cost estimation of transportation structures – basic principles, techniques Financing of transportation structures – EU, SFDI, PPP projects Cost analysis of transportation structures – real projects and cost categories Engineering constructions from the perspective of contracting authority – legal norms and another legislature Engineering constructions from the perspective of contractor – managing of a contract within the construction company Life cycle costs of engineering constructions Economic efficiency of transportation structures Introduction to estimating software for transportation structures Building information modelling (BIM) and estimating – requirements, schedule of works International methods of planning, estimating and predicting transportation structure costs			
126PJRS	Construction Preparation and Management Project	KZ	5
Complex project of construction preparation, planning, technical preparation and simulation of building execution on the basis of individual assignment for each student.			

Code of the group: BE20210800_2
Name of the group: Management a ekonomika ve stavebnictví, bakalářská práce
Requirement credits in the group: In this group you have to gain at least 12 credits
Requirement courses in the group: In this group you have to complete at least 1 course
Credits in the group: 12
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
126BAPE	**Bachelor Thesis** ***Jan Pruška*** *Daniel Macek (Gar.)*	Z	12	10C	L,Z	P

Characteristics of the courses of this group of Study Plan: Code=BE20210800_2 Name=Management a ekonomika ve stavebnictví, bakalářská práce

126BAPE	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 E.			

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

Code of the group: BE20210800_1
Name of the group: Management a ekonomika ve stavebnictví, PV předměty
Requirement credits in the group: In this group you have to gain at least 4 credits
Requirement courses in the group: In this group you have to complete at least 1 course
Credits in the group: 4
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors, **authors** and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
126YIPD	**Small Business** *Jana Frková, Olga Heralová **Petr Kalčev** Jana Frková (Gar.)*	Z,ZK	4	2P+2C	L	S
126YSWO	**Construction Estimation Software** *Lucie Brožová, Dana Čápová **Lucie Brožová***	Z,ZK	4	2P+2C	L	S
126YTRO	**Decision theory** ***Eduard Hromada***	Z,ZK	2	1P+1C	L	S
126ZIPN	**Basics of innovative business** *Dana Měšťanová **Dana Měšťanová** Dana Měšťanová (Gar.)*	Z,ZK	2	1P+1C	L	S
126YPER	**Human resource management** *Eduard Hromada, Olga Heralová **Michal Vondruška** Olga Heralová (Gar.)*	Z,ZK	2	1P+1C	L	S
126MCC	**Management in Construction Company** *Aleš Tomek, Radan Tomek **Aleš Tomek** Aleš Tomek (Gar.)*	Z,ZK	5	2P+2C	L	S

Characteristics of the courses of this group of Study Plan: Code=BE20210800_1 Name=Management a ekonomika ve stavebnictví, PV předměty

126YIPD	Small Business	Z,ZK	4
126YSWO	Construction Estimation Software	Z,ZK	4
The teaching is focused on familiarization with cost calculation SW for item preparation			
126YTRO	Decision theory	Z,ZK	2
126ZIPN	Basics of innovative business	Z,ZK	2
126YPER	Human resource management	Z,ZK	2
Main intention is to make students familiar with practical HR management in construction company with focus on hiring, adaptation, motivation, leadership and remuneration. Within classes theory is combined with trainings (model situations).			

126MCC	Management in Construction Company	Z,ZK	5

Nature of Construction Business Primary Causes of Business Failure, External and Internal Influences Business Strategies to Minimize the Risk of Business Failure Business Development, Marketing and Bidding Planning Strategies Plan Implementation/Control Strategies Financial Management Strategies Construction Risk Management Leadership Challenges Organizational Behavior Corporate & Employee Ethics Company Performance Checklist Managing Profitable Construction Business Lectures are based on the real practice experience of all course's lecturers and various case studies are studied and solved. Online Building Industry Game (BIG) will be played by all course participants through the whole semester (a computer simulation of a realistic business environment where participants play the role of contractors, competing in a market with variable demand for construction work). In this online game, developed and directly operated by the California Polytechnic State University, students act as contractors, managing both, their companies and projects.

Name of the block: Jazyky
Minimal number of credits of the block: 3
The role of the block: J

Code of the group: BF20190101_I
Name of the group: Povinně volitelný jazyk, 1. semestr
Requirement credits in the group: In this group you have to gain at least 1 credit
Requirement courses in the group: In this group you have to complete at least 1 course
Credits in the group: 1
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors, **authors** and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
104YCA1	**English 1** *Hana Horká, Petra Martincová, Petra Florianová, Sandra Giormani, Věra Čermáková, Svatava Boboková Bartíková, Elena Dačeva, Jarmila Fučíková, Michaela Németh, ... **Svatava Boboková Bartíková** Sandra Giormani (Gar.)*	Z	1	2C	Z,L	J
104YCN1	**German 1** *Svatava Boboková Bartíková **Svatava Boboková Bartíková** Svatava Boboková Bartíková (Gar.)*	Z	1	2C	Z,L	J

Characteristics of the courses of this group of Study Plan: Code=BF20190101_I Name=Povinně volitelný jazyk, 1. semestr

104YCA1	English 1	Z	1

English 1 Course code: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English course is to enhance the knowledge of lexis and grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on professional language (i.e., ESP - technical style) and communicative competence within the construction industry. The course also seeks to teach students to read technical literature and to be able to produce essential written discourse and to express themselves in writing on issues in their field of study. The end of course requirements are a credit. Literature: Horká Hana, Giormani Sandra, Martincová Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5)

104YCN1	German 1	Z	1

The compulsory course - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction industry, understanding professional texts, and learning the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Literature: A.Hanáková, J.Dressel: Deutsch im Bauwesen

Code of the group: BF20190202_I
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** *Hana Horká, Petra Martincová, Petra Florianová, Sandra Giormani, Věra Čermáková, Svatava Boboková Bartíková, Elena Dačeva, Jarmila Fučíková, Michaela Németh, ... **Svatava Boboková Bartíková** Sandra Giormani (Gar.)*	Z,ZK	2	2C		J
104YC2N	**German 2** *Svatava Boboková Bartíková **Sandra Giormani** Svatava Boboková Bartíková (Gar.)*	Z,ZK	2	2C		J

Characteristics of the courses of this group of Study Plan: Code=BF20190202_I 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)

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

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/

102FYI	Physics	Z,ZK	4

This is a basic physics course for students of the study programmes Civil Engineering; Management and Economics in Construction. The course focuses on mechanics and basic thermodynamics. The following areas are covered in the course: Mechanics of material points (particles) and deformable bodies. Discrete and continuous model of matter. Kinematics and dynamics of a material point (particle). Mechanical force fields. Gravitational field. Mechanical vibrations. Material deformation. Elastic waves. Acoustics. Hydromechanics. Fundamentals of thermodynamics. Heat transfer.

104YC2A	English 2	Z,ZK	2

English 2 Course code: 104YC2A Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit and exam The aim of the compulsory English course is to enhance the knowledge of lexis and grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on professional language (i.e., ESP - technical style) and communicative competence within the construction industry. The course also seeks to teach students to read technical literature and to be able to produce essential written discourse and to express themselves in writing on issues in their field of study. The end of course requirements are a credit and an examination. Literature: Horká Hana, Giormani Sandra, Martincová Petra, Nivenová Renata : Professional English for Civil Engineering (Units 6 – 10)

104YC2N	German 2	Z,ZK	2

The compulsory course - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction industry, understanding professional texts, and learning the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Literature: A.Hanáková, J.Dressel: Deutsch im Bauwesen

104YCA1	English 1	Z	1

English 1 Course code: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English course is to enhance the knowledge of lexis and grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on professional language (i.e., ESP - technical style) and communicative competence within the construction industry. The course also seeks to teach students to read technical literature and to be able to produce essential written discourse and to express themselves in writing on issues in their field of study. The end of course requirements are a credit. Literature: Horká Hana, Giormani Sandra, Martincová Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5)

104YCN1	German 1	Z	1

The compulsory course - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction industry, understanding professional texts, and learning the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Literature: A.Hanáková, J.Dressel: Deutsch im Bauwesen

122TSEK	Technology of Construction - E	Z,ZK	6

Earthwork, design of pit excavation and supporting´s technologies. Design of formwork. Concrete mixer plant, concrete conveying, concreting. Brickwork´s technologies, Roofing work, tin work.

123CHE	Chemistry	Z,ZK	4

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

123SH01	Building Materials	Z,ZK	5

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

124KKT	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.

124PE1	Structural design project E	KZ	4

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

124PSI1	Building Structures 1I	Z	4
The concept of design of building structures with a comprehensive consideration of the functional requirements imposed on individual elements. Requirements for building structures, structural system, interaction of elements, spatial effect of the structural system. Vertical load-bearing structures (functions, requirements, principles of the structural design of walls, columns), floor structures (functions, requirements, principles of the structural design of vaults, wooden ceilings, reinforced concrete ceilings, ceramic concrete ceilings, steel and steel concrete ceilings). Expansion joints in load-bearing systems. Structural systems of single and multi-storey buildings, structural systems of long-span structures.			
124PSI2	Building Structures 2I	Z,ZK	4
Staircases, sloping ramps, lift shafts - requirements, structural and material solutions, basics of typology, design principles, construction details, railing. Building foundations - foundation conditions, types of foundations, requirements, building plinth area (construction details). Basement - solution of basement walls, requirements, protection against water, waterproofing systems. Structural expansion joints in buildings - principles of joints design in bearing structures, thermal expansion, compensation of differences in settlement, construction details. Roof truss systems.			
125TBUE	Building Services Systems E	Z,ZK	5
Basic course in building services systems - water supply, drainage, gas supply , heating and ventilation systems.			
126BAPE	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 E.			
126BIM1	BIM	Z	1
The course focuses on teaching basic knowledge in the field of Building Information Management (BIM) in theoretical and practical areas, applicable across different specialisations and disciplines of the construction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digitized documents, raster and vector graphics, open data sources in the Czech Republic, ICT and enterprise systems, information systems for the construction industry, but also the context of BIM in the current construction industry in relation to the entire project life cycle and its specifics (delivery, expert focus, phases of construction projects, etc.) The theoretical knowledge is complemented by practical exercises aimed at mastering and understanding the basic principles of object-oriented parametric modelling.			
126DOMT	Development, property valuation and real estate market	Z,ZK	5
The subject provides basic knowledge about the functioning of the commercial and residential real estate market, supplemented by examples from practice in individual market segments. The development process and its individual phases from acquisition, through planning, own construction and exit - practical examples. Compilation of the cash flow of the development project. Financing options for development projects and existing investment properties, different aspects of individual types of investors in real estate projects. The development project consists of a description of the considered development in the specified area, including a layout design, market analysis, financing proposal, budget and project valuation. Development project (in the form of consultations during the entire semester)			
126DUCE	Tax System and Accounting	Z,ZK	4
The subject is divided into lectures 1 hour per week and exercises 1 hour per week. Lectures take place according to the course outline listed below. In the exercise, students prepare their own business plan for a selected business activity according to the specified syllabus. Firstly students will work in team with intention to understand connections among tax, expenditure policy and will suggest tax adjustments to reduce deficit. The will learn how to prepare Income tax return, Social security and Health Insurance return. Students will train how to read and evaluate Financial Statements and compute VAT.			
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.			
126EKST	Economic Statistics	Z,ZK	4
The content of the subject is applied economic statistics. Familiarization with statistical theory and subsequent application to solved examples.			
126FINK	Financing, Investing, Contracts	Z,ZK	5
126IMAB	Building Information Management (BIM)	Z,ZK	5
The subject deals with the issue of Building Information Modeling (BIM) as a modern tool for the design, construction and operation of construction projects. It focuses on advanced applications of information technology in construction and design companies. Software tools that are used for quality control, measurement, preparation of measurement statements, simulation of construction progress, robotics in land and transport constructions and cybercrime, its risks and measures in construction projects. Part of the content of the subject is information on the contractual provision of digitization on construction projects.			
126MCC	Management in Construction Company	Z,ZK	5
Nature of Construction Business Primary Causes of Business Failure, External and Internal Influences Business Strategies to Minimize the Risk of Business Failure Business Development, Marketing and Bidding Planning Strategies Plan Implementation/Control Strategies Financial Management Strategies Construction Risk Management Leadership Challenges Organizational Behavior Corporate & Employee Ethics Company Performance Checklist Managing Profitable Construction Business Lectures are based on the real practice experience of all course's lecturers and various case studies are studied and solved. Online Building Industry Game (BIG) will be played by all course participants through the whole semester (a computer simulation of a realistic business environment where participants play the role of contractors, competing in a market with variable demand for construction work). In this online game, developed and directly operated by the California Polytechnic State University, students act as contractors, managing both, their companies and projects.			
126OCS1	Construction Pricing 1	Z,ZK	5
Costs are operation-related consumption of work and resources, valued and expressed in monetary units. The aim of the course is to teach the student to use basic calculation techniques and procedures. Furthermore, use the normative and data base, and adapt the normative base for new materials and technologies, or creating. Basic principles of cost calculation in the construction industry. Organization and standardization of work in the company, production process, time consumption. Standardization of labor consumption, methods of setting standards, examples, documents. Standardization of material consumption, examples, documents. Standardization of the need for machines - productivity, capacity standards, examples, documents. Salary costs - payroll system, job catalog, wage rate calculation. Costs - breakdown of costs, calculation methods and techniques, calculation bases. Dynamic and normative method of calculation, examples, documents. Individual costing - costing formula, content of components, examples, documents. Methods of non-absorption costing (ABC, method of variable costs), examples. Influencing the amount of material costs, wages, machine operation, overhead. Cost modeling, break-even analysis, examples. Managerial concept of costs.			
126OCS2	Construction Pricing 2	Z,ZK	7
Price and its importance, price factors, price strategies, types of contract, estimating at different stages of project, price setting data. Price creation - oriented to costs, demand and competition, method of price creation. Methods of creating the bid price. Labor and equipment rates per hour. IT support for estimating. Engineering and design activities pricing.			
126OINS	Pricing of Civil Engineering Works	Z,ZK	4
Cost database of transportation structures I – normative prices, aggregated items Cost database of transportation structures II – OTSKP catalogue Schedule of works and bill of quantities – requirements and sources Cost estimation of transportation structures – basic principles, techniques Financing of transportation structures – EU, SFDI, PPP projects Cost analysis of transportation structures – real projects and cost categories Engineering constructions from the perspective of contracting authority – legal norms and another legislature Engineering constructions from the perspective of contractor – managing of a contract within the construction company Life cycle costs of engineering constructions Economic efficiency of transportation structures Introduction to estimating software for transportation structures Building information modelling (BIM) and estimating – requirements, schedule of works International methods of planning, estimating and predicting transportation structure costs			

126PJMS	Marketing in construction - project	KZ	3
The course introduces students to basic concepts and techniques in the field of marketing, the links between marketing and other activities in the construction company, its role in the construction company and in society. Students should learn to find market opportunities, segment the market, evaluate market opportunities, build a simple marketing mix, i.e. know and master promotion methods, master pricing principles, correctly define the product and determine distribution channels.			
126PJOC	Construction Pricing Project	KZ	4
The aim of this course is to introduce students to the budgeting and cost planning of building structures and construction works. Students will carry out their own projects and draw up three budget plans using the software KROS. The main task of students will be to create a bill of quantities according to the regulation 169/2016 and to correctly use the URS CZ database. The students will use the project documentation of real building structures (the estimate budget should be more than 15 million).			
126PJRS	Construction Preparation and Management Project	KZ	5
Complex project of construction preparation, planning, technical preparation and simulation of building execution on the basis of individual assignment for each student.			
126PRS	Construction Planning and Management	Z,ZK	5
Construction project management, project life cycle, engineering, design phase, methods of time scheduling, cost management, procurement systems and contracts, contractor management. Safety, quality and environmental management.			
126RPRO	Construction Process Management	Z,ZK	3
The course will focus on managerial and technical-economic planning during the basic technological processes of construction. The main focus will be on managerial skills in the management and control of building capacities and mechanization from the point of view of the contractor. Students will be acquainted with the principles of practical cost calculation of individual technological processes of construction. Teaching topics will be explained in case studies.			
126RSPR	Construction Project Management	Z,ZK	5
The subject provides a basic overview of project management. It defines the life cycle of a construction project. Content of individual phases of the project life cycle. Preparation and evaluation of the construction project.			
126SLEG	Building Legislation	Z	2
Territorial planning and construction code law. Public procurement law. Definition of terms. Commercial contractual relationships. Main contract types in construction - contract of the conclusion of a future contract, purchase contract, contract for work, Contents of the contract.			
126SRPB	Facility Management and Operation	Z,ZK	4
The content of the subject is the management and control of the operation of buildings using the support of modern technologies. Familiarization with the issues of implementation and operation of facility management using the CAFM system. The focus of the software support will be both on the passportization of basic property data and, in particular, on the planning, management and evaluation of the most frequently used facility management processes.			
126SWPX	Software for Business Practice	Z	2
Modern construction practice requires the application of various supporting tools and methods. The course is focused on acquire practical skills in user control not only of office applications (especially MS Excel). The aim is to improve their existing skills and acquire new ones to save time at work. The main goal is to focus on such skills that are applicable in continuing subjects and practice. It includes the verification of knowledge when creating examples in the exercise.			
126VEIN	Public Investment Construction	Z,ZK	3
Public sector investment project. Evaluation of revenues and costs, income and expenses in individual phases of the life cycle of the construction project. Risk and uncertainty in investment decision-making.			
126YIPD	Small Business	Z,ZK	4
126YPER	Human resource management	Z,ZK	2
Main intention is to make students familiar with practical HR management in construction company with focus on hiring, adaptation, motivation, leadership and remuneration. Within classes theory is combined with trainings (model situations).			
126YSWO	Construction Estimation Software	Z,ZK	4
The teaching is focused on familiarization with cost calculation SW for item preparation			
126YTRO	Decision theory	Z,ZK	2
126ZIPN	Basics of innovative business	Z,ZK	2
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.			
133BZE	Concrete and Masonry Structures E	Z,ZK	4
The course lectures is focused on the design of one-way and two-way slabs, staircases, reinforcing walls, foundations, precast structures, halls and prestressed concrete. The course also covers masonry construction and an introduction to the design of civil engineering structures and bridges. The content of the practicum is the application of the knowledge and skills acquired in lectures to a specific project that students also work with in other courses as part of their studies.			
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.			
134ODKM	Steel and Timber Structures	Z,ZK	5
Steel structures - pros and contras, material properties, fabrication, connections, industrial steel buildings, cables, high strength steel, buildings in terms of water engineering - load, protection, utilization. Timber - loadings, material propertie, limit states methodology, design, connections, bracings, protection of structural timber, timber bridges.			

135GM01	Geomechanics 1	Z	3
The course focuses on the understanding of basic geological laws and principles in relation to architecture, civil engineering and urban planning. Emphasis is placed on explaining the influence of geological processes, both endogenous and exogenous, on the rock environment and how the geological situation affects the design of structures and their interaction with the rock environment. At the same time, attention is paid to the technical properties of rocks with regard to their practical applications. The course also includes a brief introduction to the regional geology of the Czech Republic.			
135GM2I	Geomechanics 2I	Z,ZK	5
Formation of soils, basic properties of soils, water in soil, strength and deformation properties of soils and their determination, improvement of soil properties, application tasks			
135ZSE	Foundations E	Z,ZK	4
Úvod do předmětu, literatura, zásady navrhování, geotechnické kategorie Pevnostní a deformační charakteristiky základové půdy, plošné základy Mezní stavy plošných základů, výpočet únosnosti a sedání plošných základů Hlubinné základy - typologie, pilotové základy, technologie vrtaných a ražených pilot Osová únosnost osamělých pilot, zatěžovací zkoušky pilot Stanovení únosnosti příčně zatížených pilot, skupina pilot Mikropiloty, kotvy, technologie Injektáž klasická a trysková, podzemní stěny Stavební jámy, technologie pažení stavebních jam Zásady pro návrh a posouzení pažicích konstrukcí, zemní tlak, účinek vody Výpočet pažicích konstrukcí, metody závislých tlaků Odvodňování stavebních jam Ochrana základových konstrukcí před účinky agresivního prostředí			
136DSUZ	Transport Structures and Urban Planning	Z,ZK	7
The course 136DSUZ is composed of 3 issues, which build on each other and complement each other. These are the area of transport structures (roads and rail transport - scope 3+1) and the area of urban planning and spatial planning (scope 2+0). Unlike the road construction and railroad construction sections, the urban planning section does not end with credit. Transport Structures - Roads (R): Introduction to basic terminology in the part of roads, history. Road Act and related legislative and technical regulations, their impact on road design. Design categories of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, earthwork - dimensions, shapes, drainage. Urban roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design principles. Safety equipment, junctions and crossings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of security, design and operation. Tram transport - history, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principles and parameters, metro lines. Railway constructions - an introduction to the design and construction of a railway track in the conditions of the Czech Republic, the basic elements of the railway superstructure. Spatial Planning (SP): Teaching spatial planning and urban planning, spatial planning tools and procedures for their acquisition.			
141HYA	Hydraulics	Z,ZK	5
A course deals with issues of hydrostatics and hydrodynamics with aiming at civil engineering applications. There are analysed tasks related to hydrostatic and hydrodynamic loading of structures, pipeline flow, open channel flow and groundwater flow.			
142VIZP	Water and Environmental Engineering	Z,ZK	4
During the teaching semester, students are introduced to the fields of water engineering, water management and environmental engineering. In particular, emphasis is placed on the practical aspects of water and environmental engineering in close relation to other branches of civil engineering. The course is taught in the form of lectures and tutorials. The lectures are divided thematically into 20 blocks according to the different branches of the discipline (13 times water engineering and 7 times environmental engineering). In the exercises, students work on basic problems in the field of hydrology, water supply and water structures, especially dams, hydropower and flood issues. All 4 "water" departments of K14x are involved in teaching the course.			
154SG01	Land Surveying in Civil Engineering	Z,ZK	6
The shape and size of the Earth, substitutive surfaces, cartographic projections Horizontal and vertical control, coordinate calculations Quality control, deviations and tolerations in build-up Angle and distance measurements Heighting measurements Other geodetic methods in build-up (GNSS, DPZ, ...) Photogrammetry and laser scanning Thematic mapping and present state documentation Geodetic works in build-up State map series of CR and thematic maps for build-up Geographic information systems and spatial planning Cadastre of real estates Laws and decrees for geodesy and build-up in Czech Republic			
TV1	Physical Education	Z	0
TV2	Physical Education	Z	0

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