Study plan

Name of study plan: Stavební inženýrství, specializace Materiálové inženýrství

Faculty/Institute/Others:
Department:
Branch of study guaranteed by the department: Welcome page
Garantor of the study branch:
Program of study: Civil Engineering
Type of study: Bachelor full-time
Required credits: 240
Elective courses credits: 0
Sum of credits in the plan: 240
Note on the plan: tento studijní plán platí od akademického roku 2020/21 do 2023/24

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

Code of the group: BJ20190100 Name of the group: Stavební inženýrství, varianta J, 1. semestr Requirement credits in the group: In this group you have to gain at least 29 credits Requirement courses in the group: In this group you have to complete at least 6 courses Credits in the group: 29 Note on the group:

					· · · · · · · · · · · · · · · · · · ·	
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
101KG01	Constructive Geometry Iva K ivková, Iva Malechová, Michal Zdražil, Iva Slámová, Hana Lakomá, Petra Vacková, Jana ápová, Jozef Bobok Jana ápová Iva K ivková (Gar.)	Z,ZK	5	2P+2C	Z,L	Z
101MA01	Mathematics 1 Iva Malechová, Iva Slámová, Petra Vacková, Jana ápová, Jozef Bobok, Michal Beneš, Ivana Pultarová, Ond ej Zindulka, Jan Chleboun, Aleš Nekvinda Aleš Nekvinda (Gar.)	Z,ZK	6	2P+3C	Z,L	Z
105SVAI	Social Sciences and Architecture Josef Záruba Pfeffermann, Bo ivoj Marek, Rudolf Pošva, Dana ímanová, Jana Hrbková Josef Záruba Pfeffermann Josef Záruba Pfeffermann (Gar.)	Z,ZK	5	4P+1C	L	Z
123CHE	Chemistry Jana Náb Iková, Martin Keppert, Milena Pavlíková Milena Pavlíková Milena Pavlíková (Gar.)	Z,ZK	4	3P+1C	L	Z
132SM01	Structural Mechanics 1 Michal Polák, Daniel Rypl, Mat j Lepš, Jan Sýkora, Tomáš Koudelka, Aleš Pali ka, Karel Pohl, Tomáš Plachý, Martin Válek, Mat j Lepš Michal Polák (Gar.)	Z,ZK	6	2P+2C	Z,L	Z
135GM01	Geomechanics 1 Kate ina Ková ová, Jan Jelínek, Svatoslav Chamra, Richard Malát Kate ina Ková ová Kate ina Ková ová (Gar.)	z	3	2P+1C	L	Z

Characteristics of the courses of this group of Study Plan: Code=BJ20190100 Name=Stavební inženýrství, varianta J, 1. semestr

101KG01 **Constructive Geometry** Z,ZK Projections and projective methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. Simple problems in axonometry. Basics of lighting of solids and groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical surfaces. Quadrics. Surfaces in building industry. 101MA01 Mathematics 1 Z,ZK 6 https://mat.fsv.cvut.cz/bubenik/mat1detail.htm 105SVAI Social Sciences and Architecture Z,ZK 5 The subject combines the teaching of several social sciences: economics and economic policies, political science, political philosophy and law, with an overview of the development of architecture. In the section devoted to economics, the basic categories of the market economy, the foundations of economic policy and the basic concepts of international economics are explained. Theoretical interpretation is effectively combined with practical examples from economic reality. In the lectures devoted to law, a brief overview of the development of Roman law and its institutions is supplemented by a well-founded interpretation of the constitution, human rights and the labor code. Great attention is paid to selected provisions of the Civil Code and the Construction Act. In the political science lectures, the political development in ancient times is described in an engaging way, the theory of the state, political systems, democracy and totalitarianism are clarified. The series of lectures on the history of architecture and construction provides a comprehensive interpretation of the history of architecture from antiquity to postmodernism and deconstruction.

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

Code of the group: BJ20190200

Name of the group: Stavební inženýrství, varianta J, 2. semestr

Requirement credits in the group: In this group you have to gain at least 28 credits

Requirement courses in the group: In this group you have to complete at least 6 courses

Credits in the group: 28

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
101MA02	Mathematics 2 Iva Malechová, Iva Slámová, Hana Lakomá, Petra Vacková, Jana ápová, Jozef Bobok, Michal Beneš, Ivana Pultarová, Ond ej Zindulka, Ivana Pultarová Ivana Pultarová (Gar.)	Z,ZK	6	2P+3C	L,Z	Z
102FYI	Physics Pavel Novák, Tomáš Zbíral, Ji í Konfršt, Petr Pokorný, Jan Trejbal, Pavel Demo, Ji í Novák Pavel Novák Pavel Novák (Gar.)	Z,ZK	4	3P+1C	L	Z
123SH01	Building Materials Alena Vimmrová, Eva Vejmelková, Miloš Jerman Alena Vimmrová Alena Vimmrová (Gar.)	Z,ZK	5	2P+2C	Z,L	Z
126BIM1	BIM Petr Mat jka, Josef Žák Josef Žák Josef Žák (Gar.)	Z	1	1P+1C	Z	Z
132SM02	Structural Mechanics 2 Michal Polák, Daniel Rypl, Mat j Lepš, Jan Sýkora, Tomáš Koudelka, Aleš Pali ka, Martin Válek, Jitka N me ková, Šimon Glanc, Michal Polák Michal Polák (Gar.)	Z,ZK	6	2P+2C	L,Z	Z
154SG01	Land Surveying in Civil Engineering Rudolf Urban, Martin Štroner Rudolf Urban Rudolf Urban (Gar.)	Z,ZK	6	2P+3C	Z,L	Z

Characteristics of the courses of this group of Study Plan: Code=BJ20190200 Name=Stavební inženýrství, varianta J, 2. semestr

enalation loties en		ananta 0, 11 c	Jonnooti
101MA02	Mathematics 2	Z,ZK	6
https://mat.fsv.cvut.cz/v	vuka/bakalari/eng/ls/MT02/		
102FYI	Physics	Z,ZK	4
This is a basic physics of	course for students of the study programmes Civil Engineering; Management and Economics in Construction. The course for	uses on mechani	cs and basic
thermodynamics. The fo	Illowing areas are covered in the course: Mechanics of material points (particles) and deformable bodies. Discrete and contin	uous model of ma	atter. Kinematics
and dynamics of a mate	rrial point (particle). Mechanical force fields. Gravitational field. Mechanical vibrations. Material deformation. Elastic waves. Ac	oustics. Hydrome	chanics.
Fundamentals of therm	odynamics. Heat transfer.		
123SH01	Building Materials	Z,ZK	5
Building materials - bas	s course. Clasification of the materials. Structure of materials. Main properties of materials. Application of materials in buildir	ig constructions. I	ntroduction to
material testing.			
126BIM1	BIM	Z	1
The course focuses on	eaching basic knowledge in the field of Building Information Management (BIM) in theoretical and practical areas, applicable	across different	specialisations
and disciplines of the co	nstruction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digit	ized documents, i	raster and vector
graphics, open data sou	rces in the Czech Republic, ICT and enterprise systems, information systems for the construction industry, but also the contex	t of BIM in the cur	rent construction
industry in relation to the	e entire project life cycle and its specifics (delivery, expert focus, phases of construction projects, etc.) The theoretical knowle	dge is compleme	nted by practical
exercises aimed at mas	tering and understanding the basic principles of object-oriented parametric modelling.		
132SM02	Structural Mechanics 2	Z,ZK	6
Internal forces diagrams	of simple statically determinate plane structures and compound two-dimensional structures. Multiaxially loaded cantilever. D	Definition of norma	al stress and
prepositions of its distrib	pution in a cross section. Equivalence of internal forces. Geometry of mass and areas, centre of gravity and moments of inert	ia.	
154SG01	Land Surveying in Civil Engineering	Z,ZK	6
The shape and size of t	he Earth, substitutive surfaces, cartographic projections Horizontal and vertical control, coordinate calculations Quality contro	ol, deviations and	tolerations in
build-up Angle and dista	ance measurements Heighting measurements Other geodetic methods in build-up (GNSS, DPZ,) Photogrammetry and las	er scanning Ther	natic mapping
and present state docur	nentation Geodetic works in build-up State map series of CR and thematic maps for build-up Geographic information system	is and spatial plar	ning Cadastre
of real estates Laws and	d decrees for geodesy and build-up in Czech Republic		

Code of the group: BJ20190300

Name of the group: Stavební inženýrství, varianta J, 3. semestr

Requirement credits in the group: In this group you have to gain at least 30 credits Requirement courses in the group: In this group you have to complete at least 6 courses

Credits in the group: 30

Note on the g	ioup.					
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
101MA03	Mathematics 3 Iva Malechová, Jozef Bobok, Michal Beneš, Ond ej Zindulka, Petr Ku era, Zden k Skalák, Martin Hála, Martin Soukenka, Petr Mayer, Michal Beneš Michal Beneš (Gar.)	Z,ZK	6	3P+2C	Z,L	Z
124PSI1	Building Structures 11 Ctislav Fiala, Jan R ži ka, Petr Hájek, Jaroslav Vychytil, B la Stib rková Jan R ži ka Petr Hájek (Gar.)	Z	4	2P+1C	Z	Z
132PRPE	Strength of Materials Petr Kabele, Michal Šejnoha, Milan Jirásek, Jan Vorel, Eva Novotná, Martin Došká, Martin Horák, Martin Lebeda, Barbora Hálková, Milan Jirásek Petr Kabele (Gar.)	Z,ZK	6	3P+2C	Z,L	Z
135GM2I	Geomechanics 2I Jan Salák, Ji í Koš ál, Martin Vaní ek, Ivan Vaní ek Ivan Vaní ek Jan Salák (Gar.)	Z,ZK	5	2P+1C	Z	Z
141HYA	Hydraulics Michal Dohnal, Aleš Havlík, Tomáš Picek, Václav Matoušek, Petr Sklená, Martin Fencl, Anna Špa ková, Jakub Novotný, Vojt ch Bareš, Václav Matoušek Michal Dohnal (Gar.)	Z,ZK	5	2P+2C	Z,L	Z
142VIZP	Water and Environmental Engineering Aleš Havlík, Martin Fencl, Michal Sn hota, Petr Nowak, Tomáš Dostál, Martin Do kal, Martin Šanda, Pavel Fošumpaur, Bohumil Š astný, Martin Horský Ladislav Satrapa (Gar.)	Z,ZK	4	3P+1C	Z,L	Z

Characteristics of the courses of this group of Study Plan: Code=BJ20190300 Name=Stavební inženýrství, varianta J, 3. semestr

101MA03	Mathematics 3	Z,ZK	6				
https://mat.fsv.cvut.cz/vy	/uka/bakalari/eng/zs/						
124PSI1	Building Structures 1I	Z	4				
The concept of design c	he concept of design of building structures with a comprehensive consideration of the functional requirements imposed on individual elements. Requirements for building structures,						
structural system, intera	ction of elements, spatial effect of the structural system. Vertical load-bearing structures (functions, requirements, principles of	of the structural d	esign of walls,				
columns), floor structure	s (functions, requirements, principles of the structural design of vaults, wooden ceilings, reinforced concrete ceilings, ceramic	concrete ceilings	, steel and steel				
concrete ceilings). Expa	nsion joints in load-bearing systems. Structural systems of single and multi-storey buildings, structural systems of long-span	structures.					
132PRPE	Strength of Materials	Z,ZK	6				
Fundamentals of the the	eory of elasticity: stress and strain of straight beams subjected to bending and free torsion, ultimate plastic capacity of a mem	ber in bending, c	ritical loads and				
buckling lengths of straig	ght compression members. Basic assumptions, quantities, and equations describing the stress and strain state in 3D continuu	um, plates and wa	alls.				
135GM2I	Geomechanics 2I	Z,ZK	5				
Formation of soils, basic	properties of soils, water in soil, strength and deformation properties of soils and their determination, improvement of soil pro-	operties, applicat	ion tasks				
141HYA	Hydraulics	Z,ZK	5				
A course deals with issu	ies of hydrostatics and hydrodynamics with aiming at civil engineering applications. There are analysed tasks related to hydro	static and hydrod	lynamic loading				
of structures, pipeline flo	w, open channel flow and groundwater flow.						
142VIZP	Water and Environmental Engineering	Z,ZK	4				
During the teaching sen	nester, students are introduced to the fields of water engineering, water management and environmental engineering. In parti	cular, emphasis i	s placed on the				
practical aspects of wate	er and environmental engineering in close relation to other branches of civil engineering. The course is taught in the form of le	ectures and tutoria	als. The lectures				
are divided thematically	re divided thematically into 20 blocks according to the different branches of the discipline (13 times water engineering and 7 times environmental engineering). In the exercises,						
students work on basic	problems in the field of hydrology, water supply and water structures, especially dams, hydropower and flood issues. All 4 "wa	ter" departments	of K14x are				
involved in teaching the	course.						

Code of the group: BJ20190400

Name of the group: Stavební inženýrství, varianta J, 4. semestr Requirement credits in the group: In this group you have to gain at least 30 credits Requirement courses in the group: In this group you have to complete at least 6 courses Credits in the group: 30 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
124PSI2	Building Structures 2I Ctislav Fiala, Petr Hájek, Malila Noori, Veronika Ka ma íková, Jaroslav Vychytil, Tereza Pavl , Ji í Pazderka, Ji í Nová ek Ji í Pazderka Ji í Pazderka (Gar.)	Z,ZK	4	2P+1C	L	Z
126EKMN	Economics and Management Eduard Hromada, Martin ásenský, Božena Kade ábková, Petr Kal ev, Pavlína Píchová, Pavlína Píchová Eduard Hromada Eduard Hromada (Gar.)	Z,ZK	7	4P+2C		Z
132SM3	Structural Mechanics 3 Tomáš Koudelka, Petr Kabele, Michal Šejnoha, Milan Jirásek, Jan Vorel, Eva Novotná, Martin Horák, Michal Šmejkal, Tomáš Krej í, Aleš Jíra Petr Kabele (Gar.)	Z,ZK	5	2P+2C	L,Z	Z

133NNKB	Fundamentals of Structural Design - Concrete Martin Tipka, Radek Štefan, Jitka Vašková Martin Tipka Martin Tipka (Gar.)	Z,ZK	4	2P+1C	L,Z	Z
134NNKO	Design of Supporting StructuresI - Steel František Wald, Michal Jandera, Martina Eliášová Martina Eliášová Martina Eliášová (Gar.)	Z,ZK	3	2P+1C	L	z
136DSUZ	Transport Structures and Urban Planning Ludvík Vébr, František Pospíšil, Ond ej Bret František Pospíšil Ludvík Vébr (Gar.)	Z,ZK	7	5P+1C	L,Z	z
Characteristics of the	courses of this group of Study Plan: Code=BJ20190400 Name	=Stavební in	ženýrstv	í, variant	ta J, 4. sei	mestr
Staircases, sloping ramps, lift conditions, types of foundation	ilding Structures 2I t shafts - requirements, structural and material solutions, basics of typology, design prin ons, requirements, building plinth area (construction details). Basement - solution of bas n joints in buildings - principles of joints design in bearing structures, thermal expansio	sement walls, req	uirements,	iling. Buildir protection aç	gainst water,	waterproofing
The aim of the course is to p their practical applications. S method of pricing construction relation to the construction in	conomics and Management rovide students with an introduction to economics and management in the construction tudents will be prepared to solve basic construction-management problems in the con- on works and master the basic methods of managing a construction company. Emphas industry.	struction industry.	They will a	nem with ba	information a	about the
Deformation and force metho	uctural Mechanics 3 od for the solution of reactions and internal forces on statically indeterminate beams, fr using the principle of virtual works.	ames, and truss s	structures. C		f displaceme	5 nts of beams,
The content of the subject ar effects. The properties of cor reinforcement of concrete str	ndamentals of Structural Design - Concrete e the basics of load-bearing concrete structures design and the design methodology a crete, the production and testing of concrete, the properties of concrete reinforcement uctures for basic types of loading (bending, shear, pressure) are the main part of this of ws the introductory subject of Civil Engineering program (Structural Mechanics, Elastic	and its interactio	n with conc uction to sei	ncluding the rete are disc viceability li	cussed. Desig mit states is i	gn and in the end of
134NNKO De	sign of Supporting StructuresI - Steel I, steel-concrete and wooden load-bearing structures according to applicable standards			Z	Z,ZK	3
136DSUZ Tra The course 136DSUZ is com and the area of urban plannin Transport Structures - Roads Design categories of roads a drainage. Urban roads, divisi junctions and crossings. Tran Tram transport - history, princ Railway constructions - an intro	nsport Structures and Urban Planning posed of 3 issues, which build on each other and complement each other. These are the ng and spatial planning (scope 2+0). Unlike the road construction and railroad construct s (R): Introduction to basic terminology in the part of roads, history. Road Act and relate and motorways, design speed, directional and elevation design of routes, cross-section on and marking, definition of MK space, differences in design, operation and equipment sport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railwas ciples of tram track construction, interaction with the environment. Metro as a system of troduction to the design and construction of a railway track in the conditions of the Czec tial planning and urban planning, spatial planning tools and procedures for their acquis	ction sections, the ed legislative and al layout of roads nt. Carriageway, c ay crossings from of urban rail transp h Republic, the ba	e urban plar technical re and motory livision, des the point of port. Basic p	(roads and ning sectior gulations, th vays, earthv ign principle view of sect rinciples an	n does not en neir impact or vork - dimens es. Safety equ urity, design a d parameters	ad with credit. n road design. bions, shapes, uipment, and operation. s, metro lines.

Name of the block: Compulsory courses in the program Minimal number of credits of the block: 98

The role of the block: P

Code of the group: BM20200500

Name of the group: Stavební inženýrství, specializace Materiálové inženýrství, 5. semestr Requirement credits in the group: In this group you have to gain at least 30 credits Requirement courses in the group: In this group you have to complete at least 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
123CHEM	Chemistry in Civil Engineering Milena Pavlíková, Martina Záleská Milena Pavlíková Milena Pavlíková (Gar.)	Z,ZK	5	2P+2C	Z	Р
123SSVM	Structural Analysis of Building Materials Martin Keppert Martin Keppert Martin Keppert (Gar.)	KZ	3	2P+1C	Z	Р
123ZAZK	Principles of Material Testing Alena Vimmrová Alena Vimmrová Alena Vimmrová (Gar.)	Z,ZK	5	2P+2C	Z	Р
124SF01	Building Physics Jaroslav Vychytil, Ji í Nová ek Ji í Nová ek Zbyn k Svoboda (Gar.)	Z,ZK	6	3P+2C	Z	Р
132ANKC	Analysis of Structures Aleš Jíra, Dagmar Jandeková, Petr Konvalinka, Jan Zatloukal Petr Konvalinka Petr Konvalinka (Gar.)	Z,ZK	5	2P+2C	Z	Р
133BK01	Concrete and Masonry Structures 1 Martin Tipka, Jitka Vašková, Petr Bílý Petr Bílý Petr Bílý (Gar.)	Z,ZK	6	3P+2C	Z	Р

Characteristics of the courses of this group of Study Plan: Code=BM20200500 Name=Stavební inženýrství, specializace Materiálové inženýrství, 5. semestr

,,,,,						
123CHEM Chemistry in Civil Engineering	Z,ZK	5				
This course combines theoretical and practical skills in building chemistry, without chemical formulas and equations. It touches on issues related to t	he composition, p	reparation, and				
use of basic building materials. It extends the knowledge acquired in Chemistry.						
123SSVM Structural Analysis of Building Materials	KZ	3				
Students are supposed to get knowledge about relationships between structure of materials (chemical composition, microstructure) and their properti	es (mechanical, th	ermal, durability				
etc.). The methods of materials characterization both chemical and physical will be explained. Particular important relations will be illustrated by help	of examples from	n the range (and				
not only) of building materials. Part of the lectures will be devoted individual groups of materials and their specific characterization techniques and pu	roperties.					
123ZAZK Principles of Material Testing	Z,ZK	5				
Testing and quality management. Building materials requirements. Pronciples of laboratory works - sampling, marking, documentation. Safety in laboratory works - sampling, marking, documentation.	oratories. Testing a	and evaluation				
of results. Statistical methods of evaluation.						
124SF01 Building Physics	Z,ZK	6				
Thermal performance of buildings Basic course on building physics. The first part of the course (lectures 1, 2) introduces basic principles of heat, air	and moisture tran	nsfer in buildings				
and building components as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into	o the design and o	construction of				
buildings and building components with respect to building physics related issues. Typical tasks of building design and construction process related is	with the topics of t	he course will				
be presented as well as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building	ngs methods will t	be presented.				
Lighting technology deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requi	irements and wha	t are the options				
for verifying the time of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with	the assessment of	of daylight mainly				
in the interiors of buildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting oper	•					
first introduced to the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of	sound in the free	and diffuse field,				
the propagation of sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge	je regarding soun	d absorption				
structures and sound insulation properties of dividing structures will be applied.						
132ANKC Analysis of Structures	Z,ZK	5				
Analyses of statically determinate and statically/deformable indeterminate structures, concerning live loads solution, stresses in thin-wall beams, and	alysis of walls and	l plates, matrix				
formulation of deformation method, principles of FEM, models for a beam on elastic foundation and stability of structures.						
133BK01 Concrete and Masonry Structures 1	Z,ZK	6				
The subject is focused on the design of concrete elements and constructions of multi-storey buildings - it follows on from the subject Fundamentals	of Structural Desig	gn. The content				
of the course is the addition and generalization of procedures for verifying the load-bearing capacity of reinforced concrete structural elements for case	s of bending, shea	ar, a combination				
of biaxial bending and normal force, designing elements stressed by torsion, punching shear, assessment of slender compressed elements. Design	procedures are d	iscussed for				
individual types of structures, including the choice of suitable calculation models and calculation methods and reinforcement principles						

Code of the group: BM20200600

Name of the group: Stavební inženýrství, specializace Materiálové inženýrství, 6. semestr Requirement credits in the group: In this group you have to gain at least 30 credits Requirement courses in the group: In this group you have to complete at least 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
122TSC	Construction Technology C Rostislav Šulc, Mária Párová Rostislav Šulc Rostislav Šulc (Gar.)	Z,ZK	6	4P+2C	Z	Р
123MAOP	Materials for Monument Protection Zbyšek Pavlík Zbyšek Pavlík Zbyšek Pavlík (Gar.)	KZ	2	2P	L	Р
124P01C	Structural design project 1 Malila Noori, Lenka Hanzalová, Ji í Pazderka, Ji í Novák, Martin Jiránek, Kate ina Mertenová Ji í Pazderka Ji í Pazderka (Gar.)	KZ	6	4C	L	Ρ
125TBU	Building services systems 1 Karel Kabele, Ilona Koubková, Zuzana Veverková Ilona Koubková Ilona Koubková (Gar.)	Z,ZK	4	2P+2C	L	Р
133BK02	Concrete and Masonry Structures 2 Jitka Vašková, Iva Broukalová, Michal Drahorád, Marek Foglar Marek Foglar Marek Foglar (Gar.)	Z,ZK	7	4P+2C	L	Р
134ODKM	Steel and Timber Structures Anna Kuklíková, Michal Netušil Michal Netušil Anna Kuklíková (Gar.)	Z,ZK	5	2P+2C	Z,L	Р

Characteristics of the courses of this group of Study Plan: Code=BM20200600 Name=Stavební inženýrství, specializace Materiálové inženýrství, 6. semestr

122TSC	Construction Technology C	Z,ZK	6			
123MAOP	Materials for Monument Protection	KZ	2			
Building monuments consist from rather complicated collection of different materials and functions. It is important to obtain the information about the historical building technologies						
and materials with resp	ect to the monument protection principles. These information will be obtained during the course.					
124P01C	Structural design project 1	KZ	6			
Converting an architect	ural 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	on of load-bearing and non-load-bearing elements and building physics. Focus on complex approach to practical design, analy	sis and optimaliza	tion of a building			
structures. Design of va	riants of the load-bearing system, preliminary static analysis (calculation of load-bearing elements - slabs, columns, walls, etc)	, calculation of fou	ndations, design			
of structures on the bui	of structures on the building envelope with respect to thermal protection of buildings, building physics, fire protection of buildings and protection against water and soil moisture.					
Elaboration of detailed drawings including floor plans, sections and details.						
125TBU	Building services systems 1	Z,ZK	4			
Basic course in building	services systems - water supply drainage gas supply beating and ventilation systems					

133BK02	Concrete and Masonry Structures 2	Z,ZK	7				
This course builds on	This course builds on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13. Masonry structures - subjecte						
to compression, bend	ing, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit s	states: stress limit	ation, crack				
development and crac	k width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-str	essing, losses of	pre-stressing,				
technology 912. Pre	cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Intr	oduction to engine	eering structures				
134ODKM	Steel and Timber Structures	Z,ZK	5				
Steel structures - pros and contras, material properties, fabrication, connections, industrial steel buildings, cables, high strength steel, buildings in terms of water engineering - load,							
protection utilization Timber - loadings material propertie, limit states methodology design, connections, bracings, protection of structural timber timber bridges							

Code of the group: BM20200700

Name of the group: Stavební inženýrství, specializace Materiálové inženýrství, 7. semestr 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 5 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
123EPMA	Sustainable Building Materials Miloš Jerman Miloš Jerman Miloš Jerman (Gar.)	Z,ZK	4	2P+2C	Z	Р
123VPMA	Influence of Environment on Building Materials Ji í Mad ra, Václav Ko í Václav Ko í Václav Ko í (Gar.)	Z,ZK	7	2P+2C	Z	Ρ
12900P	Preservation and Restoration of Monuments Klára Kroftová, Mat j Bohá Klára Kroftová Klára Kroftová (Gar.)	Z,ZK	5	2P+2C	Z	Р
210DIMA	Diagnostics of materials Radoslav Sovják, Ji í Litoš, Michal Mára, Šárka Pešková, Petr Hála, Kristýna Carrera, Petr Konrád, P emysl Kheml Radoslav Sovják Petr Konvalinka (Gar.)	Z,ZK	6	2P+2C	Z	Ρ
100ODPR	Industrial Training (3 weeks) Jan R ži ka, Petr Hájek, Kate ina Sojková Michal Jandera Michal Jandera (Gar.)	Z	0	6C	Z,L	Ρ

Characteristics of the courses of this group of Study Plan: Code=BM20200700 Name=Stavební inženýrství, specializace Materiálové inženýrství, 7. semestr

123EPMA	Sustainable Building Materials	Z,ZK	4					
The aim of the course is to introduce students to low-energy and environmentally oriented construction. Introductory classes will focus on legislation and energy performance of buildings.								
The course also looks at specific materials with a low carbon footprint. The course will not explicitly focus only on biomaterials, from a sustainability perspective it is necessary to								
combine modern synthe	combine modern synthetic materials with purely eco-friendly ones. The aim of the course is for students to be able to appropriately combine modern materials with purely natural ones,							
to be able to minimise the	ne negative environmental impact of the construction industry, and to be able to create a pleasant interior with a healthy micr	oclimate. Last but	not least, to					
assess materials in terr	ns of their entire life cycle, i.e. production, maintenance and subsequent disposal or better recycling.							
123VPMA	Influence of Environment on Building Materials	Z,ZK	7					
The main objetcive of th	e subject is to introduce advanced techniques that are increasingly exploited for an assessment effects and impacts of buildi	ng materials expo	osed to various					
environment. The succe	ssful passing the course is supposed to provide deeper knowledge and inside to the problem in a complex way which is neces	sary for understa	nding the mutual					
materials-environment i	nteractions. The students should be then able to solve particular problems independently using the most recent (advanced) n	nethods to reveal	possible risks of					
materials damage wher	n exposed to various effects of environment.							
12900P	Preservation and Restoration of Monuments	Z,ZK	5					
210DIMA	Diagnostics of materials	Z,ZK	6					
Review of tools for expe	rimental investigation of material, thermal and moisture properties of basic building materials, destructive and nondestructive	e tests of material	parameters,					
accredited tests.								
1000DPR	Industrial Training (3 weeks)	Z	0					
Professional practice is	Professional practice is an important part of academic education in undergraduate degree programmes. The student will gain a basic understanding of duties and professional							
responsibilities. The pro	responsibilities. The professional practice evaluates the sum of all knowledge acquired through previous theoretical studies and is a proof of their acquisition.							

Code of the group: BM20200800

Name of the group: Stavební inženýrství, specializace Materiálové inženýrství, 8. semestr Requirement credits in the group: In this group you have to gain at least 16 credits Requirement courses in the group: In this group you have to complete at least 3 courses Credits in the group: 16

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
123TVSM	Production technology of building materials Eva Vejmelková, Dana Ko áková, Vojt ch Pommer, Martin Böhm Eva Vejmelková Eva Vejmelková (Gar.)	Z,ZK	5	2P+2C	L	Ρ

126STMN	Construction Management Dana M š anová, Renáta Schneiderová Heralová, Václav Tatýrek, Jaroslava Tománková, Zita Prost jovská Martin ásenský Zita Prost jovská (Gar.)	Z,ZK	6	3P+2C	Z,L	Р
210DIST	Diagnostics of Buildings Jan Zatloukal, Radoslav Sovják, Ji í Litoš, Šárka Pešková, Petr Konrád, P emysl Kheml, Jind ich Forn sek, Vladimír Šána Ji í Litoš Petr Konvalinka (Gar.)	Z,ZK	5	2P+2C	L	Ρ

Characteristics of the courses of this group of Study Plan: Code=BM20200800 Name=Stavební inženýrství, specializace Materiálové inženýrství, 8. semestr

123TVSM	Production technology of building materials	Z,ZK	5		
126STMN	Construction Management	Z,ZK	6		
Overview of selected co	ncepts. Methods to support project management. Legal standards, SN and ISO standards. The essential aspects of Project	t Management. C	onstruction as a		
project product. Objectiv	res, strategies, phases and surroundings of the construction project. Project manager role. Purchases and contracts in the p	roject. Quality mar	nagement, risk		
management. Financial	management and project evaluation. Feasibility study. Cost and resource management. Change procedures. The Act on Spa	atial Planning and	Building		
Regulations, the Act on	the Awarding of Public Contracts, and the definition of terms. Business obligation relationships, the conclusion of contracts,	their form, and us	e of general		
business conditions. Bu	siness public competition, its influence on the obligations of participants. Securing the commitment - contractual penalty, gua	rantee. The main	contract types		
in construction - are cor	tract for the conclusion of a future contract, purchase contract, contract for work, and content of the contract.				
210DIST	Diagnostics of Buildings	Z,ZK	5		
Basics of experimental	neasurement and instrumentation of testing structures. Theory of experimental work, measurements, data exploatation and	processing of resi	ults. Structures		
and principal behavior of testing devices, tenzometers, inductive senzors etc. Static and dynamic loading testing of structures and their parts. Destructive and nondestructive testing					
methods. Diagnostics of civil engineering structures. Excursion on site or on the building structure. Concept of management of quality, system of quality of the building firms, phase of					
methods. Diagnostics o	civil engineering structures. Excursion on site or on the building structure. Concept of management of quality, system of qua	ality of the building	firms, phase of		
U U	civil engineering structures. Excursion on site or on the building structure. Concept of management of quality, system of qua the projects, building process and finished structures. Acreditation process of the testing laboratories. Certification of the qua	, ,	, , i		

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

Code of the group: BM20200700_2

Name of the group: Stavební inženýrství, specializace Materiálové inženýrství, povinn volitelné p edm ty Requirement credits in the group: In this group you have to gain at least 4 credits Requirement courses in the group: In this group you have to complete at least 1 course Credits in the group: 4

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
123YSMA	Smart Building Materials Jan Fo t, Lukáš Fiala Lukáš Fiala Lukáš Fiala (Gar.)	Z	2	1P+1C	Z	PV
124YBM1	Building Information Modeling (BIM) for Building Structures 1 Petr Mat jka, Renáta Ho ánková, Pavel Chour, Ji í erný, Hana Kabrhelová, Karel Fazekas Jan R ži ka Jan R ži ka (Gar.)	z	4	1P+3C	z	PV
124YKSD	Complex Structural Detail Ji í Pazderka, Radek Zigler Ji í Pazderka Ji í Pazderka (Gar.)	Z	2	1P+1C	Z	PV
132YNMI	Numerical Methods in Engineering Practice Petr Kabele, Milan Jirásek, Jaroslav Kruis, Jan Zeman Milan Jirásek Milan Jirásek (Gar.)	Z	2	1P+1C	z	PV
133YPRK	Failures and Rehabilitation of Concrete Structures Jakub Žák, Petr Štemberk Petr Štemberk Petr Štemberk (Gar.)	Z	2	1P+1C	Z	PV
134YNKS	Glass Structures Martina Eliášová Martina Eliášová Martina Eliášová (Gar.)	Z	2	1P+1C	L	PV
123YATP	Numerical Analysis of Transport Processes Ji í Mad ra Ji í Mad ra Ji í Mad ra (Gar.)	Z	2	1P+1C	L	PV
124YDRS	Timber Buildings Jan R ži ka, Jaroslav Vychytil, Kamil Stan k, Lukáš Velebil, Milan Peukert, Marek Pokorný Jaroslav Vychytil Jan R ži ka (Gar.)	Z	2	1P+1C	L	PV
124YRHS	Reconstruction of Historical Building Structures Radek Zigler, Tomáš ejka, Ji í Witzany Ji í Witzany Ji í Witzany (Gar.)	Z	2	1P+1C	L	PV
133YMVB	Concrete and Masonry Structures 1 Tomáš Trtík, Petr Bílý, Josef Novák Petr Bílý Petr Bílý (Gar.)	Z	2	1P+1C	L	PV
134YDUV	Timber and Sustainable Construction Anna Kuklíková Anna Kuklíková Anna Kuklíková (Gar.)	Z	2	1P+1C	L	PV
134YTSK	Thin-Walled and Composite Structures Michal Jandera Michal Jandera Michal Jandera (Gar.)	Z	2	1P+1C	L	PV

Characteristics of the courses of this group of Study Plan: Code=BM20200700_2 Name=Stavební inženýrství, specializace Materiálové inženýrství, povinn volitelné p edm ty

123YSMA Smart Building Materials	Z	2
The course content is an introduction to the study of sophisticated building materials (SMART materials) on the basis of cement-based materials an		
with respect to the materials properties, optimization leading to achievement of desired sophisticated properties and usability in practice. The subject with a bight of desired sophisticated properties and usability in practice. The subject with a bight of the bigh		
with a higher added value and enables the students to get acquainted with the latest trends in the building industry. The subject also touches on the n with respect to the principles of sustainable development.	iuili-ciileila evalua	
	Z	4
124YBM1 Building Information Modeling (BIM) for Building Structures 1 Building information model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling	1 – 1	-
Revit software base. Building information model in the life cycle of the building - information required during the design part, during construction and		
124YKSD Complex Structural Detail		2
The aim of the course is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level	1 – 1	
problems in buildings. The content of the course is focused on the complex solution of construction details, following all legislative requirements and	•	
efficiency and durability of the chosen solution.	taking into accourt	
132YNMI Numerical Methods in Engineering Practice	Z	2
The course is focused on basic numerical methods for solving large sets of algebraic equations and boundary or initial value problems. In the context	1 1	
difference and finite element methods are explained from the viewpoints of an engineering scientist and a mathematician.	t of unforcinital equ	
133YPRK Failures and Rehabilitation of Concrete Structures	Z	2
The course focuses on the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial mea	1 1	
existing concrete structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of b		
foundation structures are discussed. The course appropriately combines theoretical approaches with common practice.	onding momonic di	la onoal, and
134YNKS Glass Structures	Z	2
The course is intending to introduce the students the field of structural applications of glass and to give them some specific skills for calculation and de	1 – 1	
panes beams and fins, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs a	-	-
properties of glass as structural material will be presented in comparison with other basic building materials, together with selected examples of glass		
details and connecting technology, relevant technical regulations, specification and current methods applied in design will be described. Worked exa		•
for better understanding, and design project will help to fix specific knowledge.		
123YATP Numerical Analysis of Transport Processes	Z	2
Assessment of hygrothermal conditions in civil engineering problems. Basic description of porous space. Description of transport processes (heat a	1 – 1	_
Classification of mathematical models (diffusion-, convection- and mixed type). Computational models for solution of transport problems in porous space		
Introduction to structure and composition of computer codes WUFI and HEMOT, solution of simple transport problems (heat and moisture). Initial ar		
significance and impact to analysis of transport problems.		/
124YDRS Timber Buildings	Z	2
The aim is to present a complex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are	i focused on follow	
of timber structures: (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber str		
and building physics context of low energy and passive buildings.		
124YRHS Reconstruction of Historical Building Structures	Z	2
In the period from the second half of the 19th century by 1960, more than 250 thousand of two- to five-story brick apartment (mainly rental) houses in	in traditional brick	technology were
constructed in the Czech Republic. Brick buildings from this period were built according to regulations, building codes and laws from the turn of the 19		
brick tenement houses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the	ne required extent	, and in many
cases require regeneration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment en	abling their further	use. The course
is focused on the current issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and	materials, the issu	e of degradation
and aging of structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and the	eir parts. Furthern	nore, the course
is focused on the issue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an in	tegral part of the n	nodernization of
these buildings.		
133YMVB Concrete and Masonry Structures 1	Z	2
The content of the subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Intr	oduction to nonlin	ear modeling of
reinforced concrete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program	ms for the design of	of concrete
structures.		
134YDUV Timber and Sustainable Construction	Z	2
Introduction to sustainable use of wood in construction with respect to previous courses. Theoretical methods of structural design and design of structural	ctures composed	from different
materials. Principles of strengthening and repairing of timber structures.		
134YTSK Thin-Walled and Composite Structures	Z	2
The course includes advanced analysis and structural design of slender sections and cold-formed sections. Advanced structural design of steel-con	crete composite is	also included.
Name of the block: Povinná t lesná výchova, sportovní kurzy		
Minimal number of credits of the block: 0		
The role of the block: PT		

Code of the group: BTV_POV

Name of the group: Povinná t lesná výchova Requirement credits in the group:

Requirement courses in the group: In this group you have to complete at least 2 courses

Credits in the group: 0

Note on the group:

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

TV2	Physical Education	Z	0	0+2	L	PT	
Characteristics of the courses of this group of Study Plan: Code-BTV_POV Name-Povinná t_lesná výchova							

T\	/1	Physical Education	Z	0		
T١		Physical Education	Z	0		

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

Code of the group: BF20190201_J

Name of the group: Povinn volitelný jazyk, 2. semestr

Requirement credits in the group: In this group you have to gain at least 1 credit

Requirement courses in the group: In this group you have to complete at least 1 course

Credits in the group: 1

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
104YCA1	English 1 Hana Horká, Petra Martincová, Petra Florianová, Sandra Giormani, Svatava Boboková Bartíková, V ra ermáková, Karolína Synková, Alexandra Steinerová, Elena Da eva, Svatava Boboková Bartíková Sandra Giormani (Gar.)	Z	1	2C	Z,L	J
104YCN1	German 1 Svatava Boboková Bartíková Svatava Boboková Bartíková Svatava Boboková Bartíková (Gar.)	Z	1	2C	Z,L	J

Characteristics of the courses of this group of Study Plan: Code=BF20190201_J Name=Povinn volitelný jazyk, 2. semestr

104YCA1 English 1

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

 104YCN1
 German 1

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

Code of the group: BF20190302_J

Name of the group: Povinn volitelný jazyk, 3. semestr Requirement credits in the group: In this group you have to gain at least 2 credits Requirement courses in the group: In this group you have to complete at least 1 course Credits in the group: 2 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
104YC2A	English 2 Hana Horká, Petra Martincová, Petra Florianová, Sandra Giormani, Svatava Boboková Bartíková, V ra ermáková, Karolína Synková, Alexandra Steinerová, Elena Da eva, Svatava Boboková Bartíková Sandra Giormani (Gar.)	Z,ZK	2	2C		J
104YC2N	German 2 Svatava Boboková Bartíková Sandra Giormani Svatava Boboková Bartíková (Gar.)	Z,ZK	2	2C		J

Characteristics of the courses of this group of Study Plan: Code=BF20190302_J Name=Povinn volitelný jazyk, 3. semestr

 104YC2A
 English 2
 Z,ZK
 2

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

104YC2N	German 2	Z,ZK	2
The compulsory course	- German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction in	dustry, understand	ding professional
texts, and learning the	necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Li	terature: A.Hanák	ová, J.Dressel:
Deutsch im Bauwesen			

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: BM20200700_1

Name of the group: Stavební inženýrství, specializace Materiálové inženýrství, 7. semestr, projekt 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
123P02M	Project 2M Alena Vimmrová, Eva Vejmelková, Jan Fo t, Lenka Scheinherrová, Zbyšek Pavlík, Martin Böhm Zbyšek Pavlík Zbyšek Pavlík (Gar.)	KZ	6	4C	Z	S1
210P02M	Project 2M Petr Konrád, Pavel Reiterman Pavel Reiterman Petr Konrád (Gar.)	KZ	6	4C	Z	S1

Characteristics of the courses of this group of Study Plan: Code=BM20200700_1 Name=Stavební inženýrství, specializace Materiálové inženýrství, 7. semestr, projekt

In accordance with the project proposal.	123P02M	Project 2M	KZ	6
210P02M Project 2M K7 6	In accordance with the	project proposal.	-	
	210P02M	Project 2M	KZ	6

Code of the group: BM20200800_1

Name of the group: Stavební inženýrství, specializace Materiálové inženýrství, bakalá ská práce Requirement credits in the group: In this group you have to gain at least 12 credits

Requirement courses in the group: In this group you have to complete at least 1 course

Credits in the group: 12

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
123BAPM	Bachelor Project Klára Kobeti ová, Alena Vimmrová, Eva Vejmelková Jan Pruška Jan Pruška (Gar.)	Z	12	10C	L,Z	S1
210BAPM	Bachelor Project Petr Konrád, Pavel Reiterman	Z	12	10C	L,Z	S1

Characteristics of the courses of this group of Study Plan: Code=BM20200800_1 Name=Stavební inženýrství, specializace Materiálové inženýrství, bakalá ská práce

123BAPM	Bachelor Project	Z	12
In accordance with the	thesis proposal		
210BAPM	Bachelor Project	Z	12

List of courses of this pass:

Code	Name of the course	Completion	Credits		
1000DPR	Industrial Training (3 weeks)	Z	0		
Professional pra	Professional practice is an important part of academic education in undergraduate degree programmes. The student will gain a basic understanding of duties and professional				
respon	sibilities. The professional practice evaluates the sum of all knowledge acquired through previous theoretical studies and is a proof o	f their acquisition.			

101KG01	Constructive Geometry	Z,ZK	5
Projections and	projective methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. Sim	· · · · · ·	onometry.
Basics of lighting	g of solids and groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical sur	faces. Quadrics. S	urfaces in
	building industry.		
101MA01	Mathematics 1	Z,ZK	6
1011400	https://mat.fsv.cvut.cz/bubenik/mat1detail.htm	7 71/	<u> </u>
101MA02	Mathematics 2 https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/	Z,ZK	6
101MA03	Mathematics 3	Z,ZK	6
TUTIVIAUS	https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/	Ζ,ΖΓ	0
102FYI	Physics	Z,ZK	4
-	hysics course for students of the study programmes Civil Engineering; Management and Economics in Construction. The course focus	· ·	-
	The following areas are covered in the course: Mechanics of material points (particles) and deformable bodies. Discrete and continuou		
and dynamics	of a material point (particle). Mechanical force fields. Gravitational field. Mechanical vibrations. Material deformation. Elastic waves. Ad	oustics. Hydromed	chanics.
	Fundamentals of thermodynamics. Heat transfer.		
104YC2A	English 2	Z,ZK	2
-	code: 104YC2A Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit and exam The aim of the compulsory	-	
	lexis and grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall focu- nical style) and communicative competence within the construction industry. The course also seeks to teach students to read technica		
	I written discourse and to express themselves in writing on issues in their field of study. The end of course requirements are a credit a		
	Horká Hana, Giormani Sandra, Martincová Petra, Nivenová Renata : Professional English for Civil Engineering (Units 6 10		Enterature.
104YC2N	German 2	Z,ZK	2
	purse - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction indust		
texts, and learning	g the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Literative	ature: A.Hanáková,	J.Dressel:
	Deutsch im Bauwesen		
104YCA1	English 1	Z	1
	code: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English cours		•
	mmar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on profes		
	d communicative competence within the construction industry. The course also seeks to teach students to read technical literature and i and to express themselves in writing on issues in their field of study. The end of course requirements are a credit. Literature: Horká Hana.		
willen discourse a	Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5)	Giormani Sanura,	ivial tillcova
104YCN1	German 1	7	1
	burse - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction indust	- 1	professional
	g the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Literative		
	Deutsch im Bauwesen		
105SVAI	Social Sciences and Architecture	Z,ZK	5
-	pines the teaching of several social sciences: economics and economic policies, political science, political philosophy and law, with an		-
	the section devoted to economics, the basic categories of the market economy, the foundations of economic policy and the basic conce		
	neoretical interpretation is effectively combined with practical examples from economic reality. In the lectures devoted to law, a brief over a sinstitutions is supplemented by a well-founded interpretation of the constitution, human rights and the labor code. Great attention is		-
	In the Construction Act. In the political science lectures, the political development in ancient times is described in an engaging way, the	•	
	racy and totalitarianism are clarified. The series of lectures on the history of architecture and construction provides a comprehensive in		
-	architecture from antiquity to postmodernism and deconstruction.		-
122TSC	Construction Technology C	Z,ZK	6
123BAPM	Bachelor Project	Z	12
	In accordance with the thesis proposal	1	
123CHE	Chemistry	Z,ZK	4
	neral chemistry - chemical bond, compounds, reactions, equilibrium. Chemistry of environment - water, atmosphere, pedosphere. Che	, ,	
-	glass, ceramic, metals, natural polymers, wood, synthetic polymers on C and Si basis. Introduction to degradation of building materia	-	
123CHEM	Chemistry in Civil Engineering	Z,ZK	5
I his course comb	ines theoretical and practical skills in building chemistry, without chemical formulas and equations. It touches on issues related to the use of basic building materials. It extends the knowledge acquired in Chemistry.	composition, prepa	aration, and
123EPMA	Sustainable Building Materials	Z,ZK	4
	rse is to introduce students to low-energy and environmentally oriented construction. Introductory classes will focus on legislation and en		
	blocks at specific materials with a low carbon footprint. The course will not explicitly focus only on biomaterials, from a sustainability p		-
combine modern s	synthetic materials with purely eco-friendly ones. The aim of the course is for students to be able to appropriately combine modern materials	erials with purely n	atural ones,
to be able to min	imise the negative environmental impact of the construction industry, and to be able to create a pleasant interior with a healthy micro	climate. Last but no	ot least, to
123MAOP	assess materials in terms of their entire life cycle, i.e. production, maintenance and subsequent disposal or better recycling		
	Materials for Monument Protection	KZ	2
	Materials for Monument Protection Ints consist from rather complicated collection of different materials and functions. It is important to obtain the information about the hi	KZ	
Building monume	Materials for Monument Protection ents consist from rather complicated collection of different materials and functions. It is important to obtain the information about the hi and materials with respect to the monument protection principles. These information will be obtained during the course.	KZ storical building teo	chnologies
	Materials for Monument Protection ents consist from rather complicated collection of different materials and functions. It is important to obtain the information about the hi and materials with respect to the monument protection principles. These information will be obtained during the course. Project 2M	KZ	
Building monume	Materials for Monument Protection ents consist from rather complicated collection of different materials and functions. It is important to obtain the information about the hi and materials with respect to the monument protection principles. These information will be obtained during the course. Project 2M In accordance with the project proposal.	KZ storical building tea KZ	chnologies 6
Building monume	Materials for Monument Protection ents consist from rather complicated collection of different materials and functions. It is important to obtain the information about the hi and materials with respect to the monument protection principles. These information will be obtained during the course. Project 2M In accordance with the project proposal. Building Materials	KZ storical building tea KZ Z,ZK	chnologies 6 5
Building monume	Materials for Monument Protection ents consist from rather complicated collection of different materials and functions. It is important to obtain the information about the hi and materials with respect to the monument protection principles. These information will be obtained during the course. Project 2M In accordance with the project proposal.	KZ storical building tea KZ Z,ZK	chnologies 6 5
Building monume 123P02M 123SH01 Building material	Materials for Monument Protection ents consist from rather complicated collection of different materials and functions. It is important to obtain the information about the hi and materials with respect to the monument protection principles. These information will be obtained during the course. Project 2M In accordance with the project proposal. Building Materials s - basis course. Clasification of the materials. Structure of materials. Main properties of materials. Application of materials in building material testing.	KZ storical building tec KZ Z,ZK constructions. Intro	chnologies 6 5
Building monume 123P02M 123SH01 Building material 123SSVM	Materials for Monument Protection ents consist from rather complicated collection of different materials and functions. It is important to obtain the information about the hi and materials with respect to the monument protection principles. These information will be obtained during the course. Project 2M In accordance with the project proposal. Building Materials s - basis course. Clasification of the materials. Structure of materials. Main properties of materials. Application of materials in building	KZ storical building tec KZ Z,ZK constructions. Intro KZ	chnologies 6 5 oduction to 3
Building monume 123P02M 123SH01 Building material 123SSVM Students are supp	Materials for Monument Protection Interview of different materials and functions. It is important to obtain the information about the hi and materials with respect to the monument protection principles. These information will be obtained during the course. Project 2M In accordance with the project proposal. Building Materials s - basis course. Clasification of the materials. Structure of materials. Main properties of materials. Application of materials in building material testing. Structural Analysis of Building Materials	KZ storical building tec KZ Z,ZK constructions. Intro KZ nechanical, therma	chnologies 6 5 oduction to 3 al, durability
Building monume 123P02M 123SH01 Building material 123SSVM Students are supp etc.). The methods	Materials for Monument Protection ents consist from rather complicated collection of different materials and functions. It is important to obtain the information about the hi and materials with respect to the monument protection principles. These information will be obtained during the course. Project 2M In accordance with the project proposal. Building Materials s - basis course. Clasification of the materials. Structure of materials. Main properties of materials. Application of materials in building material testing. Structural Analysis of Building Materials osed to get knowledge about relationships between structure of materials (chemical composition, microstructure) and their properties (not provide the properties)	KZ storical building tec KZ Z,ZK constructions. Intro KZ nechanical, therma examples from the	chnologies 6 5 oduction to 3 al, durability

123VPMA	Influence of Environment on Building Materials	Z,ZK	7
-	e of the subject is to introduce advanced techniques that are increasingly exploited for an assessment effects and impacts of building	-	
	uccessful passing the course is supposed to provide deeper knowledge and inside to the problem in a complex way which is necessar		
materials-environm	ent interactions. The students should be then able to solve particular problems independently using the most recent (advanced) meth materials damage when exposed to various effects of environment.	ious to reveal poss	SIDIE TISKS OF
123YATP		Z	2
-	Numerical Analysis of Transport Processes prothermal conditions in civil engineering problems. Basic description of porous space. Description of transport processes (heat and r	— 1	
,,	thematical models (diffusion-, convection- and mixed type). Computational models for solution of transport problems in porous space ba	, ,	
	cture and composition of computer codes WUFI and HEMOT, solution of simple transport problems (heat and moisture). Initial and b	-	
	significance and impact to analysis of transport problems.	,	/
123YSMA	Smart Building Materials	Z	2
	t is an introduction to the study of sophisticated building materials (SMART materials) on the basis of cement-based materials and al	kali-activated alum	inosilicates
with respect to the	materials properties, optimization leading to achievement of desired sophisticated properties and usability in practice. The subject for	cuses mainly on ne	w materials
with a higher added	I value and enables the students to get acquainted with the latest trends in the building industry. The subject also touches on the multi-	criteria evaluation	of materials
	with respect to the principles of sustainable development.		
123ZAZK	Principles of Material Testing	Z,ZK	5
Testing and quality	r management. Building materials requirements. Pronciples of laboratory works - sampling, marking, documentation. Safety in labora	tories. Testing and	evaluation
1015010	of results. Statistical methods of evaluation.		
124P01C	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 of	0	
	action 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		
	Elaboration of detailed drawings including floor plans, sections and details.		noistare.
124PSI1	Building Structures 1I	Z	4
	ign of building structures with a comprehensive consideration of the functional requirements imposed on individual elements. Require	- 1	-
	interaction of elements, spatial effect of the structural system. Vertical load-bearing structures (functions, requirements, principles of	-	
	ctures (functions, requirements, principles of the structural design of vaults, wooden ceilings, reinforced concrete ceilings, ceramic co	-	
concrete	e ceilings). Expansion joints in load-bearing systems. Structural systems of single and multi-storey buildings, structural systems of lor	ng-span structures.	
124PSI2	Building Structures 2I	Z,ZK	4
Staircases, sloping	ramps, lift shafts - requirements, structural and material solutions, basics of typology, design principles, construction details, railing. Bu	ilding foundations -	- foundation
conditions, types of	foundations, requirements, building plinth area (construction details). Basement - solution of basement walls, requirements, protection	n against water, wa	aterproofing
systems. Structura	l expansion joints in buildings - principles of joints design in bearing structures, thermal expansion, compensation of differences in se	ttlement, construct	tion details.
	Roof truss systems.		
124SF01	Building Physics	Z,ZK	6
Thermal performan	as of buildings Desis source on building physics. The first part of the source (lestures 1, 2) introduces basis principles of heat, sir and	I mainture transfer	
-	ce of buildings Basic course on building physics. The first part of the course (lectures 1, 2) introduces basic principles of heat, air and		-
and building comp	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the	ne design and cons	struction of
and building comp buildings and build	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with the second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues.	ne design and cons h the topics of the o	struction of course will
and building comp buildings and build be presented as v	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building	ne design and cons h the topics of the o s methods will be p	struction of course will presented.
and building comp buildings and build be presented as v Lighting technology	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem	ne design and cons h the topics of the o s methods will be p nents and what are	struction of course will presented. the options
and building comp buildings and build be presented as v Lighting technology for verifying the time	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem e of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the	ne design and cons h the topics of the o s methods will be p nents and what are assessment of day	struction of course will presented. the options rlight mainly
and building comp buildings and build be presented as v Lighting technology for verifying the timu in the interiors of b	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem	he design and cons h the topics of the o s methods will be p hents and what are assessment of day ig. In acoustics, the	struction of course will presented. the options rlight mainly e listener is
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to th	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem e of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting opening and the characteristics of the room and the lighting opening and the characteristics of the room and the lighting opening and the characteristics of the room and the lighting opening and the characteristics of the room and the lighting opening and the characteristics of the room and the lighting opening and the characteristics of the room and the lighting opening and the characteristics of the room and the lighting opening and the characteristics of the room and the lighting opening and the characteristics of the room and the lighting opening and the characteristics of the room and the lighting opening and the characteristics of the room and the lighting opening and the characteristics of the room and the lighting opening and the characteristics of the room and the lighting and the characteristics and the char	the design and cons h the topics of the of s methods will be p tents and what are assessment of day tend. In acoustics, the nd in the free and of	struction of course will presented. the options vlight mainly e listener is diffuse field,
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to th	conents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building related with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem the of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting opening the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sources	the design and cons h the topics of the of s methods will be p tents and what are assessment of day tend. In acoustics, the nd in the free and of	struction of course will presented. the options vlight mainly e listener is diffuse field,
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to th	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem e of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting opening the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sound f sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge	the design and cons h the topics of the of s methods will be p tents and what are assessment of day tend. In acoustics, the nd in the free and of	struction of course will presented. the options vlight mainly e listener is diffuse field,
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information	conents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building relates with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem the of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting opening econcepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sourd for sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 n model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The second part deals is a building information model in the field of civil engineering, specifics of BIM modeling.	the design and cons h the topics of the of s methods will be p nents and what are assessment of day ng. In acoustics, the nd in the free and of regarding sound a Z he subject uses the	struction of course will presented. the options dight mainly e listener is diffuse field, ubsorption 4 e Autodesk
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information	conents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building relates with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem the of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting opening econcepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sourd for sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 in model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The Building information model in the life cycle of the building - information required during the design part, during construction and during the during the design part, during construction and	the design and cons h the topics of the of s methods will be p nents and what are assessment of day ng. In acoustics, the nd in the free and of regarding sound a Z he subject uses the	struction of course will presented. the options dight mainly e listener is diffuse field, ubsorption 4 e Autodesk
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information	conents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building relates with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem the of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting opening econcepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sourd for sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 n model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The second part deals is a building information model in the field of civil engineering, specifics of BIM modeling.	the design and cons h the topics of the of s methods will be p nents and what are assessment of day ng. In acoustics, the nd in the free and of regarding sound a Z he subject uses the	struction of course will presented. the options dight mainly e listener is diffuse field, ubsorption 4 e Autodesk
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present	conents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirements of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openime concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sour for sourd for sourd through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 n model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The Building information model in the life cycle of the building - information required during the design part, during construction and during Timber Buildings th a complex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are forced or set overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are forced or set overview on energy efficient timber structures. Basic theoretical and design principals are presented.	the design and cons h the topics of the of s methods will be p tents and what are assessment of day ig. In acoustics, the ind in the free and of regarding sound a	struction of course will presented. the options light mainly a listener is diffuse field, ubsorption 4 e Autodesk ed building. 2 echnologies
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present	conents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building relates with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem the of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting opening the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sour of sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 In model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The Building information model in the life cycle of the building - information required during the design part, during construction and during the a complex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are fore civil engineer skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structures based on 2x4. (iii) CLT, (iv) log house.	the design and cons h the topics of the of s methods will be p tents and what are assessment of day ig. In acoustics, the ind in the free and of regarding sound a	struction of course will presented. the options light mainly a listener is diffuse field, ubsorption 4 e Autodesk ed building. 2 echnologies
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to th the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures	conents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building relates with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem a of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting opening econcepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sour for sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 n model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The Building information model in the life cycle of the building - information required during the design part, during construction and during the acomplex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are force: (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structure and building physics context of low energy and passive buildings.	the design and cons h the topics of the of s methods will be p tents and what are assessment of day ig. In acoustics, the nd in the free and of regarding sound a	struction of course will presented. the options dight mainly e listener is diffuse field, libsorption 4 e Autodesk ed building. 2 echnologies in structural
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures	conents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with evel as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirement of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting opening the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sourd for sourd through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures uill be applied. Building Information Modeling (BIM) for Building Structures 1 In model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The Building information model in the life cycle of the building - information required during the design part, during construction and during the acomplex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are fore it (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structures and building physics context of low energy and passive buildings. Complex Structural Detail	e design and cons h the topics of the o s methods will be p eents and what are assessment of day g. In acoustics, the nd in the free and o regarding sound a Z he subject uses the ng use of the finish Z used on following te res are presented i	struction of course will presented. the options vlight mainly b listener is diffuse field, bbsorption 4 e Autodesk ed building. 2 echnologies in structural 2
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the co	conents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building related with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem e of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openin the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sou of sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 in model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The Building information model in the life cycle of the building - information required during the design part, during construction and duri in a complex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are for it (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structure and building physics context of low energy and passive buildings. Complex Structural Detail burse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of	e design and cons h the topics of the of s methods will be p nents and what are assessment of day ng. In acoustics, the nd in the free and of regarding sound a	struction of course will presented. the options dight mainly e listener is diffuse field, libsorption 4 e Autodesk ed building. 2 echnologies in structural 2 structural
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the co	conents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building relats with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirer e of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openin the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sour of sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 In model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The Building information model in the life cycle of the building - information required during the design part, during construction and during the a complex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are for i (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structure and building physics context of low energy and passive buildings. Complex Structural Detail burse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of gs. The content of the c	e design and cons h the topics of the of s methods will be p nents and what are assessment of day ng. In acoustics, the nd in the free and of regarding sound a	struction of course will presented. the options dight mainly e listener is diffuse field, libsorption 4 e Autodesk ed building. 2 echnologies in structural 2 structural
and building comp buildings and build be presented as v Lighting technology for verifying the time in the interiors of b first introduced to th the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the co problems in building	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building relats with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirer e of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openir ne concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sou of sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures 1 n model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. T be building information model in the life cycle of the building - information required during the design part, during construction and duri funder Building physics context of low energy and passive buildings. Timber Building su th a complex overview on energy efficient timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structure and building physics context of low energy and passive buildings. Complex Structural Detail burse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of gs. The content of the course is focused on the complex solution of construction details, following all legislative requirements and tak efficiency and durability of	the design and consistent of the topics of the original set of the final set of the final set of the finish original set of the finish or	struction of course will presented. the options dight mainly e listener is diffuse field, libsorption 4 e Autodesk ed building. 2 echnologies in structural e maximum
and building comp buildings and build be presented as w Lighting technology for verifying the timu in the interiors of b first introduced to th the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the co problems in building 124YRHS	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ding components with respect to building physics related issues. Typical tasks of building design and construction process related wite well as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem e of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openin e concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sou of sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures uil be applied. Building Information Modeling (BIM) for Building Structures 1 In model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The Building information model in the life cycle of the building - information required during the design part, during construction and duri Timber Buildings Int a complex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are foc: (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structure and building physics context of low energy and passive buildings. Complex Structural Detail purse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of gs. The content	ne design and cons h the topics of the of s methods will be p nents and what are assessment of day ng. In acoustics, the nd in the free and of regarding sound a Z he subject uses the ng use of the finish Z used on following te res are presented i Z knowledge about s ing into account the Z	struction of course will presented. the options (light mainly e listener is diffuse field, absorption 4 e Autodesk ed building. 2 echnologies in structural e maximum 2
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the co problems in building 124YRHS In the period from the	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ting components with respect to building physics related issues. Typical tasks of building design and construction process related with well as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirer e of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the ididing swith regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting open in e concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sourd f sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 In model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The Building information model in the life cycle of the building - information required during the design part, during construction and during the acomplex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are fore: (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structure and building physics context of low energy and passive buildings. Complex Structural Detail purse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of gs. The content of the course	The design and consistent of the topics of the original system of the present of the original system of the topics of the original system of the topics of the topics of the topics of the transmission of transmission o	struction of course will presented. the options dight mainly e listener is diffuse field, libsorption 4 e Autodesk ed building. 2 echnologies in structural e maximum 2 nology were
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the co problems in building 124YRHS In the period from the constructed in the C	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ting components with respect to building physics related issues. Typical tasks of building design and construction process related with well as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirer e of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openin the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sou of sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The a building information model in the life cycle of the building - information required during the design part, during construction and duri Timber Buildings nt a complex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are for ci (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structure and building physics context of low energy and passive buildings. Complex Structural Detail purse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of gs. The content o	The design and consist in the topics of the operation of the topics of the operation of the operation of the operation of the operation of the final operation of the final operation of the final operation of the final operation of the operatio	struction of course will presented. the options dight mainly e listener is diffuse field, libsorption 4 e Autodesk ed building. 2 echnologies in structural e maximum 2 nology were Multi-storey
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the co problems in building 124YRHS In the period from the constructed in the C	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ting components with respect to building physics related issues. Typical tasks of building design and construction process related with well as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirer e of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the ididing swith regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting open in e concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sourd f sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 In model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The Building information model in the life cycle of the building - information required during the design part, during construction and during the acomplex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are fore: (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structure and building physics context of low energy and passive buildings. Complex Structural Detail purse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of gs. The content of the course	The design and consist in the topics of the operation of the finish operation of the finish operation of the operation of th	struction of course will presented. the options dight mainly e listener is diffuse field, libsorption 4 e Autodesk ed building. 2 echnologies in structural e maximum 2 nology were Multi-storey id in many
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the co problems in building 124YRHS In the period from the constructed in the C brick tenement ho cases require regent	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ting components with respect to building physics related issues. Typical tasks of building design and construction process related with well as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building of deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirern a of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openin the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sou of sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures 1 in model (BIM) - basic principles of creating a building information model in the filed of civil engineering, specifics of BIM modeling. The abuilding information model in the life cycle of the building - information required during the design part, during construction and duri in the a complex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are foci : (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structure and building physics context of low energy and passive buildings. Complex Structural Detail purse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of gs. The content of the course is focused on the complex solution of construction details, following a	The design and consist in the topics of the operation of	struction of course will presented. the options dight mainly e listener is diffuse field, ubsorption 4 e Autodesk ed building. 2 echnologies in structural e maximum 2 nology were Multi-storey ad in many The course
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the co problems in building 124YRHS In the period from the constructed in the C brick tenement ho cases require regent is focused on the cu and aging of structures	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the thing components with respect to building physics related issues. Typical tasks of building design and construction process related with vell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building of edals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirer of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openir e concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sou of sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures 1 in model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The Building information model in the life cycle of the building - information required during the design part, during construction and duri Timber Building the vertices based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structures and solution of construction details, following all legislative requirements and tak efficiency and durability of the chosen solution. Reconstruction of Historical Building Structuress to the consense to the complex solution of construction details, following all legislative requirements and tak efficiency and durability of the chosen solution.	The design and consist in the topics of the operation of	struction of course will presented. the options dight mainly e listener is diffuse field, ubsorption 4 e Autodesk ed building. 2 echnologies in structural e maximum 2 nology were Multi-storey ad in many The course degradation , the course
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the co problems in building 124YRHS In the period from the constructed in the C brick tenement ho cases require regent is focused on the cu and aging of structures	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ting components with respect to building physics related issues. Typical tasks of building design and construction process related with well as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building or deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirement of of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting open in e concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sou f sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 n model (BIM) - basic principles of creating a building information mequired during the design part, during construction and during the acomplex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are fore : (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structure and building physics context of low energy and passive buildings. Complex Structural Detail purse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of gs. The content of the course is focused on the complex solution of construction details, following all legislative requirements and tak efficiency and durability of the ch	The design and consist in the topics of the operation of	struction of course will presented. the options dight mainly e listener is diffuse field, ubsorption 4 e Autodesk ed building. 2 echnologies in structural e maximum 2 nology were Multi-storey ad in many The course degradation , the course
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the co problems in building 124YRHS In the period from the constructed in the C brick tenement ho cases require regent is focused on the cu and aging of structu	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ting components with respect to building physics related issues. Typical tasks of building design and construction process related with well as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem a of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openir the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sou f sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 n model (BIM) - basic principles of creating a building information mequired during the design part, during construction and duri Timber Buildings th a complex overview on energy efficient timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structures are fore: (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structures are fore: so extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of gs. The content of the course is focused on the complex solution of construction details, following all legislative requirements and tak efficiency and durability of the chosen solution. Reconstruction of Historical Building Structures a dout m	The design and consist in the topics of the operation of	struction of course will presented. the options dight mainly e listener is diffuse field, ubsorption 4 e Autodesk ed building. 2 echnologies in structural e maximum 2 structural e maximum 2 nology were Multi-storey ad in many The course degradation , the course rrnization of
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the co problems in building 124YRHS In the period from the constructed in the C brick tenement ho cases require regent is focused on the cu and aging of structures	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ting components with respect to building physics related issues. Typical tasks of building design and construction process related with verial as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirer a of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openir to concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sou for sound an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures of the propagation of sou for and he characteristics. The second part, during construction and during information model in the life cycle of the building - information required during the design part, during construction and during information model in the life cycle of the building - information required during the design part, during construction and building physics context of low energy and passive buildings. Complex Structural Detail Durse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of gs. The construction of thistorical Building Structures Reconstruction of Historical Building Structures he second half of the 19th century by 1960, more than 250 thousand of two- to five-story brick apartment (mainly rental) houses in trac is set or the thermal, acoustic and other requirements, he requ	The design and consist in the topics of the operation of	struction of course will presented. the options dight mainly e listener is diffuse field, ubsorption 4 e Autodesk ed building. 2 echnologies in structural e maximum 2 nology were Multi-storey ad in many The course degradation , the course
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the corproblems in building 124YRHS In the period from the constructed in the C brick tenement ho cases require regent is focused on the cut and aging of structu is focused on the is 125TBU	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ting components with respect to building physics related issues. Typical tasks of building design and construction process related with well as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem a of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openir the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sou f sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 n model (BIM) - basic principles of creating a building information mequired during the design part, during construction and duri Timber Buildings th a complex overview on energy efficient timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structures are fore: (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structures are fore: so extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of gs. The content of the course is focused on the complex solution of construction details, following all legislative requirements and tak efficiency and durability of the chosen solution. Reconstruction of Historical Building Structures a dout m	The design and consist in the topics of the operation of the operation of the operation of the operation of the topics of the operation of the topics of the operation of the topics of the operation of the tree and operating sound a $\frac{Z}{Z}$ is the subject uses the finish $\frac{Z}{Z}$ is the topic of the finish $\frac{Z}{Z}$ is the topic of topic of the topic	struction of course will presented. the options dight mainly e listener is diffuse field, ubsorption 4 e Autodesk ed building. 2 echnologies in structural e maximum 2 structural e maximum 2 nology were Multi-storey ad in many The course degradation , the course rrnization of
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the corproblems in building 124YRHS In the period from the cases require regent is focused on the cut and aging of structu- is focused on the is 125TBU 126BIM1	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the fing components with respect to building physics related issues. Typical tasks of building design and construction process related with well as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirer a of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openir e concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sou of sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 n model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The esclude overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are for it is not exceedent the knowledge gained in previous courses - it is intended for students who have already reached advanced level of gs. The content of the course is focused on the complex solution of construction details, following all legislative requirerments and tak efficiency and durability of the chosen solution. Reconstruction of Historical Building Structures he second half of the 19th century by 1960, more than 250 thousand of two to five-story brick as sof ont meet the current thermal, acoustic and other requir	The design and consist in the topics of the operation of the operation of the operation of the operation of the topics of the operation of the topics of the operation of the topics of the operation of the transmission of the	struction of course will presented. the options dight mainly e listener is diffuse field, libsorption 4 e Autodesk ed building. 2 echnologies in structural e maximum 2 structural e maximum 2 nology were Multi-storey id in many The course degradation the course errnization of 4
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the corproblems in building 124YRHS In the period from the cases require regent is focused on the cut and aging of structu is focused on the is 125TBU 126BIM1 The course focuse	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the ling components with respect to building physics related issues. Typical tasks of building design and construction process related with ell as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirer e of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the indidings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openir e concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sou of sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures 1 n model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The acomplex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are foce : (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (iv) log house. All technologies of timber structure and building physics context of low energy and passive buildings. Complex Structural Detail purse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of gs. The content of the course is focused on the complex solution of construction details, following all legislative requirements and tak efficiency and durability of the chosen solution. Reconstruction of Historical Building Structures he second ha	The design and consist in the topics of the operation of the operation of the operation of the operation of the topics of the operation of the topics of the operation of the topics of the operation of the treat and operating sound a treat operation of the finish operation of the topic of the finish operation of the topic of the finish operation of the topic of the t	struction of course will presented. the options dight mainly a listener is diffuse field, libsorption 4 a Autodesk ed building. 2 achnologies in structural e maximum 2 structural e maximum 2 nology were Multi-storey and in many The course degradation the course errization of 4 1 cialisations
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the corproblems in building 124YRHS In the period from the constructed in the C brick tenement ho cases require reger is focused on the cu and aging of structu is focused on the is 125TBU 126BIM1 The course focuse and disciplines of the	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the fing components with respect to building physics related issues. Typical tasks of building design and construction process related with well as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirent a of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openir te concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sou f sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Model ing (BIM) for Building Structures 1 n model (BIM) - basic principles of creating a building information model in the field of vill engineening, specifics of BIM modeling. I the complex overview on energy efficient timber structures based on 2x4. (iii) CLT, (v) log house. All technologies of timber structures to in building physics context of low energy and passive buildings. Complex Structural Detail urse is to extend the knowledge gained in previous courses - it is infranded for students who have already reached advanced level of gs. The content of the course is focused on the complex solution of construction details, following all legislative requirements and tak efficiency and durability of the chosen solution. Reconstruction of Historical Building Structures he second half of the 19th century by by 1960, more than	The design and consist in the topics of the operation of the operation of the operation of the operation of the topics of the operation of the topics of the operation of the topics of the operation of the tree and operating sound a tree and the subject uses the fination of the fination of the topic of the fination of the topic of topic of the topic of top	struction of course will presented. the options dight mainly a listener is diffuse field, libsorption 4 a Autodesk ed building. 2 achnologies in structural e maximum 2 structural e maximum 1 course degradation at the course degradation at the course rinization of 4 course rinizations r and vector course cours
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the corproblems in building 124YRHS In the period from the cases require reger is focused on the cut and aging of structure is focused on the is 125TBU 126BIM1 The course focuse and disciplines of the graphics, open data	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the fing components with respect to building physics related issues. Typical tasks of building design and construction process related with well as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building reals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirer e of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openir is concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sou f sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Modeling (BIM) for Building Structures 1 n model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The a complex overview on energy efficient timber structures. Basic theoretical and design principals are presented. The lectures are for () heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (v) log house. All technologies of timber structure and building physics context of low energy and passive buildings. Complex Structural Detail purse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of gs. The content of the course is focused on the complex solution of construction details, following all legislative requirements and tak efficiency and durability of the chosens	The design and consistent of the topics of the operation of the topics of the operation of the topics of the operation of the topics of topics of the topics of topics of the topics of topics of topics of the topics of topic	struction of course will presented. the options dight mainly e listener is diffuse field, ubsorption 4 e Autodesk ed building. 2 echnologies in structural e maximum 2 structural e maximum 2 nology were Multi-storey ad in many The course degradation , the course errization of 4 1 cialisations r and vector construction
and building comp buildings and build be presented as w Lighting technology for verifying the time in the interiors of b first introduced to the the propagation of 124YBM1 Building information Revit software base 124YDRS The aim is to present of timber structures 124YKSD The aim of the corproblems in building 124YRHS In the period from the cases require regent is focused on the cut and aging of structure is focused on the is 125TBU 126BIM1 The course focuse and disciplines of the graphics, open data	onents as a necessary background for further studies. The second part of the course (lectures 3 to 6) provides an introduction into the fing components with respect to building physics related issues. Typical tasks of building design and construction process related with well as methods for their solution. A short information on selected diagnostic used for assessment of thermal performance of building deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirer a of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting openir te concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The propagation of sou of sound through an obstacle or in the ear canal is also discussed. When assessing or designing the interiors of buildings, knowledge structures and sound insulation properties of dividing structures will be applied. Building Information Model ing (BIM) for Building Structures 1 n model (BIM) - basic principles of creating a building information model in the field of vill engineening, specifics of BIM modeling. I the complex overview on energy efficient timber structures based on 2x4. (iii) CLT, (v) log house. All technologies of timber structure (i) heavy timber skeleton systems, (ii) light timber structures based on 2x4. (iii) CLT, (v) log house. All technologies of timber structure and building physics context of low energy and passive buildings. Complex Structural Detail urse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of gs. The content of the course is focused on the complex solution of construction details, following all legislative requirements and tak efficiency and durability of the chosen	The design and consistent of the topics of the operation of the topics of the operation of the topics of the operation of the topics of topics of the topics of topics of the topics of topics of topics of the topics of topic	struction of course will presented. the options dight mainly e listener is diffuse field, ubsorption 4 e Autodesk ed building. 2 echnologies in structural e maximum 2 structural e maximum 2 nology were Multi-storey ad in many The course degradation , the course errization of 4 1 cialisations r and vector construction

126EKMN			
The aim of the co	Economics and Management	Z,ZK	7
	urse is to provide students with an introduction to economics and management in the construction industry and to familiarize them wi	th basic econom	nic terms and
their practical ap	plications. Students will be prepared to solve basic construction-management problems in the construction industry. They will acquire	basic information	on about the
method of pricing	construction works and master the basic methods of managing a construction company. Emphasis is placed on understanding the pri	nciple of econor	nic thinking in
	relation to the construction industry.		
126STMN	Construction Management	Z,ZK	6
	ed concepts. Methods to support project management. Legal standards, SN and ISO standards. The essential aspects of Project Ma		-
	bjectives, strategies, phases and surroundings of the construction project. Project manager role. Purchases and contracts in the project	-	
	Financial management and project evaluation. Feasibility study. Cost and resource management. Change procedures. The Act on Spa		-
•	Act on the Awarding of Public Contracts, and the definition of terms. Business obligation relationships, the conclusion of contracts, th	•	•
•	is. Business public competition, its influence on the obligations of participants. Securing the commitment - contractual penalty, guarar		•
business condition	in construction - are contract for the conclusion of a future contract, purchase contract, contract for work, and content of the con		ontract types
400000			c
12900P	Preservation and Restoration of Monuments	Z,ZK	5
132ANKC	Analysis of Structures	Z,ZK	5
Analyses of statica	ally determinate and statically/deformable indeterminate structures, concerning live loads solution, stresses in thin-wall beams, analys	sis of walls and p	plates, matrix
	formulation of deformation method, principles of FEM, models for a beam on elastic foundation and stability of structures.		
132PRPE	Strength of Materials	Z,ZK	6
	, e theory of elasticity: stress and strain of straight beams subjected to bending and free torsion, ultimate plastic capacity of a member		ical loads and
	ths of straight compression members. Basic assumptions, quantities, and equations describing the stress and strain state in 3D conti	-	
132SM01	Structural Mechanics 1	Z,ZK	6
	force systems acting on rigid bodies in space/plane, moment of a force about a point and line. Supports of a rigid body, reaction force:	,	-
Concurrent lorces,		s. compound tw	0-uniterisional
40001100	structures. Trusses. Reaction forces applying the principle of virtual work.		
132SM02	Structural Mechanics 2	Z,ZK	6
	agrams of simple statically determinate plane structures and compound two-dimensional structures. Multiaxially loaded cantilever. De		al stress and
	positions of its distribution in a cross section. Equivalence of internal forces. Geometry of mass and areas, centre of gravity and mom	ents of inertia.	
132SM3	Structural Mechanics 3	Z,ZK	5
Deformation and for	rce method for the solution of reactions and internal forces on statically indeterminate beams, frames, and truss structures. Calculation	on of displaceme	ents of beams,
	frames, and truss structures using the principle of virtual works.		
132YNMI	Numerical Methods in Engineering Practice	Z	2
	sed on basic numerical methods for solving large sets of algebraic equations and boundary or initial value problems. In the context of c	_	
	difference and finite element methods are explained from the viewpoints of an engineering scientist and a mathematician.	amoronnar oquat	
133BK01		Z.ZK	6
	Concrete and Masonry Structures 1	,	-
-	used on the design of concrete elements and constructions of multi-storey buildings - it follows on from the subject Fundamentals of S	-	
	addition and generalization of procedures for verifying the load-bearing capacity of reinforced concrete structural elements for cases of	-	
of hiavial bendin	g and normal force, designing elements stressed by torsion, punching shear, assessment of slender compressed elements. Design p		
of blaxial benain			iscussed for
of blaxial behain	individual types of structures, including the choice of suitable calculation models and calculation methods and reinforcement prin		iscussed for
133BK02	individual types of structures, including the choice of suitable calculation models and calculation methods and reinforcement prin Concrete and Masonry Structures 2		iscussed for
133BK02	Concrete and Masonry Structures 2	ciples. Z,ZK	7
133BK02 This course builds of	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.	ciples. Z,ZK Masonry structur	7 res - subjected
133BK02 This course builds of to compression,	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.N bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta	ciples. Z,ZK Masonry structur ates: stress limit	7 res - subjected ation, crack
133BK02 This course builds of to compression, development and	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.N bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress	ciples. Z,ZK Masonry structur ates: stress limit sing, losses of p	res - subjected ation, crack ore-stressing,
133BK02 This course builds of to compression, development and technology 912. F	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13. bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-stress Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduction	ciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer	7 res - subjected ation, crack ore-stressing, ring structures
133BK02 This course builds of to compression, development and technology 912. F 133NNKB	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.M bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduct Fundamentals of Structural Design - Concrete	cciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK	7 res - subjected ation, crack ore-stressing, ring structures 4
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of th	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.M bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduct Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi	ciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ng the determina	7 res - subjected ation, crack ore-stressing, ring structures 4 ation of load
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of th effects. The pro	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13. In bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit stat crack width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-stress Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduce Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includie perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete a	ciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ng the determin: are discussed. D	7 res - subjected ation, crack ore-stressing, ring structures 4 ation of load Design and
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of th effects. The pro reinforcement of c	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.N bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduce Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceability	ciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ng the determin: are discussed. D lity limit states is	7 res - subjected ation, crack ore-stressing, ring structures 4 ation of load Design and s in the end of
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of th effects. The pro reinforcement of c this course. Th	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13. In bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit stat crack width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-stress Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduce Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includie perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete a	ciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ng the determin: are discussed. D lity limit states is	7 res - subjected ation, crack ore-stressing, ring structures 4 ation of load Design and s in the end of
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of th effects. The pro reinforcement of c	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.N bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduce Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceability	ciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ng the determin: are discussed. D lity limit states is	7 res - subjected ation, crack ore-stressing, ring structures 4 ation of load Design and s in the end of
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of th effects. The pro reinforcement of c this course. Th 133YMVB	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.N bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduct Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete a oncrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabil the course follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Materi Concrete and Masonry Structures 1	ciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ng the determina are discussed. E lity limit states is ials, Building Str Z	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and 5 in the end of uctures). 2
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of th effects. The pro reinforcement of c this course. Th 133YMVB The content of the	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13. N bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-stress Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduction Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete a oncrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabil ne course follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Materi	ctiples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ng the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinea	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and s in the end of ructures). 2 ar modeling of
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of th effects. The pro reinforcement of c this course. Th 133YMVB The content of the	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.N bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduce Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete e oncrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabil concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introduc	ctiples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ng the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinea	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and s in the end of ructures). 2 ar modeling of
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of th effects. The pro reinforcement of c this course. Th 133YMVB The content of the reinforced concr	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.N bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress re-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduce Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabil concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu ete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program	ction to nonlinea s for the design	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and s in the end of ructures). 2 ar modeling of of concrete
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro reinforcement of c this course. Th 133YMVB The content of the reinforced concr 133YPRK	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.N bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress re-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduce Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete a oncrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabil ne course follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Materi Concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu ete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures. Failures and Rehabilitation of Concrete Structures	ciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ng the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinea s for the design	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and s in the end of ructures). 2 ar modeling of of concrete 2
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro reinforcement of c this course. Th 133YMVB The content of the reinforced concr 133YPRK The course focuse	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.N bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress re-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduce Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete a concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabil Concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu ete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures. Failures and Rehabilitation of Concrete Structures as on the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial measure	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ng the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinea s for the design Z es. Methods of s	7 res - subjected ation, crack rre-stressing, ing structures 4 ation of load Design and atin the end of 'uctures). 2 ar modeling of of concrete 2 trengthening
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro reinforcement of c this course. Th 133YMVB The content of the reinforced concr 133YPRK The course focuse	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.N bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress re-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduction Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete and masonry Structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabili ne course follows the introductory subject of Civil Engineering program (Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu test structures. Failures and Rehabilitation of Concrete Structures so on the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial measure structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ng the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinea s for the design Z es. Methods of s	7 res - subjected ation, crack rre-stressing, ing structures 4 ation of load Design and atin the end of ructures). 2 ar modeling of of concrete 2 trengthening
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro reinforcement of c this course. Th 133YMVB The content of the reinforced concr 133YPRK The course focuse existing concrete	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.0 bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit st crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduc Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabil the course follows the introductory subject of Civil Engineering program (Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu ete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures. Failures and Rehabilitation of Concrete Structures as on the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial measure structures are also discussed. Surface repairs, strengthening of concators, strengthening of structural elements to the effects of benc foundation structures are discussed. The course appropriately combines theoretical approaches with common practice.	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ng the determina are discussed. C lity limit states is ials, Building Str Z ction to nonlinea s for the design Z es. Methods of s ding moment an	7 res - subjected ation, crack rre-stressing, ring structures 4 ation of load Design and s in the end of ructures). 2 ar modeling of of concrete 2 strengthening d shear, and
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro reinforcement of c this course. Th 133YMVB The content of the reinforced concr 133YPRK The course focus	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.N bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress re-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduction Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete and masonry Structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabili ne course follows the introductory subject of Civil Engineering program (Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu test structures. Failures and Rehabilitation of Concrete Structures so on the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial measure structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ng the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinea s for the design Z es. Methods of s	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and s in the end of ructures). 2 ar modeling of of concrete 2 strengthening
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro reinforcement of c this course. The 133YMVB The content of the reinforced concr 133YPRK The course focuss existing concrete 134NNKO	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.0 bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit st crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduc Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabil the course follows the introductory subject of Civil Engineering program (Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu ete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures. Failures and Rehabilitation of Concrete Structures as on the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial measure structures are also discussed. Surface repairs, strengthening of concators, strengthening of structural elements to the effects of benc foundation structures are discussed. The course appropriately combines theoretical approaches with common practice.	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ing the determina are discussed. C lity limit states is ials, Building Str Z ction to nonlinea s for the design Z es. Methods of s ding moment an Z,ZK	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and s in the end of ructures). 2 ar modeling of of concrete 2 atrengthening d shear, and 3
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro reinforcement of c this course. The 133YMVB The content of the reinforced concr 133YPRK The course focuss existing concrete 134NNKO	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.0 bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit st crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduc Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabil ne course follows the introductory subject of Civil Engineering program (Structureal Mechanics, Elasticity and Strength, Building Materi Concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu ete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures. Failures and Rehabilitation of Concrete Structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of bener foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. Design of Supporting StructuresI - Steel	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ing the determina are discussed. C lity limit states is ials, Building Str Z ction to nonlinea s for the design Z es. Methods of s ding moment an Z,ZK	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and s in the end of ructures). 2 ar modeling of of concrete 2 atrengthening d shear, and 3
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro reinforcement of c this course. The 133YMVB The content of the reinforced concr 133YPRK The course focuse existing concrete 134NNKO The basics of desig	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.N bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress re-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduc Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete a oncrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabil ne course follows the introductory subject of Civil Engineering program (Structures 1 Subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu tet structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of benc foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. Design of Supporting Structures I - Steel ning steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load to the specific properties of individual materials.	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ing the determina are discussed. C lity limit states is ials, Building Str Z ction to nonlinear s for the design Z es. Methods of s ding moment an Z,ZK effects, design d	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and s in the end of ructures). 2 ar modeling of of concrete 2 atrengthening d shear, and 3
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro reinforcement of c this course. The 133YMVB The content of the reinforced concr 133YPRK The course focuse existing concrete 134NNKO The basics of desig	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.1 bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit st crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stress Pre-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduc Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete accurse follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Mater Concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu te structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures. Failures and Rehabilitation of Concrete Structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structureal elements to the effects of bence to the specific properties of contretes and the design of remedial measure foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. Design of Supporting Structures - Steel ning steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load to the specific properties of individual materials. Steel and Timber Structures	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ing the determina are discussed. C lity limit states is ials, Building Str Z ction to nonlinear s for the design Z es. Methods of s ding moment an Z,ZK effects, design d	7 res - subjected ation, crack rre-stressing, ring structures 4 ation of load Design and s in the end of ructures). 2 ar modeling of of concrete 2 atrengthening d shear, and 3 ifferences due 5
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of th effects. The pro- reinforcement of c this course. Th 133YMVB The content of the reinforced concr 133YPRK The course focuse existing concrete 134NNKO The basics of design 134ODKM Steel structures -	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.0 bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit st crack width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-stress re-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduc	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ing the determina are discussed. C lity limit states is ials, Building Str Z ction to nonlinear s for the design Z es. Methods of s ding moment an Z,ZK effects, design d Z,ZK s of water engine	7 res - subjected ation, crack rre-stressing, ring structures 4 ation of load Design and s in the end of ructures). 2 ar modeling of of concrete 2 atrengthening d shear, and 3 ifferences due 5 eering - load,
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of th effects. The pro- reinforcement of c this course. The 133YMVB The content of the reinforced concr 133YPRK The course focuse existing concrete 134NNKO The basics of design 134ODKM Steel structures - protectio	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.0 bending, shear, reinforced masonry, strenghtening of masonry structures 46. Design of concrete structures to serviceability limit sta crack width limitation, deflections, application on waterproof structures 78.1ntroduction to pre-stressed concrete: design of pre-stress re-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduc	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK Ing the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinear s for the design Z es. Methods of s ding moment an Z,ZK effects, design d Z,ZK effects, design d	7 res - subjected ation, crack rre-stressing, ring structures 4 ation of load Design and s in the end of ructures). 2 ar modeling of of concrete 2 atrengthening d shear, and 3 ifferences due 5 eering - load, ges.
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of th effects. The pro- reinforcement of c this course. The reinforced concr 133YMVB The content of the reinforced concr 133YPRK The course focuse existing concrete 134NNKO The basics of design 134ODKM Steel structures - protectio 134YDUV	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.0 bending, shear, reinforced masonry, strenghtening of masonry structures 46. Design of concrete structures to serviceability limit stic reack width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-stress re-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduc Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete at oncrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabilit ne course follows the introductory subject of Civil Engineering program (Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu ete structures. Preparation of input data for numerical models. Design of concrete Structures and the design of remedial measure structures are also discussed. Strace repairs, strengthening of contactors, strengthening of structural elements to the effects of benefoundation structures are discussed. The course appropriately combines theoretical approaches with common practice. Design of Supporting Structures - Stelel ning steel, steel-concrete and wooden load-bearing structures cording to applicable standards, including the determination of load of to the specific properties of individual materials. Steel and Timber Structures pros and contras, material propertie, fabrication, connections, industrial steel buildings, cables, high strength steel, buildings in termin, utilization. Timbe	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK Ing the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinear s for the design Z es. Methods of s ding moment an Z,ZK effects, design d Z,ZK s of water engin- aber, timber bridg Z	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and s in the end of uctures). 2 ar modeling of of concrete 2 atrengthening d shear, and 3 ifferences due 5 eering - load, ges. 2
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of th effects. The pro- reinforcement of c this course. The reinforced concr 133YMVB The content of the reinforced concr 133YPRK The course focuse existing concrete 134NNKO The basics of design 134ODKM Steel structures - protectio 134YDUV	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13. bending, shear, reinforced masonry, strengthening of masonry structures 46. Design of concrete structures to serviceability limit st crack width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-stressed rec-east concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduc Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete is oncrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceability let be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu ete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of ben foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. Design of Supporting Structures I Steel pros and contrate, material properties, fabrication, connections, industrial steel buildings, cables, high strength steel, buildings in terms n, utilization. Timber - loading, material propertie, limit states methodology, design, conlection, bracings, protection of structural tim Timber and Sustainable Construction	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK Ing the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinear s for the design Z es. Methods of s ding moment an Z,ZK effects, design d Z,ZK s of water engin- aber, timber bridg Z	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and s in the end of uctures). 2 ar modeling of of concrete 2 atrengthening d shear, and 3 ifferences due 5 eering - load, ges. 2
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro- reinforcement of c this course. The 133YMVB The content of the reinforced concr 133YPRK The course focuse existing concrete 134NNKO The basics of design 134VDLW Introduction to su	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.0 bending, shear, reinforced masonry, strengthening of masonry structures 4 6. Design of concrete structures to serviceability limit st crack width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-stress re-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduct Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete on oncrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabilit e course follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Mater Concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu te structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of bener foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. Design of Supporting Structures is deplicable standards, including the determination of load to the specific properties of individual materials. Steel and Timber Structures reported and wooden load-bearing structures according to applicable standards, including the etermination of load to to the specific properties of individu	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK Ing the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinear s for the design Z es. Methods of s ding moment an Z,ZK effects, design d Z,ZK s of water engin- aber, timber bridg ures composed f	7 res - subjected ation, crack rre-stressing, ring structures 4 ation of load Design and in the end of uctures). 2 ar modeling of of concrete 2 trengthening d shear, and 3 ifferences due 5 eering - load, ges. 2 rom different
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of th effects. The pro- reinforcement of c this course. The reinforced concr 133YMVB The content of the reinforced concr 133YPRK The course focuse existing concrete 134NNKO The basics of design 134ODKM Steel structures - protectio 134YDUV	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13. bending, shear, reinforced masonry, strengthening of masonry structures 46. Design of concrete structures to serviceability limit st crack width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-stressed rec-east concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduc Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete is oncrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceability let be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu ete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of ben foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. Design of Supporting Structures I Steel pros and contrate, material properties, fabrication, connections, industrial steel buildings, cables, high strength steel, buildings in terms n, utilization. Timber - loading, material propertie, limit states methodology, design, conlection, bracings, protection of structural tim Timber and Sustainable Construction	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK Ing the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinear s for the design Z es. Methods of s ding moment an Z,ZK effects, design d Z,ZK s of water engin- aber, timber bridg Z	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and s in the end of uctures). 2 ar modeling of of concrete 2 trengthening d shear, and 3 ifferences due 5 eering - load, ges. 2
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro- reinforcement of c this course. Th 133YMVB The content of the reinforced concr 133YPRK The course focuse existing concrete 134NNKO The basics of design 134VDLV Introduction to su	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.0 bending, shear, reinforced masonry, strengthening of masonry structures 4 6. Design of concrete structures to serviceability limit st crack width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-stress re-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduct Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete on oncrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabilit e course follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Mater Concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu te structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of bener foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. Design of Supporting Structures is deplicable standards, including the determination of load to the specific properties of individual materials. Steel and Timber Structures reported and wooden load-bearing structures according to applicable standards, including the etermination of load to to the specific properties of individu	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ing the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinear s for the design Z es. Methods of s ding moment an Z,ZK effects, design d Z,ZK s of water enginn- aber, timber bride Z Ires composed f	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and in the end of uctures). 2 ar modeling of of concrete 2 trengthening d shear, and 3 ifferences due 5 eering - load, ges. 2 rom different 2
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro- reinforcement of c this course. Th 133YMVB The content of the reinforced concr 133YPRK The course focuse existing concrete 134NNKO The basics of design 134YDUV Introduction to su 134YNKS The course is inten	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.0 bending, shear, reinforced masonry, strengthening of masonry structures 4 6. Design of concrete structures to serviceability limit st crack width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-stres re-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduct Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete on oncrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceability ecourse follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Mater Concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu te structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures so on the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial measur: structures are also discussed. Surface repairs, strengthening of appropriately combines theoretical approaches with common practice. Design of Supporting Structures I - Steel ining steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load to the specific properties of individual materials. Steel and Timber Structures remeand contras, material properties, fabricat	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ing the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinear s for the design Z es. Methods of s ding moment an Z,ZK effects, design d Z,ZK s of water engine aber, timber bride Z res composed f Z ng of for basic gla	7 res - subjected ation, crack rre-stressing, ring structures 4 ation of load Design and in the end of uctures). 2 ar modeling of of concrete 2 atrengthening d shear, and 3 ifferences due 5 eering - load, ges. 2 rom different 2 ass structures:
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro- reinforcement of c this course. Th 133YMVB The content of the reinforced concr 133YPRK The course focuse existing concrete 134NNKO The basics of design 134YDUV Introduction to su 134YNKS The course is inten panes beams an	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 1-3.0 bending, shear, reinforced masonry, strenghtening of masonry structures 46. Design of concrete structures to serviceability limit st crack width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-stress re-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduc Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete incorcete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabil ne course follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Materi Concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu ete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of ben foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. Design of Supporting Structures I - Steel ning steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load to the specific properties of individual materials. Timber and Sustainable Construction stainable use of wood in construction with respect to previous courses	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ing the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinear s for the design Z es. Methods of s ding moment an Z,ZK effects, design d Z,ZK s of water enginu- nber, timber bride Z ures composed f Z ng of for basic glad d floors. On this	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and s in the end of uctures). 2 ar modeling of of concrete 2 strengthening d shear, and 3 ifferences due 5 eering - load, ges. 2 rom different 2 ass structures: purpose the
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro- reinforcement of c this course. The The content of the reinforced concr 133YPRK The course focuse existing concrete 134NNKO The basics of design 134QDKM Steel structures - protectio 134YDUV Introduction to su 134YNKS The course is inten panes beams an properties of glass	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 1-3.1 bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit stat re-cask width limitation, deflections, application on waterproof structures 7-8. Introduction to pre-stressed concrete: design of pre-stres re-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduc Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete necrets estructures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabil recourse follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Mater Concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu ete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of been foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. Design of Supporting Structures 1 Steel and Timber Structures pros and contras, material properties, fabrication, connections, industrial steel buildings, cables, high strength steel, buildings in term n, utilization. Timber - loadings, material properties of istructures and repairing of timber structures. Finder and Sustainable C	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK Ing the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinear s for the design Z es. Methods of s ding moment an Z,ZK effects, design d Z,ZK s of water engin- aber, timber bride Z ures composed f Z ng of for basic gla d floors. On this /glazing applicat	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and s in the end of uctures). 2 ar modeling of of concrete 2 atrengthening d shear, and 3 ifferences due 5 eering - load, ges. 2 rom different 2 ass structures purpose the ions. Design
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro- reinforcement of c this course. The 133YMVB The content of the reinforced concr 133YPRK The course focuse existing concrete 134NNKO The basics of design 134QDKM Steel structures - protectio 134YDUV Introduction to su 134YNKS The course is inten panes beams an properties of glass	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 1-3.1 bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit stat crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stres 're-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduc Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete, the properties of concrete reinforcement and its interaction with concrete on corcete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceability concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceability concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu te structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures. Failures and Rehabilitation of the causes of these failures and the design of remedial measure structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of bene foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. Design of Supporting Structures 1 steel and Timber Structures res of down, material properties, farengthening of structures to structure and easign of structural lements. Steel and Timber Structures (Design of Supporting Structures) stanable construction mining steel, steel-concrete and wooden load-bearing structures. Timber and Sustainable Construction s	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK Ing the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinear s for the design Z es. Methods of s ding moment an Z,ZK effects, design d Z,ZK s of water engin- aber, timber bride Z ures composed f Z ng of for basic gla d floors. On this /glazing applicat	7 res - subjected ation, crack re-stressing, ring structures 4 ation of load Design and s in the end of uctures). 2 ar modeling of of concrete 2 atrengthening d shear, and 3 ifferences due 5 eering - load, ges. 2 rom different 2 ass structures: purpose the ions. Design
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro- reinforcement of c this course. The 133YMVB The content of the reinforced concr 133YPRK The course focuse existing concrete 134NNKO The basics of design 134YDUV Introduction to su 134YNKS The course is inten panes beams an properties of glass details and connect	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.1 bending, shear, reinforced masonry, strengthening of masonry structures 16.1 Besign of concrete structures to serviceability limit stucrack width limitation, deflections, application on waterproof structures 78.1ntroduction to pre-stressed concrete: design of pre-stress re-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introductor to re-stressed concrete Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includit peries of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete a course follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Materi Concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu so on the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial measure structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of bener foundation structures are discussed. The course appropriately combines theoretical approaches with common practica. Design o	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ing the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinear s for the design Z es. Methods of s ding moment an Z,ZK effects, design d Z,ZK s of water enginu- aber, timber bride Z ures composed f Z ng of for basic glad d floors. On this /glazing applicat es will accompar	7 res - subjected ation, crack rre-stressing, ring structures 4 ation of load Design and s in the end of uctures). 2 ar modeling of of concrete 2 atrengthening d shear, and 3 ifferences due 5 eering - load, ges. 2 rom different 2 ass structures: purpose the ions. Design y the lectures
133BK02 This course builds of to compression, development and technology 912. F 133NNKB The content of the effects. The pro- reinforcement of c this course. The 133YMVB The content of the reinforced concr 133YPRK The course focuse existing concrete 134NNKO The basics of design 134YDUV Introduction to su 134YNKS The course is inten panes beams an properties of glass details and connect 134YTSK	Concrete and Masonry Structures 2 on the courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 1-3.1 bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit stat crack width limitation, deflections, application on waterproof structures 78.Introduction to pre-stressed concrete: design of pre-stres 're-cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introduc Fundamentals of Structural Design - Concrete e subject are the basics of load-bearing concrete, the properties of concrete reinforcement and its interaction with concrete on corcete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceability concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceability concrete and Masonry Structures 1 subject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu te structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures. Failures and Rehabilitation of the causes of these failures and the design of remedial measure structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of bene foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. Design of Supporting Structures 1 steel and Timber Structures res of down, material properties, farengthening of structures to structure and easign of structural lements. Steel and Timber Structures (Design of Supporting Structures) stanable construction mining steel, steel-concrete and wooden load-bearing structures. Timber and Sustainable Construction s	Inciples. Z,ZK Masonry structur ates: stress limit sing, losses of p ction to engineer Z,ZK ng the determina are discussed. D lity limit states is ials, Building Str Z ction to nonlinea s for the design Z es. Methods of s ding moment an Z,ZK effects, design d Z,ZK s of water enginn- aber, timber bride Z res composed f Z ng of for basic glad d floors. On this 'glazing applicat as will accompar	7 res - subjected ation, crack re-stressing, ing structures 4 ation of load Design and s in the end of uctures). 2 ar modeling of of concrete 2 trengthening d shear, and 3 ifferences due 5 eering - load, ges. 2 rom different 2 ass structures: purpose the ions. Design y the lectures 2

135GM01 Geomechanics 1	Z	3
The course focuses on the understanding of basic geological laws and principles in relation to architecture, civil engineering and urban planning. Emphase	•	
influence of geological processes, both endogenous and exogenous, on the rock environment and how the geological situation affects the design of struct		
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 in	ncludes a brief intr	oduction to
the regional geology of the Czech Republic.		
135GM2I Geomechanics 2I	Z,ZK	5
Formation of soils, basic properties of soils, water in soil, strength and deformation properties of soils and their determination, improvement of soil pro-	operties, application	on tasks
136DSUZ Transport Structures and Urban Planning	Z,ZK	7
The course 136DSUZ is composed of 3 issues, which build on each other and complement each other. These are the area of transport structures (roads a	and rail transport -	scope 3+1)
and the area of urban planning and spatial planning (scope 2+0). Unlike the road construction and railroad construction sections, the urban planning sec	tion does not end	with credit.
Transport Structures - Roads (R): Introduction to basic terminology in the part of roads, history. Road Act and related legislative and technical regulations	s, their impact on r	oad design.
Design categories of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, ear	thwork - dimensio	ns, shapes,
drainage. Urban roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design pri	inciples. Safety eq	uipment,
junctions and crossings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of s	ecurity, design and	d operation.
Tram transport - history, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principles	•	
Railway constructions - an introduction to the design and construction of a railway track in the conditions of the Czech Republic, the basic elements of the r	railway superstruct	ure. Spatial
Planning (SP): Teaching spatial planning and urban planning, spatial planning tools and procedures for their acquisition.		
141HYA Hydraulics	Z,ZK	5
A course deals with issues of hydrostatics and hydrodynamics with aiming at civil engineering applications. There are analysed tasks related to hydrosta	tic and hydrodyna	mic loading
of structures, pipeline flow, open channel flow and groundwater flow.		
142VIZP Water and Environmental Engineering	Z,ZK	4
During the teaching semester, students are introduced to the fields of water engineering, water management and environmental engineering. In particular	ar, emphasis is pla	iced on the
practical aspects of water and environmental engineering in close relation to other branches of civil engineering. The course is taught in the form of lecture	res and tutorials. T	he lectures
are divided thematically into 20 blocks according to the different branches of the discipline (13 times water engineering and 7 times environmental eng	gineering). In the e	xercises,
students work on basic problems in the field of hydrology, water supply and water structures, especially dams, hydropower and flood issues. All 4 "wate	er" departments of	K14x are
involved in teaching the course.		
154SG01 Land Surveying in Civil Engineering	Z,ZK	6
The shape and size of the Earth, substitutive surfaces, cartographic projections Horizontal and vertical control, coordinate calculations Quality control,	deviations and tole	erations in
build-up Angle and distance measurements Heighting measurements Other geodetic methods in build-up (GNSS, DPZ,) Photogrammetry and laser	scanning Themati	c mapping
and present state documentation Geodetic works in build-up State map series of CR and thematic maps for build-up Geographic information systems and	nd spatial planning	g Cadastre
of real estates Laws and decrees for geodesy and build-up in Czech Republic		
210BAPM Bachelor Project	-	
210DIMA Diagnostics of materials	Z	12
	Z,ZK	12 6
Review of tools for experimental investigation of material, thermal and moisture properties of basic building materials, destructive and nondestructive te	Z,ZK	6
	Z,ZK	6
Review of tools for experimental investigation of material, thermal and moisture properties of basic building materials, destructive and nondestructive to accredited tests.	Z,ZK ests of material pa	6
Review of tools for experimental investigation of material, thermal and moisture properties of basic building materials, destructive and nondestructive te	Z,ZK ests of material pa Z,ZK	6 rameters, 5
Review of tools for experimental investigation of material, thermal and moisture properties of basic building materials, destructive and nondestructive accredited tests. 210DIST Diagnostics of Buildings	Z,ZK ests of material pa Z,ZK cessing of results.	6 rameters, 5 Structures
Review of tools for experimental investigation of material, thermal and moisture properties of basic building materials, destructive and nondestructive to accredited tests. Diagnostics of Buildings Basics of experimental measurement and instrumentation of testing structures. Theory of experimental work, measurements, data exploatation and proceeding structures.	Z,ZK ests of material pa Z,ZK cessing of results. re and nondestruct	6 rameters, 5 Structures tive testing
Review of tools for experimental investigation of material, thermal and moisture properties of basic building materials, destructive and nondestructive to accredited tests. Diagnostics of Buildings Basics of experimental measurement and instrumentation of testing structures. Theory of experimental work, measurements, data exploatation and proceed and principal behavior of testing devices, tenzometers, inductive senzors etc. Static and dynamic loading testing of structures and their parts. Destructive	Z,ZK ests of material pa Z,ZK cessing of results. re and nondestruct of the building firm	6 rameters, 5 Structures tive testing s, phase of
Review of tools for experimental investigation of material, thermal and moisture properties of basic building materials, destructive and nondestructive to accredited tests. 210DIST Diagnostics of Buildings Basics of experimental measurement and instrumentation of testing structures. Theory of experimental work, measurements, data exploatation and proceed and principal behavior of testing devices, tenzometers, inductive senzors etc. Static and dynamic loading testing of structures and their parts. Destructive methods. Diagnostics of civil engineering structures. Excursion on site or on the building structure. Concept of management of quality, system of quality or the structure.	Z,ZK ests of material pa Z,ZK cessing of results. re and nondestruct of the building firm	6 rameters, 5 Structures tive testing s, phase of
Basics of experimental investigation of material, thermal and moisture properties of basic building materials, destructive and nondestructive to accredited tests. Diagnostics of Buildings Basics of experimental measurement and instrumentation of testing structures. Theory of experimental work, measurements, data exploatation and process and principal behavior of testing devices, tenzometers, inductive senzors etc. Static and dynamic loading testing of structures and their parts. Destructive methods. Diagnostics of civil engineering structures. Excursion on site or on the building structure. Concept of management of quality, system of quality or control of the quality of the projects, building process and finished structures. Acreditation process of the testing laboratories. Certification of the quality	Z,ZK ests of material pa Z,ZK cessing of results. re and nondestruct of the building firm	6 rameters, 5 Structures tive testing s, phase of
Basics of experimental investigation of material, thermal and moisture properties of basic building materials, destructive and nondestructive to accredited tests. Diagnostics of Buildings Basics of experimental measurement and instrumentation of testing structures. Theory of experimental work, measurements, data exploatation and process and principal behavior of testing devices, tenzometers, inductive senzors etc. Static and dynamic loading testing of structures and their parts. Destructive methods. Diagnostics of civil engineering structures. Excursion on site or on the building structure. Concept of management of quality, system of quality certification of products.	Z,ZK ests of material pa Z,ZK cessing of results. re and nondestruct of the building firm y systems of produ	6 rameters, 5 Structures ive testing s, phase of ction and

For updated information see <u>http://bilakniha.cvut.cz/en/FF.html</u> Generated: day 2025-07-09, time 23:38.