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, geometric characteristic and image in appropriate projection, realization and application. Namely: Cylinders and Cones, Hyperboloid of Revolution, Helical							
Surfaces, Quadrics. Visualization 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/vyuka/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 engineeri	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	n 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	ng 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 surveyir	g, basic geodetic calculations, evaluation of precision and accuracy of a measurement, theory of errors, instrumentation, top	ographic survey, a	angular and			
distance measurement	distance measurements, determination of heights, photogrammetry, laser scanning, mapping, setting-out in construction, surveying for monitoring of displacements, cadastre of real					
estates.	estates.					
104CFL1	Czech/Foreign Language 1	Z	1			
Czech courses are inte	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	the student gains a credit. End of course level according to CEFR: A1 (Beginners) A2 (Elementary) Course code: 104 CFL1 Du	ration: 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 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

101MT02 Mathematics 2	Z,ZK	6				
https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/						
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 Construct	ction. The cou	rse 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 material points (particles) and deformable bodies. Discrete and continuous model of matter. Kinematics and dynamics of a material point (p	, ,	nanical force				
fields. Gravitational field. Mechanical vibrations. Material deformation. Elastic waves. Acoustics. Hydromechanics. Fundamentals of thermodynamics. Hea	at transfer.					
105SOSC Social Sciences	Z,ZK	5				
The course Social Sciences encompasses a broader, multidisciplinary, framework (sociology, economy, marketing, politology, social anthropology, and m	,	•				
the course covers basic economic terms, demand, supply, market equilibrium, and rational consumer choice. Firm and production functions in the short and	•	•				
and short-run costs are discussed. Market structures and markets for productive inputs and public goods are other topics. Also presented are macroecon	00 0					
basics of macroeconomics. Social theories presented in the course are considered an analytical reflection on the concepts and formal cognitive schemes o						
will get familiar with social theories/paradigms that are used to study and interpret social phenomena. Seminars will focus on everyday life, its interactions,						
often interfere in negotiations about the direction and goals of society. The course also provides students with conceptual tools for their own further studie						
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	on, properties	and behaviour				
of water, soil, air, wood, macromolecular compounds, inorganic binders, metals and other materials used in civil engineering.	,					
132ST02 Structural Mechanics 2	Z,ZK	6				
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 for	rces in statically				
determined structures, cross-sectional properties and the elementary definition of stress.						
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. Emphase	•					
influence of geological processes, both endogenous and exogenous, on the rock environment and how the geological situation affects the design of structure						
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 inc	cludes a brief	introduction to				
the regional geology of the Czech Republic.						
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 the	nat is complen	nented by the				
communicative language function. Further appropriate language aspects (i.e. grammar, lexis, pronunciation, skills) arise from the given communicative net	eed. Basic co	mmunication 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						
	necessary for	communication				
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 in everyday situations and at university. After successful completion the student gains a credit and exam. End of course level according to CEFR: A2	necessary for	communication				

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 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 engin	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, b	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, cor	npressibility 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				
	nd longitudinal profiles of water level, hydraulic jump. Hydraulics of structures - outflow from orifice, overflow on weirs and sp		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 su	ibject is taught in form of lectures and tutorials. The stress is laid on presentations with case studies (positive and negative) usi	ng all audio visua	I 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 Tomek, Radan Tomek Aleš Tomek Aleš Tomek (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.)					
Characteristics of the courses of this group of Study Plan: Code=BD20200400 Name=Civil Engineering, 4th semester						
Staircases, sloping ramps, lif	ilding Structures 2 it shafts - structural and material solutions, statical principles, load, requirements. Buildi sement - statical principles, load, requirements, waterproofing. Expansion joints of bear	•		on of subsoil		
A-Z of construction engineer concentrates on all major top management, cost control, ri Building Industry Game (BIG the role of contractors, comp	conomics 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 by 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, development and the played by all the demand for construction work).	idding, planning s lecturers and v ulation of a reali	and contro arious case stic busines	uction industr Iling of all vita studies are s s environme	al processe studied and nt where pa	es, financial d solved. Online articipants play
132SM3E Str	ontractors, managing both, their companies and projects. uctural Mechanics 3			Z	"ZK	5
	ninate structures by the slope-deflection method and the force method. Principle of virt	ual work.				
The course is focused on des (bending, shear, combination production and material prop	ndamentals of Structural Design - Concrete sign of concrete structures based on ultimate state design method. The focal topics are of normal forces and bending moments) including determination of load effects; introd erties of concrete and their testing, properties of steel reinforcement and interaction of r sity, Building materials, Building structures.	luction to service	eability limit	ete members states. Other	topics are	technology of
The course is focused on dea	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	w to desigr	1	,ZK uctural eler	3 ments (beams,
Introduction to the transporta construction. Noise and anti- pavement structure functions	nsp. Structures and Urban Planning tion 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	ture. Pavement of g. Introduction to	design (thic urban zoni	tages. Railwa kness design ng and plann) and princi	iples of the ng urbanism.

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 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	heat transfer, thermal bridges and thermal joints, difusion of water vapour and vapour condensation, mould growth, transient heat transfer, risk of overheating, low-energy, 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, airl	porne and structureborne sound, definition, measurement, evaluation and the limits, sound reduction index of double structur	es, mass-air-mas	s resonance,				
standing waves in a car	vity, definition, measurement, evaluation, the sun and the environment, basics of spherical astronomy, horizons and equatoria	al coordinates, cal	lculating of the				
sun azimuth and altitud	e, daylight and lighting, visual perception, basics of photometry, daylight factor and calculation models of the sky, methods fo	r determining day	light factor,				
influence of environment	t 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. Gov	element treatment. Governing equations of thin plates and their finite element treatment.						

133CM01	Concrete and Masonry Structures 1	Z,ZK	6			
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. Integ	grated design of th	ne 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	ation 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	Indations, design
of structures on the building envelope with respect to thermal protection of buildings, building physics, fire protection of buildings and protection agai	nst water and soi	l 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	bes, 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	neat balance. Hea	iting 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 n	nodels. Joints. Inc	dustrial 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
1000DPR	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 Fot 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

100ODPR	Industrial Training (3 weeks)	Z	0
Professional practice is	an important part of academic education in undergraduate degree programmes. The student will gain a basic understanding	of duties and prof	essional
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,
	ns, sewerage, water, gas, electricity mains. 9. Health and safety at work. Environmental protection during construction. Qual		
l	ntation of buildings and projects. Main concepts and terms. Technological, spatial and time analysis of the building process, 1	•	•
	genous and non homogenous buildings.Long term and short term construction planning and scheduling. Construction techn	o, o	
	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
	Material Engineering n on principles of designing and development of new types of materials having directed properties for specific building applic	, ,	-
		, ,	-
Subject gives informatio	n on principles of designing and development of new types of materials having directed properties for specific building applic	zations and structu	ures. 3
Subject gives informatio 124BSD3 The subject is focused of	n on principles of designing and development of new types of materials having directed properties for specific building applic Building Structures 3	Z,ZK	ares. 3 ention is focused
Subject gives informatio 124BSD3 The subject is focused of	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	ares. 3 ention is focused
Subject gives informatio 124BSD3 The subject is focused c on span structures of pit	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	ares. 3 ention is focused
Subject gives information 124BSD3 The subject is focused of on span structures of pitt indoor and multi-storey 124PDRD	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.	zations and struct Z,ZK e first part, the atte about the design Z,ZK	arres. 3 ention is focused of prefabricated 3
Subject gives information 124BSD3 The subject is focused of on span structures of pitt indoor and multi-storey 124PDRD Types of defects, symptom	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	zations and struct Z,ZK e first part, the atte about the design Z,ZK	arres. 3 ention is focused of prefabricated 3
Subject gives information 124BSD3 The subject is focused of on span structures of pitt indoor and multi-storey 124PDRD Types of defects, symptom	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 ms, significance, criticality, causes, reason for failures, Records of faults: origin, frequency, performance Agencies causing de	zations and struct Z,ZK e first part, the atte about the design Z,ZK	arres. 3 ention is focused of prefabricated 3
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	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 de instability and deficiency of structures, failure patterns Failures of foundation, walls and DPCs, claddings and roofs	ations and struct Z,ZK a first part, the atter about the design Z,ZK eterioration, durab	ares. 3 ention is focused of prefabricated 3 ility of materials,

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 (Gar.)	Z	2	2C	Z	PV
124CADE	CAD 1 (E) Pavel Chour 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 Kuklik Petr Kuklik (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.)	КZ	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 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 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.)	КZ	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 (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 (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

102PHS	Physics - Seminar	Z	2
This course serves a	s a supplementary one for 102PH01. Students will solve many problems which provide better understanding of the topics dis	cussed in the lectures	S.
124CADE	CAD 1 (E)	KZ	3
The seminar familiari	zes students with the AutoCAD drawing software. This includes working with 2D & amp; 3D geometry, wire models, prints, SG	C/ACIS/Parasolid geo	ometry models
meshes, Bool operat	ons, solid objects creation methods and advanced edits and modifications of the model.		
124YEOT	Energy Optimised Timber Buildings	Z	2
-	a complex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures a	1 1	_
-	i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber s		
	ontext of low energy and passive buildings.		
124YKSE	Complex Construction Detailing	Z	2
-	is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level		
	The content of the course is focused on the complex solution of construction details, following all legislative requirements ar		
-	ity of the chosen solution.	5	
128CGR	Computer Graphics	Z,ZK	4
	arious types of computer graphics programs. Grid graphics, digital photography, vector drawing, 3D modelling, visualisation. B		-
		Z	-
132MMO	Modern Methods of Optimization		2 Wing principles
	t an overview of numerical optimization methods applicable not only in the Civil Engineering area. The emphasis is put more on	i the introduction of dri	iving principle
	blications in MATLAB environment are also conducted during exercises.		
133YBBD	Basis of Bridges Design	Z	2
	Bridge Design is focused on principal problems related to design of bridges - spatial arrangement and equipment of road and	I railway bridges, type	es of bridge
	logies of construction of concrete bridges.		
134TBS	Timber Based Structures	Z	2
Examples of timber s	rructures and bridges. Structural systems and details. Recommended design.		
137TENV	Rail Traffic and Environment	Z,ZK	2
Basic principles for d	esigning of railway and tramway structures, European railway network, rail transport, environmental impacts - acoustics, traffic	c noise and vibrations	s, noise contro
modelling and attenu	ation of traffic noise.		
143ESP	Soil Physics for Engineers	Z,ZK	4
Engineering descript	on of water movement and solute transport in a soil profile. Hydraulic characteristics of porous media. Retention curve and h	ydraulic conductivity of	definition and
estimation. Field vs la	boratory measurements. Preferential flow. Basics of modelling. Basics of transport processes.		
144BT1	Balneotechnology	ZK	2
	gn and operation of circulation water for swimmnig pool, natural and artificial complexes for water recreation and spas.	1 1	_
144WS	Drinking Water Management	KZ	2
Water treatment and			2
		ZK	4
101MPRS	Probability and Statistics		-
	asic knowledge in probability and inferential statistics. Probability. Discrete and continuous random variables. Normal distribut	tion. Asymptotic distri	bution of a
	tribution. Independence and correlation. Parameter estimation. Hypothesis testing. Simple linear regression.	1/7	
124BIMR	BIM - Revit Architecture	KZ	2
	es the basic principles of building design as an information model. Teaching takes place on the Autodesk platform. Teaching i		-
	ing building elements, their relationships and properties. During the exercise, students will create a simple BIM model, they w	III learn to work with c	other Svv - da
	ey 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, orga	izations operating in developing and climatically or culturally diverse regions have been struggling with the lack of construction	-	
		out the enerifice of w	
in a setting that is cu	turally, climatically, socially and economically different. The aim of the course is to provide students with basic information abo	•	
n a setting that is cu regions. Within the su	bject we will deal with constructional approaches with respect to different climate, use of non-standard procedures, materials	and organizational a	• •
n a setting that is cu regions. Within the su other factors differen		and organizational a	
n a setting that is cu regions. Within the su other factors differen etc.).	bject we will deal with constructional approaches with respect to different climate, use of non-standard procedures, materials from the standards in the Europe or Czech Republic (e.g. building requirements, seismic activity, tsunami, animals, insects, n	and organizational a nonsoon rain , absen	ce of network
n a setting that is cu regions. Within the su other factors differen etc.).	bject we will deal with constructional approaches with respect to different climate, use of non-standard procedures, materials	and organizational a	
in a setting that is cu regions. Within the su other factors differen etc.). 126YMCC Nature of Constructio	bject we will deal with constructional approaches with respect to different climate, use of non-standard procedures, materials from the standards in the Europe or Czech Republic (e.g. building requirements, seismic activity, tsunami, animals, insects, n Management in Construction Company Business Primary Causes of Business Failure, External and Internal Influences Business Strategies to Minimize the Risk of Bus	and organizational a nonsoon rain , absen Z	ce of network
in a setting that is cu regions. Within the su other factors differen etc.). 126YMCC Nature of Constructio Marketing and Bidding	bject we will deal with constructional approaches with respect to different climate, use of non-standard procedures, materials from the standards in the Europe or Czech Republic (e.g. building requirements, seismic activity, tsunami, animals, insects, n Management in Construction Company Business Primary Causes of Business Failure, External and Internal Influences Business Strategies to Minimize the Risk of Bus Planning Strategies Plan Implementation/Control Strategies Financial Management Strategies Construction Risk Management L	and organizational a nonsoon rain , absen Z iness Failure Business eadership Challenges	ce of networl 2 s Developme s Organization
in a setting that is cu regions. Within the su other factors differen etc.). 126YMCC Nature of Constructio Marketing and Bidding	bject we will deal with constructional approaches with respect to different climate, use of non-standard procedures, materials from the standards in the Europe or Czech Republic (e.g. building requirements, seismic activity, tsunami, animals, insects, n Management in Construction Company Business Primary Causes of Business Failure, External and Internal Influences Business Strategies to Minimize the Risk of Bus	and organizational a nonsoon rain , absen Z iness Failure Business eadership Challenges	ce of networl 2 s Developme s Organization
in a setting that is cu regions. Within the su other factors differen etc.). 126YMCC Nature of Constructio Marketing and Biddin Behavior Corporate a course's lecturers an	bject we will deal with constructional approaches with respect to different climate, use of non-standard procedures, materials from the standards in the Europe or Czech Republic (e.g. building requirements, seismic activity, tsunami, animals, insects, n Management in Construction Company Business Primary Causes of Business Failure, External and Internal Influences Business Strategies to Minimize the Risk of Bus Planning Strategies Plan Implementation/Control Strategies Financial Management Strategies Construction Risk Management L amp; Employee Ethics Company Performance Checklist Managing Profitable Construction Business Lectures are based on I various case studies are studied and solved. Online Building Industry Game (BIG) will be played by all course participants thro	and organizational a nonsoon rain , absen Z iness Failure Business eadership Challenges the real practice expe- ugh the whole semes	2 s Developme organization erience of all ter (a compu
in a setting that is cu regions. Within the su other factors differen etc.). 126YMCC Nature of Constructio Marketing and Biddin Behavior Corporate a course's lecturers an	bject we will deal with constructional approaches with respect to different climate, use of non-standard procedures, materials from the standards in the Europe or Czech Republic (e.g. building requirements, seismic activity, tsunami, animals, insects, n Management in Construction Company Business Primary Causes of Business Failure, External and Internal Influences Business Strategies to Minimize the Risk of Bus Planning Strategies Plan Implementation/Control Strategies Financial Management Strategies Construction Risk Management L amp; Employee Ethics Company Performance Checklist Managing Profitable Construction Business Lectures are based on	and organizational a nonsoon rain , absen Z iness Failure Business eadership Challenges the real practice expe- ugh the whole semes	2 s Developme organization erience of all ter (a comput
in a setting that is cu regions. Within the su other factors differen etc.). 126YMCC Nature of Constructio Marketing and Biddin Behavior Corporate a course's lecturers an simulation of a realis developed and direct	bject we will deal with constructional approaches with respect to different climate, use of non-standard procedures, materials from the standards in the Europe or Czech Republic (e.g. building requirements, seismic activity, tsunami, animals, insects, non-standard procedures, materials from the standards in the Europe or Czech Republic (e.g. building requirements, seismic activity, tsunami, animals, insects, non-standard procedures, materials from the standards in the Europe or Czech Republic (e.g. building requirements, seismic activity, tsunami, animals, insects, non-standard procedures, materials and procedures primary Causes of Business Failure, External and Internal Influences Business Strategies to Minimize the Risk of Bus Planning Strategies Plan Implementation/Control Strategies Financial Management Strategies Construction Risk Management L samp; Employee Ethics Company Performance Checklist Managing Profitable Construction Business Lectures are based on I various case studies are studied and solved. Online Building Industry Game (BIG) will be played by all course participants thro is business environment where participants play the role of contractors, competing in a market with variable demand for construction by the California Polytechnic State University, students act as contractors, managing both, their companies and p	and organizational a nonsoon rain , absen Z siness Failure Business eadership Challenges the real practice expe ough the whole semes struction work). In this rojects. Active particip	2 s Developme c Organization erience of all ter (a comput c online game pation in the
n a setting that is cu egions. Within the su other factors differen- etc.). 126YMCC Nature of Constructio Marketing and Biddin Behavior Corporate a scourse's lecturers an simulation of a realis leveloped and direct	bject we will deal with constructional approaches with respect to different climate, use of non-standard procedures, materials from the standards in the Europe or Czech Republic (e.g. building requirements, seismic activity, tsunami, animals, insects, non-standard procedures, materials from the standards in the Europe or Czech Republic (e.g. building requirements, seismic activity, tsunami, animals, insects, non-standard procedures, materials from the standards in the Europe or Czech Republic (e.g. building requirements, seismic activity, tsunami, animals, insects, non-standard procedures, materials and procedures primary Causes of Business Failure, External and Internal Influences Business Strategies to Minimize the Risk of Bus Planning Strategies Plan Implementation/Control Strategies Financial Management Strategies Construction Risk Management L amp; Employee Ethics Company Performance Checklist Managing Profitable Construction Business Lectures are based on Ivarious case studies are studied and solved. Online Building Industry Game (BIG) will be played by all course participants thro ic business environment where participants play the role of contractors, competing in a market with variable demand for constructions.	and organizational a nonsoon rain , absen Z siness Failure Business eadership Challenges the real practice expe ough the whole semes struction work). In this rojects. Active particip	2 s Developme c Organization erience of all ter (a compu c online game pation in the

	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-family languages containing next to C# also		-
syntax of C# enables to study the language incrementally by developing real applications since the very beginning. Thus students can develop their of study and applications of the students and enables to study the language incrementally by developing real applications since the very beginning. Thus students can develop their of study applications are students and enables to study the language incrementally by developing real applications since the very beginning. Thus students can develop their of study applications are students are students and enables to study the language incrementally by developing real applications since the very beginning. Thus students can develop their of study applications are students are students are students are students are students.		
time of study. Thanks to this fact students can pursue themes like advanced use of objects, some of design patterns and application architecture, or	· · · · · · · · · · · · · · · · · · ·	
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		
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.	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 (
OpenOffice) for advanced document management. Documents (Word), spreadsheets (Excel) and automated data calculations. Desk-top databases	. ,	
(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	KZ	2
Seminars are focused on the composition of architecture, which will be analyzed through the basic ordering principles, pattern making process and app	·	-
133CASD Computer Aided Structural Design	Z	2
Computer-Aided Structural Design has been implemented as an optional compulsory course which provides students to gain knowledge in a compu	. – .	-
reinforced concrete structures. The objective of the course is to demonstrate the practical use of selected FEM software for the limit state design of va	•	
the focus is on computational models, reinforcement design, numerical modelling, crack control, deformation control and internal forces distribution.		uctures. Marriery,
	7 71/	4
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 and construction of this type of bridge structures.	and equipment of	road and railway
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 a bridges, bridge substructure, effects and realization of prestressing, types of concrete bridge structures and technologies of their construction. Semin	and equipment of	road and railway
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 a bridges, bridge substructure, effects and realization of prestressing, types of concrete bridge structures and technologies of their construction. Semin and provide an opportunity to apply the learnt principles.	and equipment of ars are split into ir	road and railway nteresting issues
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 a bridges, bridge substructure, effects and realization of prestressing, types of concrete bridge structures and technologies of their construction. Semin and provide an opportunity to apply the learnt principles. 134FSTS Fire Design of Steel, Concrete and Timber Str.	and equipment of ars are split into ir Z	road and railway iteresting issues 2
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 a bridges, bridge substructure, effects and realization of prestressing, types of concrete bridge structures and technologies of their construction. Semin and provide an opportunity to apply the learnt principles. 134FSTS Fire Design of Steel, Concrete and Timber Str. The course is focused on basic principles of design of structural elements exposed to fire. The principles of loads applied at fire and methods for even	and equipment of ars are split into ir Z	road and railway iteresting issues 2
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 a bridges, bridge substructure, effects and realization of prestressing, types of concrete bridge structures and technologies of their construction. Semin and provide an opportunity to apply the learnt principles. 134FSTS Fire Design of Steel, Concrete and Timber Str.	and equipment of ars are split into ir Z	road and railway iteresting issues 2 erature and
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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, P	roject, 7th se	mester		
124SDP2	Structural Design Project 2	KZ	6		
The subject of the cours	The subject of the course is a technical solution design of advanced structures. Structural design project 2 focus on complex approach to practice design, analysis and optimalizatio				
of advanced multistorey	v or long span building structures, or their reconstruction. Analysis of load, functional and technologic requirements, design or	f load-bearing sys	tem alternatives		
including foundations, p	reliminary bearing elements dimensions calculation, choice of most suitable version. Preliminary statical design of chosen versi	ion, 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	requirements of other professions. Structural analysis and drawing documentation to the extent specified during consultations. The Department of Architectural Engineering (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

102BPRO	Bachelor Project	7	12	
in accordance with the t	· · · · · · · · · · · · · · · · · · ·	. ~	12	
122BPRO	Bachelor Project	7	12	
	nds the bachelor study. The student demonstrates that he / she can apply the knowledge gained during the study on a specif	i		
	oject. Students consult the issue with the thesis supervisors and experts from the predetermined departments.	ic project. The wo	ik may take the	
· · · · ·			10	
123BPRO	Bachelor Project		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	, qualification thesis of a bachelor's degree. It can take the form of processing the structural part of the building design project	t or research stud	y 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 ir	accordance with the thesis proposal

List of courses of this pass:

Ζ

12

	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 of	f 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 pers	pective. Surfaces in	n building
practice - graphi	c law, geometric characteristic and image in appropriate projection, realization and application. Namely: Cylinders and Cones, Hyperb	oloid of Revolution	n, Helical
	Surfaces, Quadrics. Visualization of objects in 3D program SketchUp. Curves in building practice - types of mathematical descri	ption.	
101MPRS	Probability and Statistics	ZK	4
The goal is to ge	t a basic knowledge in probability and inferential statistics. Probability. Discrete and continuous random variables. Normal distribution	Asymptotic distrib	oution 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
10111102	https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/	_,_,`	Ū
101MT03	Mathematics 3	Z,ZK	6
10110103	https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/MT03/syllabus	2,21	0
4000000		7	40
102BPRO	Bachelor Project	Z	12
1000	in accordance with the thesis proposal	I	
102PHD	Physics	Z,ZK	4
	sics course in the English language for students of the study programmes Civil Engineering; Management and Economics in Constru		
	ther CTU faculties within the Erasmus programmes. The course focuses on mechanics and basic thermodynamics. The following are		
	terial points (particles) and deformable bodies. Discrete and continuous model of matter. Kinematics and dynamics of a material point	u ,	
	avitational field. Mechanical vibrations. Material deformation. Elastic waves. Acoustics. Hydromechanics. Fundamentals of thermodyna		
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 a	re intended for international students. The course is aimed to provide training in basic language means necessary for communication	in everyday situati	ions. After
successful complet	ion 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.		
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This course accer communicative lan common situation have already gained in 105SOSC The course Social the course Social the course Social the course covers b and short-run cos basics of macroeco will get familiar with often interfere in no 122BPRO The bachelor's the 122TCD Goal: To learn study Contents: 1. Introd drainage. 3. Produ concrete. 4. Constru- elevators, hoists, tra fronts. Internal inst processes. 10. Imp	Czech/Foreign Language 2 ths the communicative approach to language teaching. Therefore, individual lessons are primarily centred around an underlying topic guage function. Further appropriate language aspects (i.e. grammar, lexis, pronunciation, skills) arise from the given communicative is is further enriched by communicative skills in a more specific university environment. The Czech course is intended for students in I d 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 everyday situations and at university. After successful completion the student gains a credit and exam. End of course level according Social Sciences Sciences encompasses a broader, multidisciplinary, framework (sociology, economy, marketing, politology, social anthropology, and r vasic economic terms, demand, supply, market equilibrium, and rational consumer choice. Firm and production functions in the short an sts are discussed. Market structures and markets for productive inputs and public goods are other topics. Also presented are macroed nomics. Social theories presented in the course are considered an analytical reflection on the concepts and formal cognitive schemes is ocial theories/paradigms that are used to study and interpret social phenomena. Seminars will focus on everyday life, its interactions agoitations about the direction and goals of society. The course also provides students with conceptual tools for their own further student demonstrates that he / she can apply the knowledge gained during the study on a specific p form of theoretical or project. Students consult the issue with the thesis supervisors and experts from the predetermined departr Technology of Construction untom of theoretical or project. Students consult the issue with the thesis supervisors of a project for planning and man luction to construction	Z,ZK that is complemen- need. Basic comm the English Progra necessary for con- to CEFR: A2 Z,ZK media). The econor nd long run as well conomic aggregate of all social science s, and opinion pole lies based on critic Z roject. The work m- ments. Z,ZK agement of its imp avation, shoring, cr esh concrete, curir wer and mobile cra wallpapers floors. requirements for cr	ted by the unication in mme, who nmunication 5 mics part of as long-run es and the es. Students emics, which cal thinking. 12 hay take the 6 lementation ompaction, ng of fresh unes, trucks, 8. Facades, onstruction es and their
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This course accer communicative lan common situation have already gained in 105SOSC The course Social the course Social the course Social the course covers b and short-run cos basics of macroeco will get familiar with often interfere in no 122BPRO The bachelor's the 122TCD Goal: To learn stude Contents: 1. Introd drainage. 3. Produ concrete. 4. Constru- elevators, hoists, tra fronts. Internal inst processes. 10. Imp characteristics for I building industry, 123BM01	Czech/Foreign Language 2 tts the communicative approach to language teaching. Therefore, individual lessons are primarily centred around an underlying topic guage function. Further appropriate language aspects (i.e. grammar, lexis, pronunciation, skills) arise from the given communicative is is further enriched by communicative skills in a more specific university environment. The Czech course is intended for students in the disconvolutive skills in a more specific university environment. The Czech course is intended for students in the disconvolutive skills in a more specific university environment. The Czech course is a intended for students in a grant and a university. After successful completion the student gains a credit and exam. End of course level according Social Sciences Sciences encompasses a broader, multidisciplinary, framework (sociology, economy, marketing, politology, social anthropology, and rasice economic terms, demand, supply, market equilibrium, and rational consumer choice. Firm and production functions in the short and asts are discussed. Market structures and markets for productive inputs and public goods are other topics. Also presented are macroer nomics. Social theories presented in the course are considered an analytical reflection on the concepts and formal cognitive schemes is social theories/paradigms that are used to study and interpret social phenomena. Seminars will focus on everyday life, its interactions egotiations about the direction and goals of society. The course also provides students with conceptual tools for their own further stuce the student study. The student demonstrates that he / she can apply the knowledge gained during the study on a specific for form of theoretical or project. Students consult the issue with the thesis supervisors and experts from the predetermined departr Technology	Z,ZK that is complemen- need. Basic comm the English Progra necessary for con- to CEFR: A2 Z,ZK nedia). The econor nd long run as well conomic aggregate of all social science s, and opinion pole lies based on critic Z roject. The work m nents. Z,ZK agement of its imp avation, shoring, ca esh concrete, curir wer and mobile cra wallpapers floors. requirements for co fechnological stag- gy design. 12. Flow 8. Principles of des Z,ZK	ted by the unication in mme, who nmunication 5 mics part of as long-run es and the es. Students emics, which cal thinking. 12 hay take the 6 lementation ompaction, ng of fresh unes, trucks, 8. Facades, onstruction es and their v method in ign of site 5
This course accer communicative lan common situation have already gained in 105SOSC The course Social the course Social the course Social the course Social the course Social	Czech/Foreign Language 2 Its the communicative approach to language teaching. Therefore, individual lessons are primarily centred around an underlying topic guage function. Further appropriate language aspects (i.e. grammar, lexis, pronunciation, skills) arise from the given communicative is is further enriched by communicative skills in a more specific university environment. The Czech course is intended for students in 4 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 everyday situations and at university. After successful completion the student gains a credit and exam. End of course level according Social Sciences Sciences encompasses a broader, multidisciplinary, framework (sociology, economy, marketing, politology, social anthropology, and r basic economic terms, demand, supply, market equilibrium, and rational consumer choice. Firm and production functions in the short an tas are discussed. Market structures and markets for productive inputs and public goods are other topics. Also presented are macroer nomics. Social theories/paradigms that are used to study and interpret social phenomena. Seminars will focus on everyday life, its interactions egotiations about the direction and goals of society. The course also provides students with conceptual tools for their own further stuc Bachelor Project sis ends the bachelor study. The student demonstrates that he / she can apply the knowledge gained during the study on a specific p form of theoretical or project. Students consult the issue with the thesis supervisors and experts from the predetermined departr Technology of Construction ents to know construction processes and their design and to create a model of the building process of a project for planning and mana fuction to construction technology, construction processes, basic terminology. 2. Earthworks, excavation of rok classes, types of exci uction and transport of concrete mixture. Formwork and tradition	Z,ZK that is complemen- need. Basic comm the English Progra necessary for con- to CEFR: A2 Z,ZK media). The econor nd long run as well conomic aggregate of all social science s, and opinion pole ties based on critic Z roject. The work m- nents. Z,ZK agement of its imp avation, shoring, cr esh concrete, curir wer and mobile cra wallpapers floors. requirements for cr Fechnological stag- gy design. 12. Flow 8. Principles of des Z,ZK f the contemporary	ted by the unication in mme, who nmunication 5 mics part of as long-run es and the es. Students emics, which cal thinking. 12 hay take the 6 lementation ompaction, ng of fresh anes, trucks, 8. Facades, onstruction es and their v method in ign of site 5 v knowledge

		_	
123BPRO	Bachelor Project	Z	12
	In accordance with the thesis proposal		1
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	ion, 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
	s information on principles of designing and development of new types of materials having directed properties for specific building app		
124BC01			7
	Non-loadbearing Construction	Z,ZK	-
	on complex approach to practice design of the building envelope, flat and sloped roofing, doors and windows, partition walls, floor struc	-	
introduces theore	tical foundations and computational approaches about two fields of building design: building physics and structure interaction. Integra	ted design of the r	nonbearing
	structures together with other building systems.	1	
124BIMR	BIM - Revit Architecture	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, animal	ion.	
124BPH	Building Physics	Z,ZK	6
	thermal protection of buildings, building acoustics and daylighting (heat transfer, thermal conductivity, thermal resistence and thermal t		-
	hal bridges and thermal joints, difusion of water vapour and vapour condensation, mould growth, transient heat transfer, risk of overhe		
	ngs, sound in the living and working environment, perception and description of sound: intensity, frequency, time factor, information va		
	e sound sources, sound power level, directivity factor, sound propagation in the free field conditions, sound propagation in the diffuse		
	ds, airborne and structureborne sound, definition, measurement, evaluation and the limits, sound reduction index of double structures		
	a cavity, definition, measurement, evaluation, the sun and the environment, basics of spherical astronomy, horizons and equatorial of		
sun azimuth and	altitude, daylight and lighting, visual perception, basics of photometry, daylight factor and calculation models of the sky, methods for	• , •	int factor,
	influence of environment on a daylighting: photometric characteristics of shielding barriers, technical characteristics of lighting op	U ,	
124BPRO	Bachelor Project	Z	12
The topics of bach	elor's theses are based on the needs of practice or the scientific research activities of the department, scope and difficulty correspor	nd 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	-	
4040000		7 71/	-
124BSD2	Building Structures 2	Z,ZK	5
	ng ramps, lift shafts - structural and material solutions, statical principles, load, requirements. Building foundations - classification of s		
principles, requiren	nents. Basement - statical principles, load, requirements, waterproofing. Expansion joints of bearing structures - volume changes, dife	erencial settlement	t. Roof truss
	systems.		
124BSD3	Building Structures 3	Z,ZK	3
The subject is focu	sed on the complex design of load-bearing structures of roofs, large-span structures and structures of multi-storey buildings. In the first	st part, the attentio	n is focused
on span structures	of pitched roofs and hall buildings and on the supporting structures of multi-storey buildings. In the second part, students will learn ab	out the design of p	refabricated
	indoor and multi-storey structures.		
124CADE	CAD 1 (E)	KZ	3
	ן הערכי ה arizes students with the AutoCAD drawing software. This includes working with 2D & amp; 3D geometry, wire models, prints, SGC/ACI		-
		S/Falasoliu geom	eu y moueis,
	meshes, Bool operations, solid objects creation methods and advanced edits and modifications of the model.		
124EDC	Civil Engineering in Developing Countries	Z,ZK	4
	panizations operating in developing and climatically or culturally diverse regions have been struggling with the lack of construction expe		
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 c	organizational appr	roaches and
other factors differe	ent 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.).		
124FSHB	Fire Safety and Healthy Buildings	Z,ZK	6
	Constituents of indoor microclimate, hazardous substances (VOCs, HFRs, heavy metals, moulds, microbes, aerosols, radionuclides,		
	of building structures and materials on quality of indoor microclimate. Design of buildings with respect to optimisation of indoor microc		
	re, burning process, fire loading; legislation and European Standards; fire safety solutions - fire project, requirement for fire resistance		
	n, fire-fighting equipment; fire behaviour of the most used materials (wood, steel, concrete, plastics); protection of building materials aga	•	
			, 0,
	s, coatings, impregnates of wood, encasements, glued facings of mineral fibres); sandwiches from fire point of view; influence of claddi	-	-
protection of buildin	ng structures - fire walls, fire glazed structures, fire ceiling, draft stops and seals; repressive measures - electric fire signalling, stationary	/ extinguishing dev	ices, smoke
	extract, hydrant systems.	1	
124PDRD	Failures, Deterioration, Renovations	Z,ZK	3
Types of defects, sy	ymptoms, significance, criticality, causes, reason for failures, Records of faults: origin, frequency, performance Agencies causing deter	oration, 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
	itectural study of a smaller or medium-sized building for housing, administration, education, culture or sports into a detailed design or		1
-	raction of load-bearing and non-load-bearing elements and building physics. Focus on complex approach to practical design, analysis a	-	
-	of variants of the load-bearing system, preliminary static analysis (calculation of load-bearing elements - slabs, columns, walls, etc), cal	-	-
-	the building envelope with respect to thermal protection of buildings, building physics, fire protection of buildings and protection again		-
		יסי שמוכי מווע 2011	กษาอเนเษ.
40.00000	Elaboration of detailed drawings including floor plans, sections and details. Public presentation.		_
124SDP2	Structural Design Project 2	KZ	6
-	course is a technical solution design of advanced structures. Structural design project 2 focus on complex approach to practice design		
of advanced multis	torey or long span building structures, or their reconstruction. Analysis of load, functional and technologic requirements, design of load	d-bearing system	alternatives
including foundation	ns, preliminary bearing elements dimensions calculation, choice of most suitable version. Preliminary statical design of chosen version,	technical report, ar	nd drawings.
124YEOT	Energy Optimised Timber Buildings	Z	2
	nt a complex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are foc	_	. –
	s: (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structu	-	-
		. so allo prodonieu	on aotardi
	and building physics context of low energy and passive buildings.		

	Complex Construction Detailing	Z	2
I he aim of the c	burse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of	knowledge about	structural
problems in buildin	gs. The content of the course is focused on the complex solution of construction details, following all legislative requirements and taki	ing into account the	e maximum
	efficiency and durability of the chosen solution.		
125BPRO	Bachelor Project	Z	12
	the result of the Bachelor degree study programme. It should prove student's ability to work independently in the area of Building Servaspects or to focus on practical application on an object within building services systems. Students consult the supervisor and special	-	
	The thesis is presented in front of the commission.		Janumenus.
125BSE	Buildings Services Systems	Z,ZK	5
	e of Building Services is focused on sanitary installations, gas supply system and heating systems. Sanitary installations - introduction	·	-
-	ater needs. Internal water supply systems - installation, materials, calculation, waste water and disposal, sewage systems, internal d		
- external pipelin	es, connections, balance of gas, internal pipeline systems, flue gas. Central heating and design of heating surfaces. Calculation of he	at balance. Heatin	g system.
	Preparation of hot water. Heat sources - boiler, electric heating, district heating, renewable sources.		
125BSE2	Buildings Services Systems 2	Z,ZK	5
	Introduction to the indoor environmental quality, building ventilation and basic artificial lighting and electrical installation.		
126BIME	BIM	Z	1
	ed on basic knowledge in the field of building information modeling (BIM) in theoretical and practical areas, usable across various constr		
	ts will be acquainted not only with the basic knowledge of BIM (on the theoretical and practical level), data formats, IT systems typica	-	-
	ext of BIM in the current construction industry in relation to the whole project life cycle and its specifics (delivery, expert focus, constri- al knowledge is complemented by practical exercises aimed at mastering and understanding the basic principles of object-oriented p		. ,
126CMAN	Construction Management	Z,ZK	<u>9.</u> 6
	d mainly on practical applications of corporate construction management systems. It includes corporate strategy, corporate finance ar	· · ·	
	ss development, etc. Sustainable profitability of the construction business and the best practice at both - field and corporate level is e		-
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 pla	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 material sector of the s	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, mar	naging both, their o	companies
	and projects.		
126ECM	Economics and Management	Z,ZK	7
	n engineering and management both at the corporate and project level. All participants, processes and aspects of the construction inc	-	
	all major topics of company and project management, e.g. business development and marketing, bidding, planning and controlling of control, risk management, etc. Lectures are based on the real practice experience of all course"s lecturers and various case studies a		
e .	ame (BIG) will be played by all course participants through the whole semester (a computer simulation of a realistic business enviror		
	ctors, competing in a market with variable demand for construction work). In this online game, developed and directly operated by the		
	University, students act as contractors, managing both, their companies and projects.		
126YMCC	Management in Construction Company	Z	2
Nature of Construct	ion Business Primary Causes of Business Failure, External and Internal Influences Business Strategies to Minimize the Risk of Business I	Failure Business D	evelopment,
-	ng Planning Strategies Plan Implementation/Control Strategies Financial Management Strategies Construction Risk Management Leaders		-
	te & amp; Employee Ethics Company Performance Checklist Managing Profitable Construction Business Lectures are based on the rule of a studied and asked on the rule of a studied and asked Online Building Industry Came (BIC) will be played by all source participants through the		
	nd various case studies are studied and solved. Online Building Industry Game (BIG) will be played by all course participants through th listic business environment where participants play the role of contractors, competing in a market with variable demand for constructi		· ·
	ectly operated by the California Polytechnic State University, students act as contractors, managing both, their companies and project	,	
		cts. Active participa	
	eeting the attendance requirement is required to receive course credit (zápo et). The awarding of the course credit is a condition for b		tion in the
	eeting the attendance requirement is required to receive course credit (zapo et). The awarding of the course credit is a condition for b (zkouška).		tion in the
128CGR			tion in the
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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		
132ST01	Structural Mechanics 1 jective of the course is to familiarize students with basic principles of mechanics such as equilibrium and equivalency applied to stati	Z,ZK	6 tructures
132ST02	Structural Mechanics 2	Z,ZK	6
	tive of the course is to familiarise students with the application of basic principles of mechanics to the determination of the distribution		
	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 Elasticity	Z,ZK	6
	and basic equations of theory of elasticity. Assumptions on deformation and stress distribution in beams. Tension and compression, pu		-
in two planes, com	bination 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
133BPRO	Bachelor Thesis 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
	igning and application of a structural element with a variant comparative analysis or parametric study or performing and analysing ex		
133CASD	Computer Aided Structural Design	Z	2
	tructural Design has been implemented as an optional compulsory course which provides students to gain knowledge in a computer		
	structures. The objective of the course is to demonstrate the practical use of selected FEM software for the limit state design of variou e focus is on computational models, reinforcement design, numerical modelling, crack control, deformation control and internal forces		es. Namely,
133CM01	Concrete and Masonry Structures 1	Z,ZK	6
	concrete structures; prerequisite course 133FSTC Fundamentals of Structural Design - Concrete. Calculation models, methods of an	,	-
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
-	e structures on serviceability. Limit states approach. Stress control, cracking and crack width analysis, allowable crack width in concre ete structures, numerical and simplified analysis, criteria of acceptance. Prestressed concrete. Introduction, basic principles, design p		
	ressing, pre-tensioning and post-tensioning, verification of serviceability and ultimate limit states. Masonry structures, introduction, te		
	ced masonry. Strengthening of masonry structures. Precast concrete structures, design situations, specific problems. Strut and tie mo		
	Composite concrete-concrete structures. Introduction to concrete bridges and introduction to engineering structures.		
133FSTC	Fundamentals of Structural Design - Concrete	Z,ZK	4
	ed on design of concrete structures based on ultimate state design method. The focal topics are design of reinforced concrete memb ombination of normal forces and bending moments) including determination of load effects; introduction to serviceability limit states. O		•
	erial properties of concrete and their testing, properties of steel reinforcement and interaction of reinforcement and concrete. The pre-	-	
	mechanics, Theory of Elasticity, Building materials, Building structures.		
133SDP2	Structural Design Project 2	KZ	6
	ne structural part of the project documentation for the given structure (part of the structure). The design of the selected variant of the structure is the professions. Structural analysis and drawing documentation to the extent specified during consultations. The Department of Arch	-	
	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
400)(05	structures and technologies of construction of concrete bridges.	7 71/	
133YCB	Concrete Bridges crete Bridges is focused on design and construction of this type of bridge structures. Lectures are devoted to spatial arrangement and	Z,ZK	4 and railway
	structure, effects and realization of prestressing, types of concrete bridge structures and technologies of their construction. Seminars		-
	and provide an opportunity to apply the learnt principles.		
134BPRO	Bachelor Project	Z	12
	urse, student formulates a bachelor's thesis that is necessary to reach the bachelor's degree. This course is focused on steel or timb	-	1
134FSTS The course is for	Fire Design of Steel, Concrete and Timber Str. cused on basic principles of design of structural elements exposed to fire. The principles of loads applied at fire and methods for eval	Z Jating gas tempera	2 ature and
	temperature of structural elements are explained. The design methods for simple steel, composite and timber structures are gi		
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,
12400TD	columns, trusses) and structural bolted and welded connections.	7	2
134GSTR The course is inten	Glass Structures ding to introduce the students the field of structural applications of glass and to give them some specific skills for calculation and detailir	Z og of for basic glass	2 s structures:
	d fins, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs and		
	s as structural material will be presented in comparison with other basic building materials, together with selected examples of glass,		•
details and connect	ting technology, relevant technical regulations, specification and current methods applied in design will be described. Worked example for better understanding, and design project will help to fix specific knowledge.	es will accompany	the lectures
134SAL	Stainless Steel and Aluminium Structures	Z	2
	wo parts, design of aluminium and stainless steel structures. The first part covers evolution of stainless steel materials/structures and e	-	
	table for structures are described in a detail, including their properties. Dissimilarities in assessments of members under common loadi		
	for both ultimate and serviceability limit states. In the end the possibilities concerning connections of stainless steel members, erectin		
steer members are	described. In the second part of the subject, the same topics are covered for aluminium structures. Welding and heat-affected zones a 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
	ber load bearing building structure according to external requirements in relation to interaction of load bearing and final completion s		
1	is assigned by the seminar leader.		

134ST01	Steel Structures	Z,ZK	6
	nis course is to learn basic principles and general arrangement and structural detailing of multi-storey buildings and single-storey build	-	ation about
	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		
135BPRO	Bachelor Project	Z	12
	Individual assignment in accordance with the thesis proposal		
135FS01	Foundation of Structures	Z,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.
	Use of Eurocode 7. Selected case histories.		
135SDP2	Structural Design Project 2	KZ	6
	Design, static calculation and drawing documentation of the building substructure	_	
135SOM1	Soil Mechanics 1	Z	3
	is on the understanding of basic geological laws and principles in relation to architecture, civil engineering and urban planning. Empha	-	
	jical processes, both endogenous and exogenous, on the rock environment and how the geological situation affects the design of struc ent. At the same time, attention is paid to the technical properties of rocks with regard to their practical applications. The course also i		
	the regional geology of the Czech Republic.		
135SOM2	Soil Mechanics 2	Z,ZK	5
	jil Mechanics for Civil Engineers. Introduction to origin of soils, soil description, multi-phase media behaviour, soil classification, compre	,	-
	soil testing, earth pressures, assessment of stability and deformation of soil mass, applications in civil engineering.		110010101100,
136TSUP	Transp. Structures and Urban Planning	Z,ZK	6
	transportation engineering with the focus on road and railroad infrastructure. Rail transport and its advantages and disadvantages.		-
	ise and anti-noise measures. Road design and principles, Environmental aspects of road infrastructure. Pavement design (thickness	-	
pavement structu	ire functions. Crossings and junctions. Construction materials for highway and rail road engineering. Introduction to urban zoning and	planning including	urbanism.
Relationships of u	rban planning and environmental, economic, culture-social, space and operational aspects of landscape and urban areas. Information	to planning tools,	procedures
	and used applications.		
137TENV	Rail Traffic and Environment	Z,ZK	2
Basic principles for	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
	im and natural resource, water in civil engineering. Physical properties of fluids/liquids. Hydrostatics - pressures, Pascal's law, hydrost	-	
	hydrodynamics - flow quantities, regimes and types of flow, hydraulic resistance, basic hydrodynamic equations. Flow in pressurized p nple hydraulic calculations. Pump-pipe systems. Flow in open channels - steady uniform flow, hydraulic design of open channel, subci		
	flow and longitudinal profiles of water level, hydraulic jump. Hydraulics of structures - outflow from orifice, overflow on weirs and spilly		· ·
	Flow around obstacles, impact force of flows and jets, drag force. Measurement of discharge. Groundwater flow - types and effects, D		-
142WEE	Water and Environmental Engineering	Z,ZK	4
	ents will obtain basic knowledge about water and environmental management. The course focuses on practical knowledge with close	,	
	he subject is taught in form of lectures and tutorials. The stress is laid on presentations with case studies (positive and negative) using		
	of this course are divided into two parts Water Engineering and Environmental Engineering.		
143ENE	Environmental Engineering	Z,ZK	4
General informa	ation about interaction between human beings and their environment. Information about water quality and pollution, flood hazard, air a		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	ilic 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	•	
144WS	Drinking Water Management	KZ	2
	Water treatment and water supply		
154FS01	Fieldwork Surveying	Z,ZK	6
	surveying, basic geodetic calculations, evaluation of precision and accuracy of a measurement, theory of errors, instrumentation, topo		-
distance measurements, determination of heights, photogrammetry, laser scanning, mapping, setting-out in construction, surveying for monitoring of displacements, cadastre of real			
1			
T\ / 4	estates.	7	
TV1 TV2	estates. Physical Education Physical Education	Z Z	0

For updated information see <u>http://bilakniha.cvut.cz/en/FF.html</u> Generated: day 2025-07-15, time 05:25.