Study plan

Name of study plan: Civil Engineering

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: valid from 2020/21 to 2022/23

Name of the block: Compulsory courses Minimal number of credits of the block: 214 The role of the block: Z

Code of the group: BD20200100 Name of the group: Civil Engineering, 1st semester 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
101CG01	Constructive Geometry Hana Lakomá, Jozef Bobok Hana Lakomá Hana Lakomá (Gar.)	Z,ZK	5	2P+2C	Z	Z
101MT01	Mathematics 1 Jozef Bobok, Yuliya Namlyeyeva Yuliya Namlyeyeva Yuliya Namlyeyeva (Gar.)	Z,ZK	6	2P+3C	z	Z
123BM01	Building Materials Václav Ko í, Alena Vimmrová Alena Vimmrová Alena Vimmrová (Gar.)	Z,ZK	5	2P+2C	Z	Z
126BIME	BIM Robert Bouška, Petr Mat jka, Josef Žák Robert Bouška Josef Žák (Gar.)	Z	1	1P+1C	Z	Z
132ST01	Structural Mechanics 1 Michal Šejnoha Michal Šejnoha (Gar.)	Z,ZK	6	2P+2C	Z	Z
154FS01	Fieldwork Surveying Tomáš Kemen Tomáš K emen (Gar.)	Z,ZK	6	2P+3C	Z	Z
104CFL1	Czech/Foreign Language 1 Tereza Novotná Sandra Giormani Svatava Boboková Bartíková (Gar.)	Z	1	2C	Z	Z
TV1	Physical Education	Z	0	0+2	Z	Z

Characteristics of the courses of this group of Study Plan: Code=BD20200100 Name=Civil Engineering, 1st semester

101CG01	Constructive Geometry	Z,ZK	5				
Description of space and main methods of the projection - multiview projection as a basis for orientation in 3D CAD systems, axonometry, linear perspective. Surfaces in building							
practice - graphic law, g	practice - graphic law, geometric characteristic and image in appropriate projection, realization and application. Namely: Cylinders and Cones, Hyperboloid of Revolution, Helical						
Surfaces, Quadrics. Visi	alization of objects in 3D program SketchUp. Curves in building practice - types of mathematical description.						
101MT01	Mathematics 1	Z,ZK	6				
https://mat.fsv.cvut.cz/v	/uka/bakalari/eng/zs/MT01/syllabus						
123BM01	Building Materials	Z,ZK	5				
Main aim of course is gi	ving basic information about the structure and properties of the building materials and about their testing methods on the bas	e of the contemp	orary knowledge				
and materials engineering	ng approach. The laboratory work (exercise) consists in the testing of building materials from the point of view of physically - ch	emical properties	and their quality				
control.							
126BIME	BIM	Z	1				
The course is focused of	basic knowledge in the field of building information modeling (BIM) in theoretical and practical areas, usable across various co	nstruction industr	y specializations				
and fields. Students will	be acquainted not only with the basic knowledge of BIM (on the theoretical and practical level), data formats, IT systems typ	ical for the buildin	ig industry, but				
also with the context of	BIM in the current construction industry in relation to the whole project life cycle and its specifics (delivery, expert focus, cons	struction projects	phases, etc.)				
Theoretical knowledge is complemented by practical exercises aimed at mastering and understanding the basic principles of object-oriented parametric modeling.							
132ST01	Structural Mechanics 1	Z,ZK	6				
The principal objective of the course is to familiarize students with basic principles of mechanics such as equilibrium and equivalency applied to statically determined structures							

154FS01	Fieldwork Surveying	Z,ZK	6			
Introduction to surveying, basic geodetic calculations, evaluation of precision and accuracy of a measurement, theory of errors, instrumentation, topographic survey, angular						
distance measurements	distance measurements, determination of heights, photogrammetry, laser scanning, mapping, setting-out in construction, surveying for monitoring of displacements, cadastre of real					
estates.						
104CFL1	Czech/Foreign Language 1	Z	1			
Czech courses are inter	nded for international students. The course is aimed to provide training in basic language means necessary for communication	on in everyday situ	uations. After			
successful completion t	successful completion the student gains a credit. End of course level according to CEFR: A1 (Beginners) A2 (Elementary) Course code: 104 CFL1 Duration: 2 hours / 1 semester CEFR					
Level: A1 Literature: Hand-outs given by teacher; Lída Holá: Czech Step by Step 1 For further information: sandra.giormani@fsv.cvut.cz						
TV1	Physical Education	Z	0			

Code of the group: BD20200200

Name of the group: Civil Engineering, 2nd semester

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
101MT02	Mathematics 2 Jozef Bobok, Yuliya Namlyeyeva, Iva Malechová Yuliya Namlyeyeva Yuliya Namlyeyeva (Gar.)	Z,ZK	6	2P+3C	L	Z
102PHD	Physics Ji í Konfršt Ji í Konfršt Ji í Konfršt (Gar.)	Z,ZK	4	3P+1C	L	Z
105SOSC	Social Sciences Jitka Cirklová, Jan Gazda Jitka Cirklová Jitka Cirklová (Gar.)	Z,ZK	5	4P+1C	L	Z
123BUC	Chemistry Jana Náb Iková, Martin Keppert Martin Keppert (Gar.)	Z,ZK	4	3P+1C	L	Z
132ST02	Structural Mechanics 2 Jan Vorel Jan Vorel Jan Vorel (Gar.)	Z,ZK	6	2P+2C	L	Z
135SOM1	Soil Mechanics 1 Tomáš Štor, Tomáš Hroch Kate ina Ková ová Tomáš Štor (Gar.)	Z	3	2P+1C	L	Z
104CL2	Czech/Foreign Language 2 Svatava Boboková Bartíková, Nad žda Bonaventurová Sandra Giormani Svatava Boboková Bartíková (Gar.)	Z,ZK	2	2C	L	Z
TV2	Physical Education	Z	0	0+2	L	Z

Characteristics of the courses of this group of Study Plan: Code=BD20200200 Name=Civil Engineering, 2nd semester

https://mat.fsv.cvut.cz/vyukabakalar/eng/fs/MT02/ 102PHD Physics Z,ZK 4 102PHD Physics Z,ZK 4 This is a basic physics course in the English language for students of the study programmes. Civil Engineering; Management and Economics in Construction. The course is also open to students from other CTU faculties within the Erasmus programmes. The course focuses on mechanics and basic thermodynamics. The following areas are covered in the course: Mechanics of particles) and deformable bodies. Discrete and continuous model of matter. Kinematics and dynamics of a material point (particle). Mechanical vibrations. Material deformation. Elastic waves. Acoustics. Hydromechanics. Fundamentals of thermodynamics. Heat transfer. 10SSOSC Social Sciences encompasses a broader, multidisciplinary, framework (sociology, economy, marketing, politology, social anthropology, and media). The econresis basic of macroeconomic is Social theories presented in the course are considered an analytical reflection on the concepts and formal cognitive schemes of all social sciences. Students will get familiar with social theories/paradigms that are used to study and interpret social phenomena. Seminars will focus on everyday life, its interactions, and opinion polemics, which then interfere in negotiations about the direction and goals of society. The course also privides students with conceptual tools for their own further studies based on critical thinking. 123BUC Chemistry Z,ZK 4 124SUM12 Structural Mechanics 2 Z,ZK 6 The course social sciences on molecula		Z,ZR	0					
102PHD Physics 4 This is a basic physics course in the English language for students of the study programmes. The course focuses on mechanics and basic thermodynamics. The following areas are covered in the course: Mechanics of material points (particles). Mechanical fore fields. Gravitational field. Mechanical vibrations. Material deformation. Elastic waves. Acoustics. Hydromechanics. The following areas are covered in the course: Mechanics of material points (particles). Mechanical fore fields. Gravitational vibrations. Material deformation. Elastic waves. Acoustics. Hydromechanics. Fundamentals of thermodynamics. Heat transfer. IOSSOC Social Sciences C Z/K 5 The course Social Sciences encompasses a broader, multidisciplinary, framework (sociology, econory, marketing, politology, social anthropology, and media). The economics part of the course covers basic econonic terms, demand, supply, market equilibrium, and rational consumer choice. Firm and production functions in the short and long run as well as long-run and short-run costs are discussed. Market structures and markets for productive inputs and public goods are other topics. Also presented are macreeconomics. Social theories/paradigms that are used to study and interpret social phenomena. Seminars will fore consumer chore, sprandom with social theories/paradigms that are used to study and interpret social phenomena. Seminars will will be solar topics and physical chemistry. Instances of topics are composition, properties and behaviou of water, soil, air, wood, macromolecular compounds, inorganic binders, metals and other materials used in civil engineering. Z_ZK 4 Lactures deal with be basic toerouse is to familitarise students with the application of basic pr	https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/							
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123BUC Chemistry Z,ZK 4 Lectures deal with the basic chemical principles in the branches as general, inorganic, organic and physical chemistry. Instances of topics are composition, properties and behaviour of water, soil, air, wood, macromolecular compounds, inorganic binders, metals and other materials used in civil engineering. Z,ZK 4 132ST02 Structural Mechanics 2 The principal objective of the course is to familiarise students with the application of basic principles of mechanics to the determination of the distribution of internal forces in statically determined structures, cross-sectional properties and the elementary definition of stress. Z 3 135SOM1 Soil Mechanics 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 regional geology of the Czech Republic. Z,ZK 2 104CL2 Czech/Foreign Language 2 Z,ZK 2 This course accents the communicative approach to language teaching. Therefore, individual lessons are primarily centred around an underlying topic that is complemented by the communicative approach to language aspects (i.e. grammar, lexis, pronunciation, skills) arise from the given communicative need. Basic communication in everyday situations is further enriched by communicative skills in a more specific u	often interfere in negotiations about the direction and goals of society. The course also provides students with conceptual tools for their own further s	tudies based on o	critical thinking.					
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132ST02Structural Mechanics 2Z,ZK6The principal objective of the course is to familiarise students with the application of basic principles of mechanics to the determination of the distribution of internal forces in statically determined structures, cross-sectional properties and the elementary definition of stress.135SOM1Z3135SOM1Soil Mechanics 1Z3The 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.22104CL2Czech/Foreign Language 2Z,ZK2This course accents the communicative approach to language teaching. Therefore, individual lessons are primarily centred around an underlying topic that is complemented by the communicative language function. Further appropriate language aspects (i.e. grammar, lexis, pronunciation, skills) arise from the given communicative need. Basic communication in common situations is further enriched by communicative skills in a more specific university environment. The Czech course is intended for students in the English Programme, who have already gained some basic knowledge in the Czech language, i.e. they are at A1/A2 level. The course is aimed to provide training in language means necessary for communication in everyday situations and at university. After successful completion the student g	of water, soil, air, wood, macromolecular compounds, inorganic binders, metals and other materials used in civil engineering.							
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Code of the group: BD20200300 Name of the group: Civil Engineering, 3rd semester 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
101MT03	Mathematics 3 Jozef Bobok, Yuliya Namlyeyeva, Ond ej Zindulka, Martin Hála Yuliya Namlyeyeva Yuliya Namlyeyeva (Gar.)	Z,ZK	6	3P+2C	z	Z
124BSD1	Building Structures 1 Eva Burgetová, Hana Gattermayerová Ctislav Fiala Hana Gattermayerová (Gar.)	Z	4	2P+1C	z	Z
132TELA	Theory of Elasticity Jan Vorel Jan Vorel (Gar.)	Z,ZK	6	3P+2C	Z	Z
135SOM2	Soil Mechanics 2 Jan Záleský, Daniel Jirásko Daniel Jirásko Jan Záleský (Gar.)	Z,ZK	5	2P+1C	Z	Z
141HYAE	Hydraulics Václav Matoušek Václav Matoušek (Gar.)	Z,ZK	5	2P+2C	Z	Z
142WEE	Water and Environmental Engineering Petr Nowak, Petr Sklená, David Zumr, Václav David, Tomáš Dostál, Martina Sobotková, Martin Šanda, Milan Zukal, Ladislav Satrapa, Milan Zukal Milan Zukal (Gar.)	Z,ZK	4	3P+1C	Z	Z

Characteristics of the courses of this group of Study Plan: Code=BD20200300 Name=Civil Engineering, 3rd semester

101MT03	Mathematics 3	Z,ZK	6			
https://mat.fsv.cvut.cz/v	yuka/bakalari/eng/zs/MT03/syllabus					
124BSD1	Building Structures 1	Z	4			
Introducing in civil engi	neering, basic elements and structures					
132TELA	Theory of Elasticity	Z,ZK	6			
Basic assumptions and	basic equations of theory of elasticity. Assumptions on deformation and stress distribution in beams. Tension and compression	, pure bending, be	ending moments			
in two planes, combinat	ion of axial and bending stresses. Core of a cross section. Differential equation of elasticity curve. Shear stresses in flexural b	eams. Free torsio	n. Elastic-plastic			
and plastic state of cros	s-section. Stability of beams. 2D problems, walls and plates.					
135SOM2	Soil Mechanics 2	Z,ZK	5			
Basic course of Soil Me	chanics for Civil Engineers. Introduction to origin of soils, soil description, multi-phase media behaviour, soil classification, con	pressibility and s	hear resistance,			
soil testing, earth press	ures, assessment of stability and deformation of soil mass, applications in civil engineering.					
141HYAE	Hydraulics	Z,ZK	5			
Water as medium and r	atural resource, water in civil engineering. Physical properties of fluids/liquids. Hydrostatics - pressures, Pascal's law, hydros	tatic forces, buoya	ancy force.			
Fundamentals of hydro	dynamics - flow quantities, regimes and types of flow, hydraulic resistance, basic hydrodynamic equations. Flow in pressurize	d pipes - head los	ss due to friction			
and obstacles, simple h	ydraulic calculations. Pump-pipe systems. Flow in open channels - steady uniform flow, hydraulic design of open channel, su	bcritical, critical a	nd supercritical			
flow, non-uniform flow a	nd longitudinal profiles of water level, hydraulic jump. Hydraulics of structures - outflow from orifice, overflow on weirs and spi	llways, flow throu	gh bridge and			
culvert. Flow around obstacles, impact force of flows and jets, drag force. Measurement of discharge. Groundwater flow - types and effects, Darcy's law, seepage.						
142WEE	Water and Environmental Engineering	Z,ZK	4			
In the course students will obtain basic knowledge about water and environmental management. The course focuses on practical knowledge with close relation to other disciplines of						
civil engineering. The subject is taught in form of lectures and tutorials. The stress is laid on presentations with case studies (positive and negative) using all audio visual forms. Lectures						
of this course are divide	of this course are divided into two parts Water Engineering and Environmental Engineering.					

Code of the group: BD20200400

Name of the group: Civil Engineering, 4th semester

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
124BSD2	Building Structures 2 Eva Burgetová, Hana Gattermayerová Malila Noori Eva Burgetová(Gar.)	Z,ZK	5	2P+1C	L	Z
126ECM	Economics and Management Renáta Schneiderová Heralová, Aleš Tornek, Radan Tornek Aleš Tornek Aleš Tornek (Gar.)	Z,ZK	7	4P+2C	L	Z
132SM3E	Structural Mechanics 3 Jan Zeman Jan Zeman Jan Zeman (Gar.)	Z,ZK	5	2P+2C	L	Z

133FSTC	Fundamentals of Structural Design - Concrete Petr Štemberk, Yuliia Khmurovska Petr Štemberk Petr Štemberk (Gar.)	Z,ZK	4	2P+1C	L	Z	
134FSTT	Fundamentals of Structural Design - Steel Zden k Sokol Zden k Sokol Zden k Sokol (Gar.)	Z,ZK	3	2P+1C	L	Z	
136TSUP	Transp. Structures and Urban Planning Leoš Horní ek, Jan Valentin, Ji í Kugl, Václav Jetel, Ivan Horký Jan Valentin Jan Valentin (Gar.)	Z,ZK	6	5P+1C	L	Z	
Characteristics of the courses of this group of Study Plan: Code=BD20200400 Name=Civil Engineering, 4th semester							
124BSD2 Bu Staircases, sloping ramps, lif principles, requirements. Bas systems.	ilding Structures 2 it shafts - structural and material solutions, statical principles, load, requirements. Buildi sement - statical principles, load, requirements, waterproofing. Expansion joints of bear	ing foundations	- classificati volume cha	ion of subsoil nges, diferen	, types of for cial settlem	5 oundations, nent. Roof truss	
126ECM Ecc A-Z of construction engineer concentrates on all major top management, cost control, ri Building Industry Game (BIG the role of contractors, comp	onomics and Management ing and management both at the corporate and project level. All participants, processes pics of company and project management, e.g. business development and marketing, b sk management, etc. Lectures are based on the real practice experience of all course's i) will be played by all course participants through the whole semester (a computer sim eting in a market with variable demand for construction work). In this online game, deve	s and aspects o bidding, planning s lecturers and v ulation of a reali eloped and direc	f the constru- and contro various case istic busines ctly operate	Z uction industr Iling of all vita studies are ss environme d by the Calif	z,ZK y are introc al processe studied and nt where pa ornia Polyte	7 duced. Course es, financial d solved. Online articipants play echnic State	
132SM3E Str	uctural Mechanics 3			Z	,ZK	5	
Analysis of statically indeterr	ninate structures by the slope-deflection method and the force method. Principle of virt	ual work.					
133FSTC Fundamentals of Structural Design - Concrete Z,ZK 4 The course is focused on design of concrete structures based on ultimate state design method. The focal topics are design of reinforced concrete members for basic types of straining (bending, shear, combination of normal forces and bending moments) including determination of load effects; introduction to serviceability limit states. Other topics are technology of production and material properties of concrete and their testing, properties of steel reinforcement and interaction of reinforcement and concrete. The prerequisite courses are Structural mechanics, Theory of Elasticity, Building materials, Building structures.							
134FSTT Full The course is focused on de columns, trusses) and struct	ndamentals of Structural Design - Steel sign of steel, steel and concrete concrete composite load-bearing structures. The stude ural bolted and welded connections.	ents will learn ho	ow to desigr	of simple str	,ZK ructural ele	3 ments (beams,	
136TSUP Tra Introduction to the transporta construction. Noise and anti- pavement structure functions Relationships of urban plann and used applications.	nsp. Structures and Urban Planning ation engineering with the focus on road and railroad infrastructure. Rail transport and it noise measures. Road design and principles, Environmental aspects of road infrastruc s. Crossings and junctions. Construction materials for highway and rail road engineering ing and environmental, economic, culture-social, space and operational aspects of land	ts advantages a ture. Pavement o g. Introduction to dscape and urba	nd disadvar design (thic o urban zoni an areas. In	Z ntages. Railwa kness design ing and plann formation to p	Z,ZK ay track and) and princ ing includir planning to	6 d tram track iples of the ng urbanism. ols, procedures	

Code of the group: BD20200500

Name of the group: Civil Engineering, 5th semester

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

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

Credits in the group: 30

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
124BPH	Building Physics Ji í Nová ek, Zbyn k Svoboda Ji í Nová ek Zbyn k Svoboda (Gar.)	Z,ZK	6	3P+2C	Z	Z
132STA	Structural Analysis Jan Zeman Jan Zeman Jan Zeman (Gar.)	Z,ZK	5	2P+2C	Z	Z
133CM01	Concrete and Masonry Structures 1 Petr Bílý, Iva Broukalová Iva Broukalová Iva Broukalová (Gar.)	Z,ZK	6	3P+2C	Z	Z
134ST01	Steel Structures Zden k Sokol Zden k Sokol (Gar.)	Z,ZK	6	3P+2C	Z	Z
135FS01	Foundation of Structures Jan Záleský, Jan Kos Daniel Jirásko Jan Záleský (Gar.)	Z,ZK	7	3P+3C	Z	Z

Characteristics of the courses of this group of Study Plan: Code=BD20200500 Name=Civil Engineering, 5th semester

124BPH	Building Physics	Z,ZK	6			
Basic review of the thermal protection of buildings, building acoustics and daylighting (heat transfer, thermal conductivity, thermal resistence and thermal transmitance, multidimensional						
heat transfer, thermal b	ridges and thermal joints, difusion of water vapour and vapour condensation, mould growth, transient heat transfer, risk of ove	rheating, low-ene	rgy, passive and			
zero-energy buildings,	sound in the living and working environment, perception and description of sound: intensity, frequency, time factor, information	n value, interindiv	idual sensitivity,			
point, line and plane so	und sources, sound power level, directivity factor, sound propagation in the free field conditions, sound propagation in the diff	use field condition	ns, definable and			
indefinable sounds, airt	porne and structureborne sound, definition, measurement, evaluation and the limits, sound reduction index of double structure	es, mass-air-mas	s resonance,			
standing waves in a cav	vity, definition, measurement, evaluation, the sun and the environment, basics of spherical astronomy, horizons and equatoria	I coordinates, cal	culating of the			
sun azimuth and altitud	e, daylight and lighting, visual perception, basics of photometry, daylight factor and calculation models of the sky, methods for	r determining day	light factor,			
influence of environment	nt on a daylighting: photometric characteristics of shielding barriers, technical characteristics of lighting openings).					
132STA	Structural Analysis	Z,ZK	5			
Extreme effects of live load, influence lines. Matrix form of the direct stiffness method and its computer implementation for trusses and frames. Two-dimensional elasticity and its finite						
element treatment. Governing equations of thin plates and their finite element treatment.						

133CM01	Concrete and Masonry Structures 1	Z,ZK	6			
Structural design of con	Structural design of concrete structures; prerequisite course 133FSTC Fundamentals of Structural Design - Concrete. Calculation models, methods of analysis (focus on simplified and					
empirical methods), reinforcing and detailing for particular structures and structural elements: slabs, frames, shear walls, staircase, basement and retaining walls, foundations.						
134ST01	Steel Structures	Z,ZK	6			
The purpose of this cou	rse is to learn basic principles and general arrangement and structural detailing of multi-storey buildings and single-storey bu	uildings. Brief infor	rmation about			
structural analysis, load	, design codes and structural stability is also given. The course gives some examples of large span, tall and industrial buildin	gs.				
135FS01	Foundation of Structures	Z,ZK	7			
Basic design methods for shallow footings, piles, retaining structures, foundation pits, sheet pile walls, anchors and soil improvement. Principles of monitoring in foundation engineering.						
Use of Eurocode 7. Selected case histories.						

Code of the group: BD20200600

Name of the group: Civil Engineering, 6th semester Requirement credits in the group: In this group you have to gain at least 30 credits Requirement courses in the group: In this group you have to complete at least 5 courses Credits in the group: 30 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
124BC01	Non-loadbearing Construction Vladimír Ž ára Vladimír Ž ára Vladimír Ž ára (Gar.)	Z,ZK	7	2P+3C	L	Z
124SDP1	Structural Design Project 1 Hana Gattermayerová, Iva Broukalová, Martin Jiránek Martin Jiránek Hana Gattermayerová (Gar.)	KZ	6	4C	L	Z
125BSE	Buildings Services Systems Karel Kabele, Michal Kabrhel Karel Kabele (Karel Kabele (Gar.)	Z,ZK	5	2P+2C	L	Z
133CM02	Concrete and Masonry Structures 2 Iva Broukalová, Jan Vítek, Radek Hájek, Roman Lenner Iva Broukalová Jan Vítek (Gar.)	Z,ZK	7	4P+2C	L	Z
134TS01	Timber Structures Petr Kuklík, Lukáš Velebil Petr Kuklík Petr Kuklík (Gar.)	Z,ZK	5	3P+1C	L	Z

Characteristics of the courses of this group of Study Plan: Code=BD20200600 Name=Civil Engineering, 6th semester

124BC01 Non-loadbearing Construction	Z,ZK	7				
Course is focused on complex approach to practice design of the building envelope, flat and sloped roofing, doors and windows, partition walls, floor s	tructures and ceil	ings. This course				
introduces theoretical foundations and computational approaches about two fields of building design: building physics and structure interaction. Integrated design of the nonbearing						
structures together with other building systems.						
124SDP1 Structural Design Project 1	KZ	6				
Converting an architectural study of a smaller or medium-sized building for housing, administration, education, culture or sports into a detailed desig	n of a building str	ucture based on				
static analysis, interaction of load-bearing and non-load-bearing elements and building physics. Focus on complex approach to practical design, analysis	sis and optimaliza	tion 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 fou	ndations, design				
of structures on the building envelope with respect to thermal protection of buildings, building physics, fire protection of buildings and protection again	nst water and soi	moisture.				
Elaboration of detailed drawings including floor plans, sections and details. Public presentation.						
125BSE Buildings Services Systems	Z,ZK	5				
Introductory Course of Building Services is focused on sanitary installations, gas supply system and heating systems. Sanitary installations - introduc	tion, hydraulic pip	es, water supply				
facilities, balance water needs. Internal water supply systems - installation, materials, calculation, waste water and disposal, sewage systems, intern	al drainage, type	s of fixtures. Gas				
- external pipelines, connections, balance of gas, internal pipeline systems, flue gas. Central heating and design of heating surfaces. Calculation of h	eat balance. Hea	ting system.				
Preparation of hot water. Heat sources - boiler, electric heating, district heating, renewable sources.						
133CM02 Concrete and Masonry Structures 2	Z,ZK	7				
Design of concrete structures on serviceability. Limit states approach. Stress control, cracking and crack width analysis, allowable crack width in con-	crete structures. I	Deformation of				
reinforced concrete structures, numerical and simplified analysis, criteria of acceptance. Prestressed concrete. Introduction, basic principles, design	philosophy, prest	ress losses,				
technology of prestressing, pre-tensioning and post-tensioning, verification of serviceability and ultimate limit states. Masonry structures, introduction	n, terminology, de	sign of structural				
elements, reinforced masonry. Strengthening of masonry structures. Precast concrete structures, design situations, specific problems. Strut and tie models. Joints. Industrial halls.						
Composite concrete-concrete structures. Introduction to concrete bridges and introduction to engineering structures.						
134TS01 Timber Structures	Z,ZK	5				
The course is focused on basic rules for mechanical resistance, serviceability, durability of timber structures in normal temperature and in fire.						

Code of the group: BD20200700 Name of the group: Civil Engineering, 7th semester Requirement credits in the group: In this group you have to gain at least 22 credits Requirement courses in the group: In this group you have to complete at least 6 courses Credits in the group: 22 Note on the group:

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
100ODPR	Industrial Training (3 weeks) Kate ina Sojková, Jan R ži ka, Petr Hájek Michal Jandera Michal Jandera (Gar.)	Z	0	6C	Z,L	Z
122TCD	Technology of Construction Alexander Ilkström Kravcov, en k Jarský, Mária Párová en k Jarský en k Jarský (Gar.)	Z,ZK	6	4P+2C	z	Z
123MED	Material Engineering Alena Vimmrová, Igor Medve , Jan Fo t Alena Vimmrová Igor Medve (Gar.)	Z,ZK	5	2P+2C	Z	Z
124BSD3	Building Structures 3 Vladimír Ž ára Vladimír Ž ára (Gar.)	Z,ZK	3	2P+1C	Z	Z
124PDRD	Failures, Deterioration, Renovations Eva Burgetová Eva Burgetová Eva Burgetová (Gar.)	Z,ZK	3	2P+1C	Z,L	Z
125BSE2	Buildings Services Systems 2 Michal Kabrhel, Zuzana Veverková Michal Kabrhel Michal Kabrhel (Gar.)	Z,ZK	5	2P+2C	Z	Z

Characteristics of the courses of this group of Study Plan: Code=BD20200700 Name=Civil Engineering, 7th semester

1000DPR	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 prot	essional practice evaluates the sum of all knowledge acquired through previous theoretical studies and is a proof of their activity of the states and the sum of all knowledge acquired through previous theoretical studies and is a proof of their activity of the sum of all knowledge acquired through previous theoretical studies and is a proof of the sum of all knowledge acquired through previous theoretical studies and is a proof of the sum of all knowledge acquired through previous theoretical studies and is a proof of the sum of all knowledge acquired through previous theoretical studies and is a proof of the sum of all knowledge acquired through previous theoretical studies and is a proof of the sum of a sum of	quisition.					
122TCD	Technology of Construction	Z,ZK	6				
Goal: To learn students	o know construction processes and their design and to create a model of the building process of a project for planning and n	nanagement of its	implementation				
Contents: 1. Introduction	to construction technology, construction processes, basic terminology. 2. Earthworks, excavation of rock classes, types of e	xcavation, shoring	, compaction,				
drainage. 3. Production	and transport of concrete mixture. Formwork and traditional system, placement of reinforcement, storage and compaction of	fresh concrete, cu	uring of fresh				
concrete. 4. Construction	n Equipment (equipment for mining, transportation and compaction of rocks, concrete transport equipment, lifting equipment	, tower and mobile	e cranes, trucks,				
elevators, hoists, trays, t	ools for finishing work). 6. Excursion to construction site. 7. Finishing works in building industry. Plasters, facings, paintings, sol	ffits, wallpapers flo	ors. 8. Facades,				
fronts. Internal installation	ns, sewerage, water, gas, electricity mains. 9. Health and safety at work. Environmental protection during construction. Qual	ity requirements for	or construction				
processes. 10. Impleme	ntation of buildings and projects. Main concepts and terms. Technological, spatial and time analysis of the building process, 1	11. Technological	stages and their				
characteristics for homo	genous and non homogenous buildings.Long term and short term construction planning and scheduling. Construction techn	ology design. 12.	Flow method in				
building industry, use of	construction technology network analysis for project management. Use of computers in project planning and management.	13. Principles of de	esign of site				
facilities and equipment							
123MED	Material Engineering	Z,ZK	5				
123MED Subject gives informatio	Material Engineering n on principles of designing and development of new types of materials having directed properties for specific building applic	Z,ZK cations and structu	5 ires.				
123MED Subject gives informatio 124BSD3	Material Engineering n on principles of designing and development of new types of materials having directed properties for specific building applic Building Structures 3	Z,ZK cations and structu Z,ZK	5 ures. 3				
123MED Subject gives informatio 124BSD3 The subject is focused of	Material Engineering n on principles of designing and development of new types of materials having directed properties for specific building applic Building Structures 3 n the complex design of load-bearing structures of roofs, large-span structures and structures of multi-storey buildings. In the	Z,ZK cations and structu Z,ZK e first part, the atte	5 ares. 3 ention is focused				
123MED Subject gives informatio 124BSD3 The subject is focused c on span structures of pit	Material Engineering n on principles of designing and development of new types of materials having directed properties for specific building applic Building Structures 3 n the complex design of load-bearing structures of roofs, large-span structures and structures of multi-storey buildings. In the ched roofs and hall buildings and on the supporting structures of multi-storey buildings. In the second part, students will learn	Z,ZK cations and structu Z,ZK e first part, the atte about the design	5 arres. 3 ention is focused of prefabricated				
123MED Subject gives informatio 124BSD3 The subject is focused c on span structures of pit indoor and multi-storey	Material Engineering n on principles of designing and development of new types of materials having directed properties for specific building applic Building Structures 3 n the complex design of load-bearing structures of roofs, large-span structures and structures of multi-storey buildings. In the ched roofs and hall buildings and on the supporting structures of multi-storey buildings. In the second part, students will learn structures.	Z,ZK cations and structu Z,ZK e first part, the atter about the design	5 arres. 3 ention is focused of prefabricated				
123MED Subject gives informatio 124BSD3 The subject is focused c on span structures of pit indoor and multi-storey 124PDRD	Material Engineering n on principles of designing and development of new types of materials having directed properties for specific building applic Building Structures 3 n the complex design of load-bearing structures of roofs, large-span structures and structures of multi-storey buildings. In the ched roofs and hall buildings and on the supporting structures of multi-storey buildings. In the second part, students will learn structures. Failures, Deterioration, Renovations	Z,ZK cations and structu Z,ZK e first part, the atter about the design Z,ZK	5 arres. antion is focused of prefabricated 3				
123MED Subject gives informatio 124BSD3 The subject is focused of on span structures of pit indoor and multi-storey 124PDRD Types of defects, sympto	Material Engineering n on principles of designing and development of new types of materials having directed properties for specific building applic Building Structures 3 n the complex design of load-bearing structures of roofs, large-span structures and structures of multi-storey buildings. In the ched roofs and hall buildings and on the supporting structures of multi-storey buildings. In the second part, students will learn structures. Failures, Deterioration, Renovations oms, significance, criticality, causes, reason for failures, Records of faults: origin, frequency, performance Agencies causing de	Z,ZK cations and structu Z,ZK e first part, the atter about the design Z,ZK eterioration, durab	5 antion is focused of prefabricated 3 ility of materials,				
123MED Subject gives informatio 124BSD3 The subject is focused of on span structures of pit indoor and multi-storey 124PDRD Types of defects, symptor role of external forces, in	Material Engineering n on principles of designing and development of new types of materials having directed properties for specific building applic Building Structures 3 n the complex design of load-bearing structures of roofs, large-span structures and structures of multi-storey buildings. In the ched roofs and hall buildings and on the supporting structures of multi-storey buildings. In the second part, students will learn structures. Failures, Deterioration, Renovations pms, significance, criticality, causes, reason for failures, Records of faults: origin, frequency, performance Agencies causing densability and deficiency of structures, failure patterns Failures of foundation, walls and DPCs, claddings and roofs	Z,ZK cations and structu Z,ZK a first part, the atter about the design Z,ZK eterioration, durab	5 antion is focused of prefabricated 3 ility of materials,				
123MED Subject gives informatio 124BSD3 The subject is focused of on span structures of pit indoor and multi-storey 124PDRD Types of defects, symptor role of external forces, in 125BSE2	Material Engineering n on principles of designing and development of new types of materials having directed properties for specific building applic Building Structures 3 n the complex design of load-bearing structures of roofs, large-span structures and structures of multi-storey buildings. In the ched roofs and hall buildings and on the supporting structures of multi-storey buildings. In the second part, students will learn structures. Failures, Deterioration, Renovations oms, significance, criticality, causes, reason for failures, Records of faults: origin, frequency, performance Agencies causing destability and deficiency of structures, failure patterns Failures of foundation, walls and DPCs, claddings and roofs Buildings Services Systems 2	Z,ZK cations and structu Z,ZK a first part, the atter about the design Z,ZK eterioration, durab	5 antion is focused of prefabricated 3 ility of materials, 5				
123MED Subject gives informatio 124BSD3 The subject is focused of on span structures of pit indoor and multi-storey 124PDRD Types of defects, symptor role of external forces, in 125BSE2 Introduction to the indoor	Material Engineering non principles of designing and development of new types of materials having directed properties for specific building applic Building Structures 3 not be complex design of load-bearing structures of roofs, large-span structures and structures of multi-storey buildings. In the ched roofs and hall buildings and on the supporting structures of multi-storey buildings. In the second part, students will learn structures. Failures, Deterioration, Renovations pms, significance, criticality, causes, reason for failures, Records of faults: origin, frequency, performance Agencies causing destability and deficiency of structures, failure patterns Failures of foundation, walls and DPCs, claddings and roofs Buildings Services Systems 2 r environmental quality, building ventilation and basic artificial lighting and electrical installation.	Z,ZK cations and structu Z,ZK a first part, the atter about the design Z,ZK eterioration, durab	5 antion is focused of prefabricated 3 ility of materials, 5				

Code of the group: BD20200800

Name of the group: Civil Engineering, 8th semester

Requirement credits in the group: In this group you have to gain at least 12 credits Requirement courses in the group: In this group you have to complete at least 2 courses Credits in the group: 12

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
124FSHB	Fire Safety and Healthy Buildings Martin Jiránek, Petr Hejtmánek, Pavla Ryparová, Zuzana Rácová, Veronika Ka ma íková, Vladimír Mózer Vladimír Mózer Martin Jiránek (Gar.)	Z,ZK	6	3P+2C	L	Z
126CMAN	Construction Management Aleš Tomek, Radan Tomek Aleš Tomek Aleš Tomek (Gar.)	Z,ZK	6	3P+2C	L	Z

Characteristics of the courses of this group of Study Plan: Code=BD20200800 Name=Civil Engineering, 8th semester

124FSHB Fire Safety and Healthy Buildings

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

Z.ZK

6

126CMAN Construction Management Z,ZK 6 Course is oriented mainly on practical applications of corporate construction management systems. It includes corporate strategy, corporate finance and budgeting, marketing and methods of business development, etc. Sustainable profitability of the construction business and the best practice at both - field and corporate level is explained. 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: Compulsory elective courses Minimal number of credits of the block: 8 The role of the block: PV

Code of the group: BD20200700_2 Name of the group: Civil Engineering, Optional subjects, 7-8th semester Requirement credits in the group: In this group you have to gain at least 8 credits Requirement courses in the group: In this group you have to complete at least 4 courses Credits in the group: 8 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
102PHS	Physics - Seminar Ji í Konfršt Ji í Konfršt Ji í Konfršt (Gar.)	Z	2	2C	Z	PV
124CADE	CAD 1 (E) Pavel Chour Pavel Chour (Gar.)	KZ	3	3C	Z,L	PV
124YEOT	Energy Optimised Timber Buildings Jan R ži ka Jan R ži ka Jan R ži ka (Gar.)	Z	2	1P+1C	Z	PV
124YKSE	Complex Construction Detailing Ji í Pazderka	Z	2	1P+1C	Z	PV
128CGR	Computer Graphics Tomáš Vaní ek Tomáš Vaní ek (Gar.)	Z,ZK	4	2P+2C	Z,L	PV
132MMO	Modern Methods of Optimization Jan Zeman, Mat j Lepš Jan Zeman Mat j Lepš (Gar.)	Z	2	1P+1C	Z	PV
133YBBD	Basis of Bridges Design Roman Lenner Roman Lenner Roman Lenner (Gar.)	Z	2	1P+1C	Z	PV
134TBS	Timber Based Structures Petr Kuklík Petr Kuklík (Gar.)	Z	2	1P+1C	Z	PV
137TENV	Rail Traffic and Environment Leoš Horní ek, Vít Lojda, Lenka Lomoz Leoš Horní ek Leoš Horní ek (Gar.)	Z,ZK	2	1P+1C	Z	PV
143ESP	Soil Physics for Engineers David Zumr, Jakub Je ábek, Milena Císlerová, Tailin Li David Zumr Milena Císlerová (Gar.)	Z,ZK	4	2P+2C	Z	PV
144BT1	Balneotechnology Bohumil Šastný, Filip Horký Filip Horký Bohumil Šastný (Gar.)	ZK	2	2P	Z	PV
144WS	Drinking Water Management Kate ina Slaví ková, Filip Horký Filip Horký Kate ina Slaví ková (Gar.)	KZ	2	2P	Z	PV
101MPRS	Probability and Statistics Jozef Bobok, Daniela Jarušková Daniela Jarušková Daniela Jarušková (Gar.)	ZK	4	2P+2C	Z,L	PV
124BIMR	BIM - Revit Architecture Pavel Chour, Renáta Ho ánková, Kristýna Schulzová Pavel Chour Renáta Ho ánková (Gar.)	KZ	2	1P+1C	Z,L	PV
124EDC	Civil Engineering in Developing Countries Jan Tilinger Jan Tilinger Jan Tilinger (Gar.)	Z,ZK	4	2P+2C	Z,L	PV
126YMCC	Management in Construction Company Aleš Tomek, Radan Tomek Petr Mat jka	Z	2	1P+1C	L	PV
128CS1	C# Programming and Application Development Miroslav S ra Miroslav S ra (Gar.)	Z,ZK	4	2P+2C	Z,L	PV
128CS2	C# 2 - Advanced Application Development Miroslav S ra Miroslav S ra Miroslav S ra (Gar.)	Z,ZK	4	2P+2C	Z,L	PV
128YIND	Computer Use Fundamentals Miroslav S ra Miroslav S ra (Gar.)	Z	2	2C	Z,L	PV
129ACM1	Architectural CAD Modelling 1 Vojt ch Dvo ák, Klára Škodová, Anna Marie erná Vojt ch Dvo ák Vojt ch Dvo ák (Gar.)	KZ	3	3C	Z,L	PV
129ACM2	Architectural CAD Modelling 2 Vojt ch Dvo ák, Klára Škodová, Anna Marie erná Vojt ch Dvo ák Vojt ch Dvo ák (Gar.)	КZ	3	3C	Z,L	PV
129CTA	Composition and Theory of Architecture Lenka Popelová, Klára Ciesarová Lenka Popelová Lenka Popelová (Gar.)	KZ	2	2C	Z,L	PV

133CASD	Computer Aided Structural Design Josef Novák Josef Novák Josef Novák (Gar.)	Z	2	1P+1C	Z,L	PV
133YCB	Concrete Bridges Roman Lenner Roman Lenner (Gar.)	Z,ZK	4	2P+2C	L	PV
134FSTS	Fire Design of Steel, Concrete and Timber Str. Kamila Cábová Kamila Cábová Kamila Cábová (Gar.)	Z	2	1P+1C		PV
134GSTR	Glass Structures Martina Eliášová Martina Eliášová Martina Eliášová (Gar.)	Z	2	1P+1C	L	PV
134SAL	Stainless Steel and Aluminium Structures Michal Jandera Michal Jandera Michal Jandera (Gar.)	Z	2	1P+1C	L	PV
143ENE	Environmental Engineering David Zumr, Tomáš Dostál, Martina Sobotková, Martin Šanda Martin Šanda Tomáš Dostál (Gar.)	Z,ZK	4	2P+1C	Z,L	PV

Characteristics of the courses of this group of Study Plan: Code=BD20200700_2 Name=Civil Engineering, Optional subjects, 7-8th semester

361163161		
102PHS Physics - Seminar	Z	2
This course serves as a supplementary one for 102PH01. Students will solve many problems which provide better understanding of the topics discu	issed in the lectur	es.
124CADE CAD 1 (E)	KZ	3
The seminar familiarizes students with the AutoCAD drawing software. This includes working with 2D & amp; 3D geometry, wire models, prints, SGC	ACIS/Parasolid g	eometry models,
meshes, Bool operations, solid objects creation methods and advanced edits and modifications of the model.		
124YEOT Energy Optimised Timber Buildings	Z	2
The aim is to present a complex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are	focused on follow	ing technologies
of timber structures: (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber str	uctures are prese	nted in structural
and building physics context of low energy and passive buildings.		
124YKSE Complex Construction Detailing	Z	2
The aim of the course is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level	of knowledge abo	ut structural
problems in buildings. The content of the course is focused on the complex solution of construction details, following all legislative requirements and	taking into accou	nt the maximum
efficiency and durability of the chosen solution.		
128CGR Computer Graphics	Z,ZK	4
Foundation of using various types of computer graphics programs. Grid graphics, digital photography, vector drawing, 3D modelling, visualisation. Ba	sed computer gra	phics algorithms.
132MMO Modern Methods of Optimization	Z	2
The course is aimed at an overview of numerical optimization methods applicable not only in the Civil Engineering area. The emphasis is put more on the	ne introduction of c	friving principles,
however, practical applications in MATLAB environment are also conducted during exercises.		
133YBBD Basis of Bridges Design	Z	2
The course Basis of Bridge Design is focused on principal problems related to design of bridges - spatial arrangement and equipment of road and r	ailway bridges, typ	bes of bridge
structures and technologies of construction of concrete bridges.		
134TBS Timber Based Structures	Z	2
Examples of timber structures and bridges. Structural systems and details. Recommended design.	·	
137TENV Rail Traffic and Environment	Z,ZK	2
Basic principles for designing of railway and tramway structures, European railway network, rail transport, environmental impacts - acoustics, traffic i	noise and vibration	ns, noise control,
modelling and attenuation of traffic noise.		
143ESP Soil Physics for Engineers	Z,ZK	4
Engineering description of water movement and solute transport in a soil profile. Hydraulic characteristics of porous media. Retention curve and hydraulic characteristics of porous media.	raulic conductivity	definition and
estimation. Field vs laboratory measurements. Preferential flow. Basics of modelling. Basics of transport processes		
144BT1 Balneotechnology	ZK	2
Water treatment, design and operation of circulation water for swimmnig pool, natural and artificial complexes for water recreation and spas.		
144WS Drinking Water Management	KZ	2
Water treatment and water supply	1	'
101MPRS Probability and Statistics	ZK	4
The goal is to get a basic knowledge in probability and inferential statistics. Probability. Discrete and continuous random variables. Normal distribution	n. Asymptotic dis	tribution of a
mean. Multivariate distribution. Independence and correlation. Parameter estimation. Hypothesis testing. Simple linear regression.		
124BIMR BIM - Revit Architecture	KZ	2
The seminar introduces the basic principles of building design as an information model. Teaching takes place on the Autodesk platform. Teaching is	focused on the in-	terpretation of
the principle of modeling building elements, their relationships and properties. During the exercise, students will create a simple BIM model, they will	learn to work with	i other SW - data
export and import, they will learn basic principles of creating 2D documentation, scheduling, 3D presentation - render, animation.		
124EDC Civil Engineering in Developing Countries	Z,ZK	4
For a long time, organizations operating in developing and climatically or culturally diverse regions have been struggling with the lack of construction	experts who would	d be able to work
in a setting that is culturally, climatically, socially and economically different. The aim of the course is to provide students with basic information about	It the specifics of v	work in such
regions. Within the subject we will deal with constructional approaches with respect to different climate, use of non-standard procedures, materials a	nd organizational	approaches and
other factors different from the standards in the Europe or Czech Republic (e.g. building requirements, seismic activity, tsunami, animals, insects, mo	onsoon rain , abse	nce of networks,
etc.).		
126YMCC Management in Construction Company	Z	2
Nature of Construction Business Primary Causes of Business Failure, External and Internal Influences Business Strategies to Minimize the Risk of Busin	ess Failure Busine	ss Development,
Marketing and Bidding Planning Strategies Plan Implementation/Control Strategies Financial Management Strategies Construction Risk Management Lea	adership Challenge	es Organizational
Behavior Corporate & amp; Employee Ethics Company Performance Checklist Managing Profitable Construction Business Lectures are based on the	e real practice exp	perience 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	gh the whole seme	ster (a computer
simulation of a realistic business environment where participants play the role of contractors, competing in a market with variable demand for constr	uction work). In th	is online game,
developed and directly operated by the California Polytechnic State University, students act as contractors, managing both, their companies and pro	jects. Active partic	cipation in the
online game and meeting the attendance requirement is required to receive course credit (zápo et). The awarding of the course credit is a condition	tor being allowed	to take the exam
(zkouska).		

	7 71/	4
128CS1 C# Programming and Application Development	Z,ZK	4
Students will become acquainted with one of the currently most popular programming language from C-tamily languages containing next to C# also	a well-known Java	a. The simple
syntax or C# enables to study the language incrementally by developing real applications since the very beginning. I hus students can develop their of	own applications a	atter a very short
time of study. Thanks to this fact students can pursue memes like advanced use of objects, some of design patterns and application architecture, of		5.
128CS2 C# 2 - Advanced Application Development	Z,ZK	4
Synopsis: Students will get more familiar with one (C#) of the most popular programming language of the C-family languages, where next to C# also	the Java is a mer	mber. Students
will pursue themes like advanced usage and design of objects, user class libraries and re-use of objects in application development, as well as design of objects in application development, as well as design of objects in application development, as well as design of objects in application development, as well as design of objects in application development, as well as design of objects in application development, as well as design of objects in application development, as well as design of objects in application development, as well as design of objects in application development, as well as design of objects in application development as design of objects.	on patterns and ap	oplication
architecture.		
128YIND Computer Use Fundamentals	Z	2
Annotation: Documents and data processing - focused on documents and data that are not one-use only or not "use once then discard". Exploiting (Office utilities (Mic	rosoft Office,
OpenOffice) for advanced document management. Documents (Word), spreadsheets (Excel) and automated data calculations. Desk-top databases	(Access). Informa	tion systems
(IS), basic principles, what is an IS and what is not an IS. Other problem-oriented programs and user interfaces (e.g. np++). With an option: Compute	er aided processe	s and activities.
129ACM1 Architectural CAD Modelling 1	KZ	3
The students are acquainted with the possibilities of BIM using ArchiCAD software. Basic tools, functions and principles are demonstrated. Students	practice the newl	y acquired
knowledge on a simplified BIM model of a family house or another appropriate building or structure. Objective of this course is to teach prospective a	architects and civi	engineers an
effective method of creation BIM model that is base for 2D and 3D documentation (including VR model, IFC etc.).		
129ACM2 Architectural CAD Modelling 2	KZ	3
The subject enhances and develops skills acquired in the basic course 129ACM1. The course is focused on methods and tools for creating of complic	ated shapes and l	ibrary elements.
129CTA Composition and Theory of Architecture	K7	2
Seminars are focused on the composition of architecture which will be analyzed through the basic ordering principles, pattern making process and app	lication of the theo	retical concepts
122CASD Computer Aided Structural Design	7	2
Computer Aided Structure Design has been implemented as a particular personal computer variable structure destate to gain knowledge in a computer		∠ and analysis of
Computer-Alded Structural Design has been implemented as an optional computer voluse which provides students to gain knowing in a computer voluse in the provide students to gain knowing in a computer voluse which provides students to gain knowing in a computer voluse which provides the students to gain knowing in a computer voluse which provides the students to gain knowing in a computer voluse which provides the students to gain knowing in a computer voluse which provides the students to gain knowing in a computer voluse which provides the students to gain knowing in a computer voluse which provides the students to gain knowing in a computer voluse which provides the students to gain knowing in the students to gain which we have the students to gain which we have the students to gain knowing in the students to gain which we have the students t	rious concrete etr	
Tennored concrete structures. The objective of the course is to demonstrate the practical use of selected 1 kins software for the minit state design of va		uctures. Marriery,
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133YCB Concrete Bridges	Z,ZK	4
133YCB Concrete Bridges The course of Concrete Bridges is focused on design and construction of this type of bridge structures. Lectures are devoted to spatial arrangement at bridge structure and table and an allocation of the spatial arrangement at bridge structure.	Z,ZK	4 road and railway
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Name of the block: Povinn volitelné p edm ty, doporu ení S1 Minimal number of credits of the block: 18 The role of the block: S1

Code of the group: BD20200700_1

Name of the group: Civil Engineering, Project, 7th semester Requirement credits in the group: In this group you have to gain at least 6 credits Requirement courses in the group: In this group you have to complete at least 1 course Credits in the group: 6 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
124SDP2	Structural Design Project 2 Tomáš Vlach Tomáš Vlach (Gar.)	KZ	6	4C	Z	S1
133SDP2	Structural Design Project 2 Iva Broukalová	KZ	6	4C	Z	S1
134SDP2	Structural Design Project 2 Michal Jandera Michal Jandera (Gar.)	KZ	6	4C	Z	S1

135SDP2	Structural Design Project 2 Michal Jandera Jan Salák (Gar.)	KZ	6	4C	Z	S1

Characteristics of the courses of this group of Study Plan: Code=BD20200700_1 Name=Civil Engineering, Project, 7th semester					
124SDP2	Structural Design Project 2	KZ	6		
The subject of the cours	e is a technical solution design of advanced structures. Structural design project 2 focus on complex approach to practice de	esign, analysis an	d optimalization		
of advanced multistorey	or long span building structures, or their reconstruction. Analysis of load, functional and technologic requirements, design of	load-bearing sys	tem alternatives		
including foundations, p	reliminary bearing elements dimensions calculation, choice of most suitable version. Preliminary statical design of chosen versi	on, technical repo	rt, and drawings.		
133SDP2	Structural Design Project 2	KZ	6		
Elaboration of the structural part of the project documentation for the given structure (part of the structure). The design of the selected variant of the structure with regard to the					
requirements of other p	rofessions. Structural analysis and drawing documentation to the extent specified during consultations. The Department of A	rchitectural Engine	eering (K124)		
and Geotechnics (K135) collaborate in teaching in the course.					
134SDP2	Structural Design Project 2	KZ	6		
Design of steel / timber load bearing building structure according to external requirements in relation to interaction of load bearing and final completion structural elements. The project					
is assigned by the seminar leader.					
135SDP2	Structural Design Project 2	KZ	6		
Design, static calculation and drawing documentation of the building substructure					

Code of the group: BD20200800_1

Name of the group: Civil Engineering, Bachelor Project 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
102BPRO	Bachelor Project Ji í Novák	Z	12	10C	L,Z	S1
122BPRO	Bachelor Project en k Jarský Rostislav Šulc en k Jarský (Gar.)	Z	12	10C	L,Z	S1
123BPRO	Bachelor Project Alena Vimmrová Jan Pruška Jan Pruška (Gar.)	Z	12	10C	L,Z	S1
124BPRO	Bachelor Project Petr Hájek	Z	12	10C	L,Z	S1
125BPRO	Bachelor Project Karel Kabele Karel Kabele (Gar.)	Z	12	10C	L,Z	S1
132BPRO	Bachelor Project Jan Vorel, Aleš Jíra, Milan Jirásek Aleš Jíra	Z	12	10C	L,Z	S1
133BPRO	Bachelor Thesis	Z	12	10C	L,Z	S1
134BPRO	Bachelor Project Michal Jandera Michal Jandera (Gar.)	Z	12	10C	L,Z	S1
135BPRO	Bachelor Project Jan Salák	Z	12	10C	L,Z	S1

Characteristics of the courses of this group of Study Plan: Code=BD20200800_1 Name=Civil Engineering, Bachelor Project

	Bachelor Project	7	12		
in accordance with the t			12		
		-	10		
122BPRO	Bachelor Project	Z	12		
The bachelor's thesis er	nds the bachelor study. The student demonstrates that he / she can apply the knowledge gained during the study on a specif	ic project. The wo	rk may take the		
form of theoretical or pr	oject. Students consult the issue with the thesis supervisors and experts from the predetermined departments.				
123BPRO	Bachelor Project	Z	12		
In accordance with the	thesis proposal				
124BPRO	Bachelor Project	Z	12		
The topics of bachelor's	theses are based on the needs of practice or the scientific research activities of the department, scope and difficulty corresp	, pond to the stude	nt's knowledge		
acquired during bachelo	or's studies. The supervisor of the bachelor's thesis can designate additional consultants to the student.				
125BPRO	Bachelor Project	Z	12		
Bachelor Thesis is the r	esult of the Bachelor degree study programme. It should prove student's ability to work independently in the area of Building	Services System	s. The thesis can		
cover theoretical aspect	ts or to focus on practical application on an object within building services systems. Students consult the supervisor and spec	cialists from other	departments.		
The thesis is presented	in front of the commission.				
132BPRO	Bachelor Project	Z	12		
The assignment of the final thesis is always individual based on the agreement of the teacher and the student. The vast majority of assignments are connected with the scientific and					
research activities of the respective employee. The output of the solution may be a brief research study of the given problem, experimental activity, programming and others according					
to the respective assignment.					
133BPRO	Bachelor Thesis	Z	12		
A bachelor thesis is the	A bachelor thesis is the qualification thesis of a bachelor's degree. It can take the form of processing the structural part of the building design project or research study on the topic of				
designing and application of a structural element with a variant comparative analysis or parametric study or performing and analysing experiments, etc.					
134BPRO	Bachelor Project	Z	12		
In this course, student formulates a bachelor's thesis that is necessary to reach the bachelor's degree. This course is focused on steel or timber structural design.					

135BPRO	Bachelor Project
Individual assignment in	accordance with the thesis proposa

List of courses of this pass:

Ζ

12

Code	Name of the course	Completion	Credits		
1000DPR	Industrial Training (3 weeks)	Z	0		
Professional pra	actice is an important part of academic education in undergraduate degree programmes. The student will gain a basic understanding	of duties and profe	essional		
respon	sibilities. The professional practice evaluates the sum of all knowledge acquired through previous theoretical studies and is a proof o	their acquisition.			
101CG01	Constructive Geometry	Z,ZK	5		
Description of sp	ace and main methods of the projection - multiview projection as a basis for orientation in 3D CAD systems, axonometry, linear persi-	bective. Surfaces in	n building		
practice - graphic	s law, geometric characteristic and image in appropriate projection, realization and application. Namely, Cylinders and Cones, Hyperi Surfaces, Quadrics, Visualization of objects in 3D program Sketch In, Curves in building practice - types of mathematical descri	ption	i, nelical		
101MPRS	Probability and Statistics	7K	4		
The goal is to get	a basic knowledge in probability and inferential statistics. Probability. Discrete and continuous random variables. Normal distribution.	Asymptotic distrib	ution of a		
	mean. Multivariate distribution. Independence and correlation. Parameter estimation. Hypothesis testing. Simple linear regress	ion.			
101MT01	Mathematics 1	Z,ZK	6		
'	https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/MT01/syllabus				
101MT02	Mathematics 2	Z,ZK	6		
	https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/				
101MT03	Mathematics 3	Z,ZK	6		
	https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/MT03/syllabus				
102BPRO	Bachelor Project	Z	12		
	in accordance with the thesis proposal				
102PHD	Physics	Z,ZK	4		
This is a basic phys	sics course in the English language for students of the study programmes Civil Engineering; Management and Economics in Constru-	ction. The course i	s also open		
Mechanics of mat	erial points (particles) and deformable bodies. Discrete and continuous model of matter. Kinematics and dynamics of a material point	t (narticle) Mechai	nical force		
fields. Gra	witational field. Mechanical vibrations. Material deformation. Elastic waves. Acoustics. Hydromechanics. Fundamentals of thermodyna	amics. Heat transfe	er.		
102PHS	Physics - Seminar	Z	2		
This course	serves as a supplementary one for 102PH01. Students will solve many problems which provide better understanding of the topics dis	scussed in the lect	ures.		
104CFL1	Czech/Foreign Language 1	Z	1		
Czech courses ar	e intended for international students. The course is aimed to provide training in basic language means necessary for communication	in everyday situati	ons. After		
successful completi	on the student gains a credit. End of course level according to CEFR: A1 (Beginners) A2 (Elementary) Course code: 104 CFL1 Duration	on: 2 hours / 1 sem	ester CEFR		
	Level: A1 Literature: Hand-outs given by teacher; Lída Holá: Czech Step by Step 1 For further information: sandra.giormani@fsv.	cvut.cz			
104CL2	Czech/Foreign Language 2	Z,ZK	2		
This course accer	ts the communicative approach to language teaching. Therefore, individual lessons are primarily centred around an underlying topic guage function. Further approach to language concerts (i.e. grommer, lovie, propulsioning, skille) orige from the given communicative is	that is complement	ited by the		
common situation	guage function. Further appropriate language aspects (i.e. grammar, lexis, pronunciation, skiiis) anse from the given communicative is s is further enriched by communicative skills in a more specific university environment. The Czech course is intended for students in t	he English Progra	mme who		
have already gained	I some basic knowledge in the Czech language, i.e. they are at A1/A2 level. The course is aimed to provide training in language means	necessary for con	munication		
in	everyday situations and at university. After successful completion the student gains a credit and exam. End of course level according	to CEFR: A2			
105SOSC	Social Sciences	Z,ZK	5		
The course Social	Sciences encompasses a broader, multidisciplinary, framework (sociology, economy, marketing, politology, social anthropology, and r	nedia). The econoi	mics part of		
the course covers b	asic economic terms, demand, supply, market equilibrium, and rational consumer choice. Firm and production functions in the short a	nd long run as well	as long-run		
and short-run cos	ts are discussed. Market structures and markets for productive inputs and public goods are other topics. Also presented are macroed	conomic aggregate	es and the		
basics of macroeco	nomics. Social theories presented in the course are considered an analytical reflection on the concepts and formal cognitive schemes is social theories because will focus on everyday life, its interactions and the social phenomena.		mice which		
often interfere in ne	social metrics paradigms that are used to study and marphet social previon end. Cerninals with rocus on every day me, its interaction and goals of society. The course also provides students with conceptual tools for their own further students.	lies based on critic	al thinking.		
122BPRO	Bachelor Project	7	12		
The bachelor's the	sis ends the bachelor study. The student demonstrates that he / she can apply the knowledge gained during the study on a specific p	roject. The work m	ay take the		
	form of theoretical or project. Students consult the issue with the thesis supervisors and experts from the predetermined departr	nents.			
122TCD	Technology of Construction	Z,ZK	6		
Goal: To learn stude	ents to know construction processes and their design and to create a model of the building process of a project for planning and man	agement of its imp	lementation		
Contents: 1. Introd	uction to construction technology, construction processes, basic terminology. 2. Earthworks, excavation of rock classes, types of exca	avation, shoring, co	ompaction,		
drainage. 3. Produ	iction and transport of concrete mixture. Formwork and traditional system, placement of reinforcement, storage and compaction of fruction and compaction of fruction and compact to an experiment to the second system of t	esh concrete, curir	ng of fresh		
elevators hoists tra	vs tools for finishing work) 6 Excursion to construction site 7 Einishing works in building industry Plasters facings paintings soffits	wallpapers floors	8 Facades		
fronts. Internal inst	allations, sewerage, water, gas, electricity mains. 9. Health and safety at work. Environmental protection during construction. Quality	requirements for c	onstruction		
processes. 10. Implementation of buildings and projects. Main concepts and terms. Technological, spatial and time analysis of the building process, 11. Technological stages and their					
characteristics for h	characteristics for homogenous and non homogenous buildings.Long term and short term construction planning and scheduling. Construction technology design. 12. Flow method in				
building industry,	use of construction technology network analysis for project management. Use of computers in project planning and management. 13 facilities and equipment	. Principles of des	ign of site		
123BM01	Building Materials	Z.ZK	5		
Main aim of course	is giving basic information about the structure and properties of the building materials and about their testing methods on the base of	the contemporary	knowledge		
and materials engin	eering approach. The laboratory work (exercise) consists in the testing of building materials from the point of view of physically - chemi	cal properties and	their quality		
	control.				

		_	
123BPRO	Bachelor Project	Ζ	12
	In accordance with the thesis proposal		
123BUC	Chemistry	Z,ZK	4
Lectures deal with	the basic chemical principles in the branches as general, inorganic, organic and physical chemistry. Instances of topics are composit	tion, properties and	d behaviour
	of water, soil, air, wood, macromolecular compounds, inorganic binders, metals and other materials used in civil engineerin	g.	
123MED	Material Engineering	Z.ZK	5
Subject gives	information on principles of designing and development of new types of materials having directed properties for specific building app	blications and struc	ctures.
124BC01	Non-loadbaring Construction	7 7K	7
Course is focused	NOT-todubeating Construction doctors decising of the building approach for and construction	$\angle, \angle \cap$	This course
introduces theore	in complex application to practice design of the building envelope, nat and stoped rooming, doors and windows, partition wais, not structure investigned approach to practice design of the building envelope, nat and stoped rooming, doors and windows, partition wais, not structure investigned approach to partitive fields of building designs, building approach to the transitional approach to be applied to the structure interaction.	tod dosign of the r	
	structure reads of building design. building private and structure interaction, integra	ted design of the i	lonbearing
		1/7	0
124BIMR	BIM - Revit Architecture	KZ KZ	2
The seminar intro	duces the basic principles of building design as an information model. Teaching takes place on the Autodesk platform. Teaching is for	cused on the interp	pretation of
the principle of mod	deling building elements, their relationships and properties. During the exercise, students will create a simple BIM model, they will lear	n to work with othe	er SW - data
	export and import, they will learn basic principles of creating 2D documentation, scheduling, 3D presentation - render, animat	ion.	
124BPH	Building Physics	Z,ZK	6
Basic review of the	thermal protection of buildings, building acoustics and daylighting (heat transfer, thermal conductivity, thermal resistence and thermal t	, ransmitance, multi	dimensional
heat transfer, therm	nal bridges and thermal joints, difusion of water vapour and vapour condensation, mould growth, transient heat transfer, risk of overhe	ating, low-energy,	passive and
zero-energy buildi	ngs, sound in the living and working environment, perception and description of sound: intensity, frequency, time factor, information va	alue, interindividua	l sensitivity,
point, line and plan	e sound sources, sound power level, directivity factor, sound propagation in the free field conditions, sound propagation in the diffuse	field conditions, d	efinable and
indefinable sound	ds, airborne and structureborne sound, definition, measurement, evaluation and the limits, sound reduction index of double structures	s, mass-air-mass r	esonance,
standing waves in	a cavity, definition, measurement, evaluation, the sun and the environment, basics of spherical astronomy, horizons and equatorial of	oordinates, calcula	ating of the
sun azimuth and	attitude, davlight and lighting, visual perception, basics of photometry, davlight factor and calculation models of the sky, methods for	determining davlig	ht factor.
	influence of environment on a davlinhting: photometric characteristics of hielding barriers technical characteristics of linhting on	eninas)	, in laotol,
1040000	internet of other	7	10
I he topics of bach	lefor's theses are based on the needs of practice or the scientific research activities of the department, scope and difficulty correspondence of the scientific research activities of the department, scope and difficulty correspondence of the scientific research activities of the department, scope and difficulty correspondence of the scientific research activities of the department, scope and difficulty correspondence of the scientific research activities of the department, scope and difficulty correspondence of the scientific research activities of the department, scope and difficulty correspondence of the scientific research activities of the department, scope and difficulty correspondence of the scientific research activities of the department, scope and difficulty correspondence of the scientific research activities of the department, scope and difficulty correspondence of the scientific research activities of the department, scope and difficulty correspondence of the scientific research activities of the department, scope and difficulty correspondence of the scientific research activities of the department, scope and difficulty correspondence of the scientific research activities of the department, scope and difficulty correspondence of the scientific research activities of the department, scope and difficulty correspondence of the scientific research activities of the department, scope activities of the department activities of the department, scope activities of the department, scope activities of the department activities of the department, scope activities of the department, scope activities of the department activities of the department activities of the department activities of the department activities of the departm	id to the student's	knowledge
	acquired during bachelor's studies. The supervisor of the bachelor's thesis can designate additional consultants to the stude	nt.	
124BSD1	Building Structures 1	Z	4
	Introducing in civil engineering, basic elements and structures		
124BSD2	Building Structures 2	Z.ZK	5
Staircases, slopi	n gramps, lift shafts - structural and material solutions, statical principles, load, requirements. Building foundations - classification of s	ubsoil, types of fou	undations,
principles, requiren	nents. Basement - statical principles, load, requirements, waterproofing, Expansion joints of bearing structures - volume changes, dife	erencial settlement	. Roof truss
	systems.		
124BSD3	Building Structures 3	7 7K	3
The subject is focu	Building Ordenates and the same of radia same structures and structures of multi-starsy buildings. In the first	t part the attentio	n is focused
on span structures	see on the complex design of hade beening structures of holes, large span structures and additions of multi-storey buildings. In the mis- of nicked roofs and hall buildings and no the supporting structures of multi-storey buildings. In the second part, structures will be an ab	out the design of p	refebricated
	of picted roots and han buildings and on the supporting structures on multi-storey buildings. In the second part, students will rearr ab	out the design of p	relabilicateu
1010105		1/7	-
124CADE	CAD 1 (E)	KZ	3
The seminar familia	arizes students with the AutoCAD drawing software. This includes working with 2D & amp; 3D geometry, wire models, prints, SGC/ACI	S/Parasolid geom	etry models,
	meshes, Bool operations, solid objects creation methods and advanced edits and modifications of the model.		
124EDC	Civil Engineering in Developing Countries	Z,ZK	4
For a long time, org	anizations operating in developing and climatically or culturally diverse regions have been struggling with the lack of construction expe	erts who would be	able to work
in a setting that i	s culturally, climatically, socially and economically different. The aim of the course is to provide students with basic information about	the specifics of wo	rk in such
regions. Within the	subject we will deal with constructional approaches with respect to different climate, use of non-standard procedures, materials and o	organizational appi	oaches and
other factors differe	nt from the standards in the Europe or Czech Republic (e.g. building requirements, seismic activity, tsunami, animals, insects, monso	on rain , absence	of networks,
	etc.).		
124ESHB	Fire Safety and Healthy Buildings	7 7K	6
Healthy Buildings (Constituents of indoor microclimate hazardous substances (VIOCs HERs heavy metals moulds microbes aerosols radionuclides	etc) their sources	and health
effects Influence c	of building structures and materials on quality of indoor microcolinate. Design of buildings with respect to ontimication of indoor microcolinate	limate Fire Safety	Analysis of
fire - course of fi	r buining autoritation and have no quality of macor microannability building of during the transition of the provided and the second	of buildings esc	
distance separation	to find faiting againment fire behaviour of the meet used metarials (wood steel southers) metarice) protection of hubble	inst fire (brickwork	concroting
nlasters and snrave	, mengining equipment, ne behaviour of the most used materials (wood, steel, controlet, plastics), procedult of building materials again to control the most used factors of materials again to control the most used factors of materials again to control the most used factors of materials again to control the most used factors of materials again to control the most used factors of materials again to control the most used factors of materials again to control the most used factors of materials again to control the most used factors of materials again to control the most used factors of materials again to control the most used factors of materials again to control the materials again to control the most used factors of materials again to control the materials a	nge on the course	fire: passive
protection of building	, coarings, integrates of wood, encasements, gued havings of mineral mores), sandwires from the point of wew, interface of clause and experimental strength and the point of wew, interface of clause and experimental strength an	ovtinguishing dov	ine, passive
	g studdurs - me wans, me giazed studdures, me dennig, dran slope and seas, repressive measures - electric me signaling, stationary	y extinguishing dev	ices, sinoke
	extract, nyurani systems.		-
124PDRD	Failures, Deterioration, Renovations	Z,ZK	3
Types of defects, sy	mptoms, significance, criticality, causes, reason for failures, Records of faults: origin, frequency, performance Agencies causing deter	ioration, durability	of materials,
	role of external forces, instability and deficiency of structures, failure patterns Failures of foundation, walls and DPCs, claddings a	nd roofs	
124SDP1	Structural Design Project 1	KZ	6
Converting an arch	itectural study of a smaller or medium-sized building for housing, administration, education, culture or sports into a detailed design o	f a building structu	re based on
static analysis, inte	raction of load-bearing and non-load-bearing elements and building physics. Focus on complex approach to practical design, analysis a	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), cal	culation of foundat	ions, design
of structures on	the building envelope with respect to thermal protection of buildings, building physics, fire protection of buildings and protection again	nst water and soil i	noisture.
	Elaboration of detailed drawings including floor plans, sections and details. Public presentation.		
124SDP2	Structural Design Project 2	KZ	6
The subject of the	course is a technical solution design of advanced structures. Structural design project 2 focus on complex approach to practice design	n, analvsis and or	timalization
of advanced multis	torev or long span building structures, or their reconstruction. Analysis of load, functional and technologic requirements, design of load	d-bearing system	alternatives
including foundation	s. preliminary bearing elements dimensions calculation choice of most suitable version. Preliminary statical design of chosen version	technical report	nd drawings
	Enoral Optimized Timber Duildings	7	ດ ດ
	Energy Optimised Timber Duildings		
of timber structu	nt a complex overview on energy encient univer structures, basic triedretical and design principals are presented. The rectures are roc		in otructure !
	b. (i) neavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) OLI, (iv) log nouse. All technologies of timber structu	ies are presented	III SUUCTURA
	and pulliding physics contoxt of low operal and passive buildings		

	Complex Construction Detailing	Z	2
The aim of the c	ourse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of	f knowledge about	structural
problems in buildir	igs. The content of the course is focused on the complex solution of construction details, following all legislative requirements and tak	ing into account th	e maximum
	efficiency and durability of the chosen solution.	0	
125BPRO	Bachelor Project	7	12
Bachelor Thesis is	e Deconomic in the part of the Bachelor degree study programme. It should prove student's shility to work independently in the area of Building Ser	vices Systems Th	e thesis can
cover theoretical	assects or to focus on practical application on an object within building services systems. Students consult the supervisor and special	lists from other de	partments
	The thesis is presented in front of the commission		sur infonto.
125885	Buildings Sonvices Systems	7.7%	5
IZ3D3E	of Building Services is focused on septeministrations or supply automand bacting systems.	\downarrow $\angle, \angle \Gamma$	U Vator supply
facilities balance v	e of building derives is locused of samaring installation, gas suppris system and nearing systems, damar y installations, gas suppris system and nearing systems, damar y installations, installations, gas suppris system and nearing systems.	trainage types, t	ivtures Gas
- external ninelin	vater needs, internal water suppry systems - instantation, internals, calculation, waste water and disposal, sewage systems, internal as connections belance of ras internal incluse systems flue as Control beating and design of beating surfaces Calculation of be	at halance Heatin	a system
	Prenaration of hot water Heat sources - boiler electric heating and district heating renewable sources		g system.
1050050	Propulation of the water has been been been been been been been bee	771	F
IZODOEZ	Duilaings Services Systems 2	ζΛ	5
40001145	introduction to the indoor environmental quality, building vehilation and basic artificial lighting and electrical installation.	-	4
126BIME	BIM		1
The course is focus	sed on basic knowledge in the field of building information modeling (BIM) in theoretical and practical areas, usable across various const	ruction industry spe	ecializations
and fields. Studer	its will be acquainted not only with the basic knowledge of BIM (on the theoretical and practical level), data formats, IT systems typica	al for the building in	idustry, but
also with the con	text or BIM in the current construction industry in relation to the whole project life cycle and its specifics (delivery, expert rocus, constru-	ruction projects pha	ases, etc.)
Ineoretic	al knowledge is complemented by practical exercises aimed at mastering and understanding the basic principles of object-oriented p		g.
126CMAN	Construction Management	∠,∠K	6
Course is oriente	d mainly on practical applications of corporate construction management systems. It includes corporate strategy, corporate finance a	ind budgeting, mar	keting and
methods of busine	ess development, etc. Sustainable profitability of the construction business and the best practice at both - field and corporate level is e	explained. Lectures	are based
on the real practice	e experience of all course's lecturers and various case studies are studied and solved. Online Building Industry Game (BIG) will be pl	ayed 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 m	arket with variable	demand for
construction work). In this online game, developed and directly operated by the California Polytechnic State University, students act as contractors, ma	inaging both, their o	companies
	and projects.		
126ECM	Economics and Management	Z,ZK	7
A-Z of construction	n engineering and management both at the corporate and project level. All participants, processes and aspects of the construction in	dustry are introduc	ed. Course
concentrates on	all major topics of company and project management, e.g. business development and marketing, bidding, planning and controlling of	f all vital processes	, financial
management, cost	control, risk management, etc. Lectures are based on the real practice experience of all course's lecturers and various case studies	are studied and so	lved. Online
Building Industry C	Game (BIG) will be played by all course participants through the whole semester (a computer simulation of a realistic business enviro	nment where partic	cipants play
the role of contra	ctors, competing in a market with variable demand for construction work). In this online game, developed and directly operated by the	e California Polytec	hnic State
	University, students act as contractors, managing both, their companies and projects.		
126YMCC	Management in Construction Company	Z	2
Nature of Construct	tion Business Primary Causes of Business Failure, External and Internal Influences Business Strategies to Minimize the Risk of Business	Failure Business D	evelopment,
Markating and Ridd			
Marketing and Blud	ing Planning Strategies Plan Implementation/Control Strategies Financial Management Strategies Construction Risk Management Leader	rship Challenges Or	ganizational
Behavior Corpora	ing Planning Strategies Plan Implementation/Control Strategies Financial Management Strategies Construction Risk Management Leader te & Employee Ethics Company Performance Checklist Managing Profitable Construction Business Lectures are based on the r	rship Challenges Or real practice experi	ganizational ence of all
Behavior Corpora course's lecturers a	ing Planning Strategies Plan Implementation/Control Strategies Financial Management Strategies Construction Risk Management Leader ate & amp; Employee Ethics Company Performance Checklist Managing Profitable Construction Business Lectures are based on the r and various case studies are studied and solved. Online Building Industry Game (BIG) will be played by all course participants through th	rship Challenges Or real practice experi ne whole semester	ganizational ence of all (a computer
Behavior Corpora course's lecturers a simulation of a rea	ing Planning Strategies Plan Implementation/Control Strategies Financial Management Strategies Construction Risk Management Leader ate & amp; Employee Ethics Company Performance Checklist Managing Profitable Construction Business Lectures are based on the r and various case studies are studied and solved. Online Building Industry Game (BIG) will be played by all course participants through the listic business environment where participants play the role of contractors, competing in a market with variable demand for construct	rship Challenges Or real practice experi ne whole semester ion work). In this or	ganizational ence of all (a computer nline game,
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Nanketing and block Behavior Corpora course's lecturers a simulation of a rea developed and di online game and m 128CGR Foundation of using 128CS1 Students will bec syntax of C# enabl time of stud 128CS2 Synopsis: Student will pursue ther 128YIND Annotation: Docu OpenOffice) for a (IS), basic principil 129ACM1 The students ar knowledge on a s 129ACM2 The subject enhan 129CTA Seminars are focus 132BPRO The assignment of research activities	Ing Planning Strategies Plan Implementation/Control Strategies Financial Management Strategies Construction Risk Management Leader is de Xamp: Employee Ethics Company Performance Checklist Managing Profitable Construction Business Lectures are based on the ti- is and various case studies are studied and solved. Online Building Industry Game (BIG) will be played by all course participants through the listic business environment where participants play the role of contractors, competing in a market with variable demand for construct rectly operated by the California Polytechnic State University, students act as contractors, managing both, their companies and proje- seeting the attendance requirement is required to receive course credit (zápo et). The awarding of the course credit is a condition for the (zkouška). gvarious types of computer graphics programs. Grid graphics, digital photography, vector drawing, 3D modelling, visualisation. Based C# Programming and Application Development one acquainted with one of the currently most popular programming language from C-family languages containing next to C# also a es to study the language incrementally by developing real applications since the very beginn. Thus students can develop their own y. Thanks to this fact students can pursue themes like advanced use of objects, some of design patterns and application architecture. Camputer Use Fundamentals ments and data processing - focused on documents and data that are not one-use only or not "use once then discard". Exploiting Of divanced document management. Documents (Word), spreadsheets (Excel) and automated data calculations. Desk-top databases (<i>key</i> Architectural CAD Modelling 1 e acquainted with the possibilities of BIM using ArchicADs offware. Basic tools, functions and principles are demonstrated. Students implified BIM model of a family house or another appropriate building or structure. Objective of this course is to teach prospective are Architectural CAD Modelling 2 ces and	rship Challenges Or real practice experi- ne whole semester ion work). In this or cts. Active participa- being allowed to tal Z,ZK computer graphics Z,ZK well-known Java. T applications after or user class libra Z,ZK re Java is a member gn patterns and ap Z,ZK e Java is a member gn patterns and ap Z,ZK re Java is a member gn patterns and ap Z,ZK re Java is a member gn patterns and ap Z,ZK re Java is a member gn patterns and ap KZ practice the newly chitects and civil en KZ tion of the theoretic Z nnected with the so ramming and other	ganizational ence of all (a computer hiline game, tation in the ke the exam 4 algorithms. 4 The simple a very short tries. 4 er. Students plication 2 soft Office, n systems d activities. 3 acquired gineers an 3 y elements. 2 al concepts. 12 cientific and s according 2 a principles
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132SM3E	Structural Mechanics 3	Z,ZK	5
	Analysis of statically indeterminate structures by the slope-deflection method and the force method. Principle of virtual work	K.	
132ST01	Structural Mechanics 1 incrine students with basic principles of mechanics such as equilibrium and equivalency applied to stati	Z,ZK	6 tructures
132ST02	Structural Mechanics 2	7 7K	6
The principal object	tive of the course is to familiarise students with the application of basic principles of mechanics to the determination of the distribution	n of internal forces	in statically
	determined structures, cross-sectional properties and the elementary definition of stress.		
132STA	Structural Analysis	Z,ZK	5
Extreme effects of	live load, influence lines. Matrix form of the direct stiffness method and its computer implementation for trusses and frames. Two-dime element treatment. Governing equations of thin plates and their finite element treatment	ensional elasticity a	and its finite
132TELA	Theory of Flasticity	7 7K	6
Basic assumptions	and basic equations of theory of elasticity. Assumptions on deformation and stress distribution in beams. Tension and compression, pu	re bending, bendir	ng moments
in two planes, com	pination of axial and bending stresses. Core of a cross section. Differential equation of elasticity curve. Shear stresses in flexural bear	ns. Free torsion. El	astic-plastic
4000000	and plastic state of cross-section. Stability of beams. 2D problems, walls and plates.	7	40
A bachelor thesis in	Bacnelor I nesis s the qualification thesis of a bachelor's degree. It can take the form of processing the structural part of the building design project or	Z research study on	12 the topic of
des	igning and application of a structural element with a variant comparative analysis or parametric study or performing and analysing ex	periments, etc.	
133CASD	Computer Aided Structural Design	Z	2
Computer-Aided S	tructural Design has been implemented as an optional compulsory course which provides students to gain knowledge in a computer	-aided design and	analysis of
reinforced concrete	structures. The objective of the course is to demonstrate the practical use of selected FEM software for the limit state design of variou a facue is an computational models, reinforcement design, numerical modelling, crack control, deformation control and internal factors	s concrete structur	es. Namely,
133CM01	Concrete and Masonry Structures 1	7 7K	6
Structural design of	f concrete structures; prerequisite course 133FSTC Fundamentals of Structural Design - Concrete. Calculation models, methods of an	alysis (focus on si	mplified and
empirical metho	ods), reinforcing and detailing for particular structures and structural elements: slabs, frames, shear walls, staircase, basement and re	taining walls, foun	dations.
133CM02	Concrete and Masonry Structures 2	Z,ZK	7
Design of concrete	e structures on serviceability. Limit states approach. Stress control, cracking and crack width analysis, allowable crack width in concre ate structures, numerical and simplified analysis, criteria of acceptance. Prestressed concrete, Introduction, basic principles, design n	ete structures. Defe	ormation of
technology of prest	ressing, pre-tensioning and post-tensioning, verification of serviceability and ultimate limit states. Masonry structures, introduction, te	rminology, design	of structural
elements, reinfor	ced masonry. Strengthening of masonry structures. Precast concrete structures, design situations, specific problems. Strut and tie mo	odels. Joints. Indus	trial halls.
	Composite concrete-concrete structures. Introduction to concrete bridges and introduction to engineering structures.		
133FSTC	Fundamentals of Structural Design - Concrete	Z,ZK	4
(bending shear c	sed on design of concrete structures based on ultimate state design method. The focal topics are design of reinforced concrete memb probination of normal forces and bending moments) including determination of load effects: introduction to serviceability limit states (ers for basic types	chnology of
production and mat	erial properties of concrete and their testing, properties of steel reinforcement and interaction of reinforcement and concrete. The pre-	equisite courses a	e Structural
	mechanics, Theory of Elasticity, Building materials, Building structures.		
133SDP2	Structural Design Project 2	KZ	6
Elaboration of th	he structural part of the project documentation for the given structure (part of the structure). The design of the selected variant of the ther professions. Structural analysis and drawing documentation to the extent specified during consultations. The Department of Arch	structure with rega	ind to the
	and Geotechnics (K135) collaborate in teaching in the course.		ing (1(124)
133YBBD	Basis of Bridges Design	Z	2
The course Basis	of Bridge Design is focused on principal problems related to design of bridges - spatial arrangement and equipment of road and rail	way bridges, types	of bridge
4003/05	structures and technologies of construction of concrete bridges.	7 71/	-
133YCB	CONCIETE BIIDGES	∠,∠K equipment of road	4 and railway
bridges, bridge sub	structure, effects and realization of prestressing, types of concrete bridge structures and technologies of their construction. Seminars	are split into intere	sting issues
	and provide an opportunity to apply the learnt principles.		
134BPRO	Bachelor Project	Z	12
In this co	urse, student formulates a bachelor's thesis that is necessary to reach the bachelor's degree. This course is focused on steel or timb	er structural desigi	n.
134FSIS The course is for	FIRE DESIGN OF STEEL, CONCRETE AND TIMDER STR.	L Lating gas temperation	Z ature and
	temperature of structural elements are explained. The design methods for simple steel, composite and timber structures are gi	ven.	
134FSTT	Fundamentals of Structural Design - Steel	Z,ZK	3
The course is focus	sed on design of steel, steel and concrete concrete composite load-bearing structures. The students will learn how to design of simple	e structural eleme	nts (beams,
124CSTD	columns, trusses) and structural bolted and welded connections.	7	2
The course is inten	ding to introduce the students the field of structural applications of glass and to give them some specific skills for calculation and detailin	∠ a of for basic glass	∠ s structures:
panes beams an	d fins, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs and	d floors. On this pu	rpose the
properties of glas	s as structural material will be presented in comparison with other basic building materials, together with selected examples of glass,	glazing application	ns. Design
details and connec	ting technology, relevant technical regulations, specification and current methods applied in design will be described. Worked example	es will accompany	the lectures
134SAI	Stainless Steel and Aluminium Structures	7	2
The course covers	two parts, design of aluminium and stainless steel structures. The first part covers evolution of stainless steel materials/structures and e	camples of realized	d structures.
Stainless steels sui	table for structures are described in a detail, including their properties. Dissimilarities in assessments of members under common loadi	ngs with respect to	low-carbon
steels is described	for both ultimate and serviceability limit states. In the end the possibilities concerning connections of stainless steel members, erecting	on and installation	of stainless
steer members are	of weld design, section design and local welds effect in members.	ire discussed in de	ali in terms
134SDP2	Structural Design Project 2	KZ	6
Design of stool / tin			-
Design of steel / tin	nber load bearing building structure according to external requirements in relation to interaction of load bearing and final completion s	tructural elements.	The project

134ST01	Steel Structures	Z,ZK	6		
The purpose of the	his course is to learn basic principles and general arrangement and structural detailing of multi-storey buildings and single-storey build	lings. Brief informa	ation about		
str	uctural analysis, load, design codes and structural stability is also given. The course gives some examples of large span, tall and indu	strial buildings.			
134TBS	Timber Based Structures	Z	2		
	Examples of timber structures and bridges. Structural systems and details. Recommended design.				
134TS01	Timber Structures	Z,ZK	5		
	The course is focused on basic rules for mechanical resistance, serviceability, durability of timber structures in normal temperature	and in fire.			
135BPRO	Bachelor Project	Z	12		
	Individual assignment in accordance with the thesis proposal				
135FS01	Foundation of Structures	,ZK	. 7		
Basic design meth	ods for shallow footings, piles, retaining structures, foundation pits, sheet pile walls, anchors and soil improvement. Principles of monito	ring in foundation e	engineering.		
1258002	Structural Design Project 2	K7	6		
13330F2	Structural Design Project 2 Design static calculation and drawing documentation of the building substructure	ΝZ	0		
135SOM1	Soil Mechanics 1	7	3		
The course focuse	on the understanding of basic geological laws and principles in relation to architecture, civil engineering and urban planning. Empha	sis is placed on ex	nlaining the		
influence of geolog	gical processes, both endogenous and exogenous, on the rock environment and how the geological situation affects the design of struc	tures and their inte	eraction with		
the rock environm	ent. At the same time, attention is paid to the technical properties of rocks with regard to their practical applications. The course also i	ncludes a brief intr	roduction to		
	the regional geology of the Czech Republic.				
135SOM2	Soil Mechanics 2	Z,ZK	5		
Basic course of Sc	il Mechanics for Civil Engineers. Introduction to origin of soils, soil description, multi-phase media behaviour, soil classification, compre	essibility and shear	r resistance,		
	soil testing, earth pressures, assessment of stability and deformation of soil mass, applications in civil engineering.				
136TSUP	Transp. Structures and Urban Planning	Z,ZK	6		
Introduction to th	he transportation engineering with the focus on road and railroad infrastructure. Rail transport and its advantages and disadvantages.	Railway track and	tram track		
construction. No	ise and anti-noise measures. Road design and principles, Environmental aspects of road infrastructure. Pavement design (thickness	design) and princip	oles of the		
Pavement structu	ire functions. Crossings and junctions. Construction materials for highway and rail road engineering. Introduction to urban zoning and the provide the provided and the provided	planning including	urbanism.		
Relationships of u	and used applications	to planning tools,	procedures		
137TENI/	Rail Traffic and Environment	7 7K	2		
Basic principles fo	r designing of railway and tramway structures. European railway network, rail transport, environmental impacts - acoustics, traffic nois	e and vibrations, n	oise control,		
	modelling and attenuation of traffic noise.	,	,		
141HYAE	Hydraulics	Z,ZK	5		
Water as mediu	im and natural resource, water in civil engineering. Physical properties of fluids/liquids. Hydrostatics - pressures, Pascal's law, hydrost	atic forces, buoyar	ncy force.		
Fundamentals of h	hydrodynamics - flow quantities, regimes and types of flow, hydraulic resistance, basic hydrodynamic equations. Flow in pressurized p	ipes - head loss du	ue to friction		
and obstacles, sin	nple hydraulic calculations. Pump-pipe systems. Flow in open channels - steady uniform flow, hydraulic design of open channel, subcr	itical, critical and s	supercritical		
flow, non-uniform	flow and longitudinal profiles of water level, hydraulic jump. Hydraulics of structures - outflow from orifice, overflow on weirs and spilly	ays, flow through	bridge and		
	Flow around obstacles, impact force of flows and jets, drag force. Measurement of discharge. Groundwater flow - types and effects, Da	arcy's law, seepag	e.		
142VVEE	Vvater and Environmental Engineering	Z,ZK	4		
In the course stud	ents will obtain basic knowledge about water and environmental management. The course focuses on practical knowledge with close the subject is taught in form of lectures and tutorials. The stress is laid on presentations with case studies (positive and negative) using a	relation to other d	isciplines of		
civil engineering. I	of this course are divided into two parts Water Engineering and Environmental Engineering		ns. Leolules		
143ENE	Environmental Engineering	7 7K	4		
General informa	ation about interaction between human beings and their environment. Information about water quality and pollution, flood hazard, air a	nd soil pollution, la	andscape		
utilization and prote	ection, soil erosion, climate change, sustainability, waste production and disposal, energy production and consumption. Questions of ethic	s, philosophy and g	globalization		
	are discussed together. The topics are given on basic information level, respecting various backgrounds of the students.				
143ESP	Soil Physics for Engineers	Z,ZK	4		
Engineering desc	ription of water movement and solute transport in a soil profile. Hydraulic characteristics of porous media. Retention curve and hydrau	lic conductivity de	finition and		
	estimation. Field vs laboratory measurements. Preferential flow. Basics of modelling. Basics of transport processes.				
144BT1	Balneotechnology	ZK	2		
	Water treatment, design and operation of circulation water for swimmnig pool, natural and artificial complexes for water recreation a	and spas.			
144WS	Drinking Water Management	KZ	2		
	Water treatment and water supply				
154FS01	Fieldwork Surveying	Z,ZK	6		
Introduction to s	surveying, basic geodetic calculations, evaluation of precision and accuracy of a measurement, theory of errors, instrumentation, topo	graphic survey, an	gular and		
uisiance measure	distance measurements, determination or neights, photogrammetry, laser scanning, mapping, setting-out in construction, surveying for monitoring of displacements, cadastre of real				
T\/1	Dhysical Education	7			
1 1 1		-			
T\/2	Dhysical Education	7	0		

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