Study plan

Name of study plan: Stavební inženýrství, specializace Konstrukce a dopravní stavby

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

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:

	9.000					
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	s, ceramic, metals, natural polymers, wood, synthetic polymers on C and Si basis. Introduction to degradation of building mat	erials and to analy	/tical 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	processes, both endogenous and exogenous, on the rock environment and how the geological situation affects the design of s	tructures and thei	r 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

101MA02	Mathematics 2	Z,ZK	6
	yuka/bakalari/eng/ls/MT02/	2,211	0
· ·			
102FYI	Physics	Z,ZK	4
This is a basic physics	course for students of the study programmes Civil Engineering; Management and Economics in Construction. The course foc	uses on mechani	cs and basic
thermodynamics. The feature	ollowing areas are covered in the course: Mechanics of material points (particles) and deformable bodies. Discrete and contin	uous model of m	atter. Kinematics
and dynamics of a mate	erial 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	is course. Clasification of the materials. Structure of materials. Main properties of materials. Application of materials in buildin	g constructions. I	ntroduction to
material testing.			
126BIM1	BIM	Z	1
The course focuses on	teaching basic knowledge in the field of Building Information Management (BIM) in theoretical and practical areas, applicable	across different	specialisations
and disciplines of the co	onstruction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digit	ized documents,	raster and vector
graphics, open data sou	irces in the Czech Republic, ICT and enterprise systems, information systems for the construction industry, but also the context	t of BIM in the cur	rent construction
industry in relation to th	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	stering and understanding the basic principles of object-oriented parametric modelling.		
132SM02	Structural Mechanics 2	Z,ZK	6
Internal forces diagram	s of simple statically determinate plane structures and compound two-dimensional structures. Multiaxially loaded cantilever.	Definition of norma	al stress and
prepositions of its distri	bution 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	he Earth, substitutive surfaces, cartographic projections Horizontal and vertical control, coordinate calculations Quality contro	ol, deviations and	tolerations in
build-up Angle and dist	ance measurements Heighting measurements Other geodetic methods in build-up (GNSS, DPZ,) Photogrammetry and las	er scanning Ther	natic mapping
and present state docu	mentation Geodetic works in build-up State map series of CR and thematic maps for build-up Geographic information system	s and spatial plar	nning Cadastre
of real estates Laws an	d decrees for geodesy and build-up in Czech Republic		
L			

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 grou	ιμ.					
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 21 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 Šastný, 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	into 20 blocks according to the different branches of the discipline (13 times water engineering and 7 times environmental en	gineering). 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 (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	nženýrstv	ví, variant	a J, 4. ser	nestr
124PSI2 Bui	Iding Structures 2I			Z	,ZK	4
Staircases, sloping ramps, lift	shafts - requirements, structural and material solutions, basics of typology, design prine	ciples, construction	on details, ra	ailing. Buildir	ng foundation	s - foundation
conditions, types of foundation	ns, requirements, building plinth area (construction details). Basement - solution of bas	sement walls, req	uirements,	protection ag	gainst water, v	waterproofing
systems. Structural expansio	n joints in buildings - principles of joints design in bearing structures, thermal expansio	n, compensation	of difference	es in settler	nent, constru	ction details.
Roof truss systems.						
126EKMN Eco	phomics and Management			Z	,ZK	7
	rovide students with an introduction to economics and management in the constructior	n industry and to	familiarize t		· .	terms and
their practical applications. S	tudents will be prepared to solve basic construction-management problems in the cons	struction industry	. They will a	cquire basic	information a	about the
method of pricing construction	n works and master the basic methods of managing a construction company. Emphas	is is placed on u	nderstandin	g the princip	le of econom	ic thinking in
relation to the construction in	dustry.					
132SM3 Str	uctural Mechanics 3			Z	ZK	5
	d for the solution of reactions and internal forces on statically indeterminate beams, fra	ames, and truss :	structures. C	alculation o	, f displaceme	nts of beams,
frames, and truss structures	using the principle of virtual works.					
133NNKB Fur	ndamentals of Structural Design - Concrete			Z	,ZK	4
The content of the subject ar	e the basics of load-bearing concrete structures design and the design methodology a	ccording to valid	standards,	including the	, determinatio	on of load
effects. The properties of con	crete, the production and testing of concrete, the properties of concrete reinforcement	and its interaction	on with conc	rete are disc	cussed. Desig	n and
reinforcement of concrete str	uctures for basic types of loading (bending, shear, pressure) are the main part of this of	course. An introd	uction to se	viceability li	mit states is i	n the end of
this course. The course follow	vs the introductory subject of Civil Engineering program (Structural Mechanics, Elastic	ity and Strength,	Building Ma	terials, Build	ding Structure	es).
134NNKO Des	sign of Supporting StructuresI - Steel			Z	,ZK	3
	, steel-concrete and wooden load-bearing structures according to applicable standards	, including the de	etermination	of load effe	cts, design di	fferences due
to the specific properties of ir	ndividual materials.	-			-	
136DSUZ Tra	nsport Structures and Urban Planning			Z	ZK	7
	posed of 3 issues, which build on each other and complement each other. These are th	e area of transpo	ort structure	1	, ,	- scope 3+1)
	ng and spatial planning (scope 2+0). Unlike the road construction and railroad construct					• •
	(R): Introduction to basic terminology in the part of roads, history. Road Act and relate			-		
Design categories of roads a	nd motorways, design speed, directional and elevation design of routes, cross-section	al layout of roads	and motor	vays, earthv	/ork - dimens	ions, shapes,
	on and marking, definition of MK space, differences in design, operation and equipmer					
junctions and crossings. Trans	sport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railwa	y crossings from	the point of	view of secu	urity, design a	nd operation.
Tram transport - history, princ	ciples of tram track construction, interaction with the environment. Metro as a system o	f urban rail trans	port. Basic p	rinciples an	d parameters	, metro lines.
Railway constructions - an int	roduction to the design and construction of a railway track in the conditions of the Czecl	h Republic, the b	asic elemen	ts of the rail	way superstru	cture. Spatial
Planning (SP): Teaching spat	ial planning and urban planning, spatial planning tools and procedures for their acquis	ition.				
Name of the block	Compulsory courses in the program					

Name of the block: Compulsory courses in the program Minimal number of credits of the block: 89 The role of the block: P

The role of the block: P

Code of the group: BK202005

Name of the group: Stavební inženýrství, specializace Konstrukce a dopravní stavby, 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 5 courses Credits in the group: 30

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
132ANKC	Analysis of Structures Aleš Jíra, Dagmar Jandeková, Petr Konvalinka, Jan Zatloukal Petr Konvalinka Petr Konvalinka (Gar.)	Z,ZK	5	2P+2C	Z	Ρ
133BK01	Concrete and Masonry Structures 1 Martin Tipka, Jitka Vašková, Petr Bílý Petr Bílý (Gar.)	Z,ZK	6	3P+2C	Z	Р
134OK01	Steel Structures 1 Michal Jandera Michal Jandera Michal Jandera (Gar.)	Z,ZK	6	3P+2C	Z	Р
135ZS01	Foundations 1 Ji í Barták, Jan Masopust Jan Pruška Jan Kos (Gar.)	Z,ZK	7	3P+3C	Z	Р
136SS01	Road Structures 1 Ludvík Vébr, Petr Mondschein, Michal Uhlík Ludvík Vébr Ludvík Vébr (Gar.)	Z,ZK	6	3P+2C	Z	Р

Characteristics of the courses of this group of Study Plan: Code=BK202005 Name=Stavební inženýrství, specializace Konstrukce a dopravní stavby, 5.semestr

132ANKC	Analysis of Structures	Z,ZK	5					
Analyses of statically de	Analyses of statically determinate and statically/deformable indeterminate structures, concerning live loads solution, stresses in thin-wall beams, analysis of walls and plates, matrix							
formulation of deformation	ion 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 of	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 Design. The content							
of the course is the addi	tion 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 r	normal force, designing elements stressed by torsion, punching shear, assessment of slender compressed elements. Design	procedures are di	iscussed for					
individual types of struc	tures, including the choice of suitable calculation models and calculation methods and reinforcement principles.							
134OK01	Steel Structures 1	Z,ZK	6					
The course OK01 aims	to expand the knowledge acquired in the subject NNK and concerning design of basic steel structures. In the theoretical part a	are delivered poss	sibilities of global					
analysis of structures in	cluding classification from view of necessities of nonlinear analyses. Design of steel elements is widen for global analysis me	ethods, advanced	composite steel					
and concrete beams/co	lumns and cold-formed thin-walled elements. The main part of the subject deals with complex design of multi-storey steel bui	Idings and steel in	ndustrial halls.					
Final lectures concern la	arge-span structures, uniqueness in design of tall buildings, including effects of seismicity.							
135ZS01	Foundations 1	Z,ZK	7					
Introduction to the subje	ect, literature, design principles, geotechnical categories Strength and deformation characteristics of foundation soils, slab for	undations Limit sta	ates of flat					
foundations, calculation	of bearing capacity and settlement of flat foundations Deep foundations - typology, pile foundations, drilled and driven pile tea	chnology Axial cap	pacity of isolated					
piles, pile load tests De	termination of bearing capacity of transversely loaded piles, pile group Micropiles, anchors, technology Conventional and jet	grouting, undergro	ound walls					
Construction pits, techn	ology of shoring of construction pits Principles for the design and assessment of shoring structures, earth pressure, water effec	t Calculation of sh	oring structures,					
pressure dependent me	thods Dewatering of construction pits Protection of foundation structures against the effects of aggressive environments							
136SS01	Road Structures 1	Z,ZK	6					
Law about roads, protect	tion zones, components and accessories, use, drivability and passability. Introduction to traffic engineering, movement of an	individual vehicle	- basic dynamic					
characteristics. Traffic fle	ow and its characteristics, traffic intensity and its monitoring, communication capacity and traffic quality. Capacity of intersect	ons, level of servi	ce, theory of					
time gaps, negative effe	ects of traffic. Routing principles, area of interest, directional solution, directional curves - division, application, layout scheme	Height solution. I	ongitudinal,					
transverse and resultant	t slope. Tilting of the roadway - types, requirements, ascents and descents, tilting of the earth plain. Road objects. Technical and	d technical-econor	mic assessment,					
multi-criteria assessme	nt, earthwork, distribution of materials and materials. Roadway - design of rigid and non-rigid roadway construction, computati	onal assessment	and optimization					
of non-rigid roadway. Ur	ban roads - differences between urban roads and roads, space requirements - pedestrians, cyclists, disabled people - barrie	r-free adaptations	s. Traffic surveys					
- breakdown, types, pro	gress, prospective intensities, recalculation of intensities, special surveys. turntables, switches. Parking, traffic areas, contour	curves, traffic are	ea solutions					
including drainage. Traff	ic calming at urban roads - principle, methods, examples.							

Code of the group: BK202006

Name of the group: Stavební inženýrství, specializace Konstrukce a dopravní stavby, 6. 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 5 courses Credits in the group: 29

Note on the group:

	2					
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
132DY01	Dynamics of structures 1 Karel Pohl, Tomáš Krej í, Ji í Máca, Kristian D'Amico Ji í Máca Ji í Máca (Gar.)	Z,ZK	5	2P+2C	L	Ρ
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	Ρ
134DK01	Timber Structures 1 Petr Kuklík, Anna Kuklíková, Lukáš Velebil Anna Kuklíková Jakub Dolejš (Gar.)	Z,ZK	5	3P+1C	L	Ρ
136SS02	Road construction 2 Petr Mondschein Petr Mondschein (Gar.)	Z,ZK	5	2P+2C	L	Ρ
137ZE01	Railway Structures 1 Hana Krej i íková, Leoš Horní ek Leoš Horní ek Martin Lidmila (Gar.)	Z,ZK	7	4P+2C	L	Ρ

Characteristics of the courses of this group of Study Plan: Code=BK202006 Name=Stavební inženýrství, specializace Konstrukce a dopravní stavby, 6. semestr

132DY01	Dynamics of structures 1	Z,ZK	5				
Principles of theory of v	bration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Damped vibration. Methods of dyn	amic analysis of					
muti-degreee-of-freeedom systems.							
133BK02	Concrete and Masonry Structures 2	Z,ZK	7				
This course builds on th	e courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K.1	3.Masonry struc	tures - subjected				
to compression, bending, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit states: stress limitation, crack							
development and crack width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-stressing, losses of pre-stressing,							
technology 912. Pre-c	ast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Intr	oduction to engine	eering structures				
134DK01	Timber Structures 1	Z,ZK	5				
Introduction and preser	Introduction and presentation of timber structures use in building industry. Wood and wood-based materials properties. Safety of timber structures design, ultimate limit states, valid						
standards. Cross section design of simple members. Connections of timber structures. Glued joints. Basic structural systems. Fire design. Protection of timber structures.							
136SS02	Road construction 2	Z,ZK	5				
Design classification of roads and motorways, design speed, road horizontal alignment and level design, form of road and motorway cross sections, road earthwork - proportions,							
shapes and design, volume of earthworks, muss-haul diagram, road engineering structures, equipment of roads and motorways, crossroads and intersections. Urban roads, dissimilarities							
of urban road traffic and	of urban road traffic and construction, function classes and marking of urban road types, traffic place and street place, principles of traffic calming on urban roads.						

137ZE01 Railway Structures 1 Z,ZK 7 Vehicle and track, track construction and geometry, track spatial disposition, research and projection, project documentation, tracing and pegging out of a railway track, railway construction, sub-ballast layers, earth solid and trackbed construction, defect and stability increment of substructure, requirements for soil bearing capacity and soil consolidation, substructure drainage, railway artificial structures. 7

Code of the group: BK202007

Name of the group: Stavební inženýrství, specializace Konstrukce a dopravní stavby, 7. semestr Requirement credits in the group: In this group you have to gain at least 20 credits Requirement courses in the group: In this group you have to complete at least 5 courses Credits in the group: 20

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
132PRPM	Deformation and Failure of Materials Milan Jirásek, Petr Havlásek, Lenka Dohnalová Milan Jirásek Milan Jirásek (Gar.)	Z,ZK	5	2P+2C	z	Р
133BM1K	Concrete Bridges 1 Michal Drahorád Michal Drahorád Michal Drahorád (Gar.)	Z,ZK	6	3P+3C	Z	Р
134OM1K	Steel Bridges 1 Pavel Ryjá ek Pavel Ryjá ek (Gar.)	Z,ZK	4	3P+1C	Z	Р
135PZMH	Rock mechanics and underground structures Matouš Hilar, Alexandr Butovi Matouš Hilar Jan Pruška (Gar.)	Z,ZK	5	3P+2C	Z	Р
1000DPR	Industrial Training (3 weeks) Jan R ži ka, Petr Hájek, Kate ina Sojková Michal Jandera Michal Jandera (Gar.)	Z	0	6C	Z,L	Р

Characteristics of the courses of this group of Study Plan: Code=BK202007 Name=Stavební inženýrství, specializace Konstrukce a dopravní stavby, 7. semestr

132PRPM	Deformation and Failure of Materials	Z,ZK	5
Viscoelasticity, models	for concrete creep. Theory of plasticity, principles of limit and incremental analysis. Fracture mechanics. Damage mechanics.		
133BM1K	Concrete Bridges 1	Z,ZK	6
	is an introduction into principles of design of concrete ans masonry bridges. The course involves also corresponding problems up to design of various types of concrete bridge structures and technology of their construction.	s from terminology	, arrangement
1340M1K	Steel Bridges 1	Z,ZK	4
This course includes b	asic problems of design of steel and composite steel - concrete road and railway bridges		
135PZMH	Rock mechanics and underground structures	Z,ZK	5
Geotechnical investiga	tion, basic conceptions of rock classification and properties evaluation, laboratory and field testing, elements of calculations in	rock mechanics a	nd underground
construction, tunnelling	g methods (NATM, drill and blast, tunnel boring machines, cut and cover structures), grouting, waterproofing		
100ODPR	Industrial Training (3 weeks)	Z	0
Professional practice i	s an important part of academic education in undergraduate degree programmes. The student will gain a basic understanding	of duties and prof	essional
responsibilities. The pr	ofessional practice evaluates the sum of all knowledge acquired through previous theoretical studies and is a proof of their ac	quisition.	

Code of the group: BK202008

Name of the group: Stavební inženýrství, specializace Konstrukce a dopravní stavby, 8. semestr Requirement credits in the group: In this group you have to gain at least 10 credits Requirement courses in the group: In this group you have to complete at least 2 courses Credits in the group: 10

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
122TDOS	Technology of Traffic Buildings Pavel Svoboda, Jaroslav Synek Jaroslav Synek (Gar.)	ZK	4	2P	Z	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

Characteristics of the courses of this group of Study Plan: Code=BK202008 Name=Stavební inženýrství, specializace Konstrukce a dopravní stavby, 8. semestr

 122TDOS
 Technology of Traffic Buildings
 ZK
 4

 The subject deals with the issue of construction progress and mechanization of processes on engineering infrastructure construction sites. Students will become familiar with the issue of construction production preparation from the contractor's point of view, focused on the decisive processes of preparation and production management. Quality management principles. It introduces the principles of comprehensive management of preparatory and implementation processes, the organization of construction works and the use of work management principles. It illuminates the principles of construction processes and the use of construction machinery and mechanization for the realization of reinforced concrete monolithic constructions, earthworks, logistics for construction works and other necessary procedures. It deals with auxiliary constructions necessary for building construction, modern methods of controlling construction machines, digital procedures used for effective preparation and implementation.

Overview of selected concents. Methods to support project management	
evention of colocica concepte, methods to support project management	gal standards, SN and ISO standards. The essential aspects of Project Management. Construction
project product. Objectives, strategies, phases and surroundings of the c	truction project. Project manager role. Purchases and contracts in the project. Quality managemen
management. Financial management and project evaluation. Feasibility	y. Cost and resource management. Change procedures. The Act on Spatial Planning and Building
Regulations, the Act on the Awarding of Public Contracts, and the definit	of terms. Business obligation relationships, the conclusion of contracts, their form, and use of gene
business conditions. Business public competition, its influence on the ob	ions of participants. Securing the commitment - contractual penalty, guarantee. The main contract
in construction - are contract for the conclusion of a future contract, purc	e contract, contract for work, and content of the contract.

Name of the block: Compulsory elective courses Minimal number of credits of the block: 8 The role of the block: PV

Code of the group: BK202008_1

Name of the group: Stavební inženýrství, specializace Konstrukce a dopravní stavby, povinn volitelné Requirement credits in the group: In this group you have to gain at least 8 credits Requirement courses in the group: In this group you have to complete at least 4 courses Credits in the group: 8

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
123YTVM	Production technology of building materials Eva Vejmelková, Dana Ko áková, Vojt ch Pommer, Martin Böhm Eva Vejmelková Eva Vejmelková (Gar.)	Z	2	1P+1C	Z	PV
132YMMO	Modern Methods of Optimization Mat j Lepš, Jan Zeman Mat j Lepš Mat j Lepš (Gar.)	Z	2	1P+1C	Z	PV
132YPM1	Computer Analysis of Structures 1 Petr Fajman Petr Fajman Petr Fajman (Gar.)	Z	2	1P+1C	L	PV
132YPV1	Programming in C++ for Engineering Calculations 1 Tomáš Koudelka, Anna Ku erová, Stanislav Šulc Tomáš Koudelka Anna Ku erová (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
133YTB	Technology of Concrete II Josef Fládr Josef Fládr Josef Fládr (Gar.)	Z	2	1P+1C	Z	PV
134YMOD	Numerical Modeling of Steel and Timber Structures Karel Mikeš Karel Mikeš Karel Mikeš (Gar.)	Z	2	1P+1C	Z	PV
134YPNK	Fire Resistance of Steel and Timber Structures Zden k Sokol Zden k Sokol Zden k Sokol (Gar.)	Z	2	1P+1C	Z	PV
135YVZK	Computer analysis in foundation engineering Jan Salák, Alena Zemanová, Jan Ježek, Jan Pruška, Daniel Turanský, Jan Salášek Daniel Jirásko Daniel Jirásko (Gar.)	Z	2	1P+1C	Z	PV
136YSKL	Airports Petr Mondschein, Petr Pánek Petr Pánek Petr Mondschein (Gar.)	Z	2	1P+1C	Z	PV
123YNTP	Numerical Analysis of Transport Processes Ji í Mad ra, Václav Ko í Ji í Mad ra Ji í Mad ra (Gar.)	Z	2	1P+1C	Z	PV
126YVSF	Small Business Management Jana Frková, Olga Heralová Eduard Hromada Eduard Hromada (Gar.)	Z	2	1P+1C	Z,L	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
132YDSK	Diagnostics of Building Structures Michal Polák Michal Polák Michal Polák (Gar.)	Z	2	1P+1C	L	PV
132YMCK	Micromechanics of Cement-Based Composites Vít Šmilauer Vít Šmilauer (Gar.)	Z	2	1P+1C	L	PV
132YPM2	Computer Analysis of Structures 2 Ji í Máca, Petr Fajman Ji í Máca Petr Fajman (Gar.)	Z	2	1P+1C	L	PV
132YSHK	Statics and Reconstruction of Historical Structures Petr Fajman Petr Fajman Petr Fajman (Gar.)	Z	2	1P+1C	L	PV
133YBKP	Computer design of concrete structures Michal Drahorád Michal Drahorád Michal Drahorád (Gar.)	Z	2	2C	Z,L	PV
133YBSV	Concretes with Special Properties Michal Števula Michal Števula (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
133YPNB	Fire desgn og concrete and mnsory structures Radek Štefan, Martin Benýšek Radek Štefan Radek Štefan (Gar.)	Z	2	1P+1C	L	PV
133YTBM	Technology of Construction and Reconstructions of Bridge Structures Marek Foglar Marek Foglar (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
134YNKS	Glass Structures Martina Eliášová Martina Eliášová Martina Eliášová (Gar.)	Z	2	1P+1C	L	PV
134YOM2	Steel Bridges 2 Vojt ch Stan ík Vojt ch Stan ík Pavel Ryjá ek (Gar.)	Z	2	1P+1C	L	PV
134YTSK	Thin-Walled and Composite Structures Michal Jandera Michal Jandera (Gar.)	Z	2	1P+1C	L	PV
135YING	Engineering geology Svatoslav Chamra, Milan Aue Kate ina Ková ová Milan Aue (Gar.)	Z	2	1P+1C	L	PV
135YVPZ	Computer analysis in underground structures Jan Ježek, Matouš Hilar, Jan Pruška, Daniel Turanský Jan Pruška Jan Pruška (Gar.)	Z	2	1P+1C	L	PV
136YBD1	BIM for Transport Infrastructure and Building Structures Petr Pánek	Z	4	1P+3C		PV
136YMKO	Urban Roads Michal Uhlík Michal Uhlík Michal Uhlík (Gar.)	Z	2	1P+1C	L	PV
136YSSO	Road Software Jakub Veselý, Ji í erný Jakub Veselý Petr Pánek (Gar.)	Z	2	1P+1C	L	PV
137YKZE	Construction of Railway Structure Leoš Horní ek, Petr B eš ovský Lenka Lomoz Leoš Horní ek (Gar.)	Z	2	1P+1C	L	PV
137YMKK	City Rail Transport Hana Krej i íková Lenka Lomoz Martin Lidmila (Gar.)	Z	2	1P+1C	Z	PV
137YVTK	High Speed Tracks Hana Krej i íková Lenka Lomoz Hana Krej i íková (Gar.)	Z	2	1P+1C	L	PV

Characteristics of the courses of this group of Study Plan: Code=BK202008_1 Name=Stavební inženýrství, specializace Konstrukce a dopravní stavby, povinn volitelné

123YTVM	Production technology of building materials	Z	2
-	Is, different types of the production technology, energy consumption of the production, storage and transport, safety at work.		2
132YMMO	Modern Methods of Optimization	Z	2
	t an overview of numerical optimization methods applicable not only in the Civil Engineering area. The emphasis is put more on	. –	—
	blications in MATLAB environment are also conducted during exercises.		inving principic
132YPM1	Computer Analysis of Structures 1	Z	2
-	cture. Computer codes RFEM-Dlubal, SCIA Engineer.	-	-
132YPV1	Programming in C++ for Engineering Calculations 1	Z	2
	ogramming, non-objective primer of the language, basic algorithms used in the engineering computing.	-	-
133YPRK	Failures and Rehabilitation of Concrete Structures	Z	2
	n the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial me		_
	ctures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of		
•	are discussed. The course appropriately combines theoretical approaches with common practice.	0	,
133YTB	Technology of Concrete II	Z	2
Basic properties of th	concrete components and their influence on the concrete properties are presented. Furthermore, destructive and non-dest	ructive testing meth	ods for concre
and reinforced concre	te elements are introduced. The last chapters of the lectures are devoted to the real applications of concrete structures. The the	heoretical lectures a	re accompani
y exercises, where t	ne students have the unique opportunity to try out the acquired knowledge in laboratory, including special tests.		
134YMOD	Numerical Modeling of Steel and Timber Structures	Z	2
Subject familiarize stu	dents with the basis of modelling od steel and timber structures. Students manage basis of simulation during the creation of	static model of the	structure as w
as the global analysis	and check with respect to European design codes.		
134YPNK	Fire Resistance of Steel and Timber Structures	Z	2
The class gives introc	uction to fire safety and fire resistance of steel, steel-concrete composite and timber structural elements.	I	
135YVZK	Computer analysis in foundation engineering	Z	2
Numerical methods ir	CAD/CAM in geomechanics. Basic types of constitutive models of soil and rock mass behavior. Summary of PC geotechnic	al software both in t	
conventional methods	and in numerical modelling domain. Practical solutions of selected geotechnical problems.		
136YSKL	Airports	Z	2
	personic air transport Division of aircraft, LPJ, LPH, Legislation selected terms and definitions from the field of airports Aircra	aft movement, take-	off and landing
History of aviation, su	personic air transport Division of aircraft, LPJ, LPH, Legislation selected terms and definitions from the field of airports Aircra ay length Aircraft parameters affecting airport design, Code marking, track system location and arrangement, Capacity issue		
History of aviation, su determination of runw		of airports, flight ar	eas, influence
History of aviation, su determination of runw air traffic on railways	ay length Aircraft parameters affecting airport design, Code marking, track system location and arrangement, Capacity issue	of airports, flight ar	eas, influence
History of aviation, su determination of runw air traffic on railways or use in non-bonded	ay length Aircraft parameters affecting airport design, Code marking, track system location and arrangement, Capacity issue History of road construction Soils, road construction design based on subsoil quality Aggregate, non-bonded mixtures, asses	of airports, flight ar	eas, influence
distory of aviation, su letermination of runw air traffic on railways or use in non-bonded 123YNTP	ay length Aircraft parameters affecting airport design, Code marking, track system location and arrangement, Capacity issue History of road construction Soils, road construction design based on subsoil quality Aggregate, non-bonded mixtures, asses I layers, laying technology Hydraulically cemented mixtures and aggregates Asphalt materials	of airports, flight ar ssment of the suitab	eas, influence lity of materia 2
distory of aviation, su determination of runw air traffic on railways or use in non-bonded 123YNTP Assessment of hygrof Classification of mathe	ay length Aircraft parameters affecting airport design, Code marking, track system location and arrangement, Capacity issue distory of road construction Soils, road construction design based on subsoil quality Aggregate, non-bonded mixtures, asses layers, laying technology Hydraulically cemented mixtures and aggregates Asphalt materials Numerical Analysis of Transport Processes hermal conditions in civil engineering problems. Basic description of porous space. Description of transport processes (heat ematical models (diffusion-, convection- and mixed type). Computational models for solution of transport problems in porous space	of airports, flight ar ssment of the suitab Z and moisture) in po ace basic description	eas, influence lity of materia 2 rous materials and applicatio
History of aviation, su determination of runw air traffic on railways or use in non-bonded 123YNTP Assessment of hygro Classification of mathe ntroduction to structu	ay length Aircraft parameters affecting airport design, Code marking, track system location and arrangement, Capacity issue distory of road construction Soils, road construction design based on subsoil quality Aggregate, non-bonded mixtures, asses layers, laying technology Hydraulically cemented mixtures and aggregates Asphalt materials Numerical Analysis of Transport Processes hermal conditions in civil engineering problems. Basic description of porous space. Description of transport processes (heat ematical models (diffusion-, convection- and mixed type). Computational models for solution of transport problems in porous space re and composition of computer codes WUFI and HEMOT, solution of simple transport problems (heat and moisture). Initial a	of airports, flight ar ssment of the suitab Z and moisture) in po ace basic description	eas, influence lity of materia 2 rous materials and applicatio
distory of aviation, su determination of runw air traffic on railways or use in non-bonded 123YNTP Assessment of hygro Classification of mathe ntroduction to structu	ay length Aircraft parameters affecting airport design, Code marking, track system location and arrangement, Capacity issue distory of road construction Soils, road construction design based on subsoil quality Aggregate, non-bonded mixtures, asses layers, laying technology Hydraulically cemented mixtures and aggregates Asphalt materials Numerical Analysis of Transport Processes hermal conditions in civil engineering problems. Basic description of porous space. Description of transport processes (heat ematical models (diffusion-, convection- and mixed type). Computational models for solution of transport problems in porous space	of airports, flight ar ssment of the suitab Z and moisture) in po ace basic description	eas, influence lity of materia 2 rous materials and applicatio
History of aviation, su determination of runw air traffic on railways or use in non-bonded 123YNTP Assessment of hygroi Classification of math- ntroduction to structu significance and impa 126YVSF	ay length Aircraft parameters affecting airport design, Code marking, track system location and arrangement, Capacity issue distory of road construction Soils, road construction design based on subsoil quality Aggregate, non-bonded mixtures, asses layers, laying technology Hydraulically cemented mixtures and aggregates Asphalt materials Numerical Analysis of Transport Processes hermal conditions in civil engineering problems. Basic description of porous space. Description of transport processes (heat ematical models (diffusion-, convection- and mixed type). Computational models for solution of transport problems in porous space re and composition of computer codes WUFI and HEMOT, solution of simple transport problems (heat and moisture). Initial act to analysis of transport problems. Small Business Management	e of airports, flight ar ssment of the suitab Z and moisture) in po ace basic descriptior and boundary condi	eas, influence lity of material rous materials and application tions principle 2
History of aviation, su determination of runw air traffic on railways or use in non-bonded 123YNTP Assessment of hygroi Classification of mathe ntroduction to structu significance and impa 126YVSF The subject is divided	ay length Aircraft parameters affecting airport design, Code marking, track system location and arrangement, Capacity issue distory of road construction Soils, road construction design based on subsoil quality Aggregate, non-bonded mixtures, asses layers, laying technology Hydraulically cemented mixtures and aggregates Asphalt materials Numerical Analysis of Transport Processes hermal conditions in civil engineering problems. Basic description of porous space. Description of transport processes (heat ematical models (diffusion-, convection- and mixed type). Computational models for solution of transport problems in porous space re and composition of computer codes WUFI and HEMOT, solution of simple transport problems (heat and moisture). Initial act to analysis of transport problems. Small Business Management into lectures 1 hour per week and exercises 1 hour per week. Lectures take place according to the course outline listed below	e of airports, flight ar ssment of the suitab Z and moisture) in po ace basic descriptior and boundary condi Z w. In the exercise, s	eas, influence lity of material 2 rous materials and application tions principle 2 tudents prepa
History of aviation, su determination of runw air traffic on railways or use in non-bonded 123YNTP Assessment of hygroi Classification of mathe ntroduction to structu significance and impa 126YVSF The subject is divided heir own business pla	ay length Aircraft parameters affecting airport design, Code marking, track system location and arrangement, Capacity issue distory of road construction Soils, road construction design based on subsoil quality Aggregate, non-bonded mixtures, asses layers, laying technology Hydraulically cemented mixtures and aggregates Asphalt materials Numerical Analysis of Transport Processes hermal conditions in civil engineering problems. Basic description of porous space. Description of transport processes (heat ematical models (diffusion-, convection- and mixed type). Computational models for solution of transport problems in porous space re and composition of computer codes WUFI and HEMOT, solution of simple transport problems (heat and moisture). Initial a ct to analysis of transport problems. Small Business Management into lectures 1 hour per week and exercises 1 hour per week. Lectures take place according to the course outline listed belo an for a selected business activity according to the specified syllabus. They draw up a plan for a start-up business. Entreprene	e of airports, flight ar ssment of the suitab Z and moisture) in po ace basic descriptior and boundary condi Z w. In the exercise, s eurship can take the	eas, influence lity of material 2 rous materials and application tions principle 2 tudents prepa form of both:
History of aviation, su determination of runw air traffic on railways or use in non-bonded 123YNTP Assessment of hygroi Classification of mathe ntroduction to structu significance and impa 126YVSF The subject is divided heir own business plas self-employed person	ay length Aircraft parameters affecting airport design, Code marking, track system location and arrangement, Capacity issue distory of road construction Soils, road construction design based on subsoil quality Aggregate, non-bonded mixtures, asses layers, laying technology Hydraulically cemented mixtures and aggregates Asphalt materials Numerical Analysis of Transport Processes hermal conditions in civil engineering problems. Basic description of porous space. Description of transport processes (heat ematical models (diffusion-, convection- and mixed type). Computational models for solution of transport problems in porous space re and composition of computer codes WUFI and HEMOT, solution of simple transport problems (heat and moisture). Initial act to analysis of transport problems. Small Business Management into lectures 1 hour per week and exercises 1 hour per week. Lectures take place according to the course outline listed below	e of airports, flight ar ssment of the suitab Z and moisture) in po ace basic descriptior and boundary condi Z w. In the exercise, s eurship can take the	eas, influence lity of material rous materials and application tions principle 2 tudents prepa
History of aviation, su determination of runw air traffic on railways or use in non-bonded 123YNTP Assessment of hygro Classification of mathe ntroduction to structu- significance and impa 126YVSF The subject is divided heir own business plase fermployed person auditorium.	ay length Aircraft parameters affecting airport design, Code marking, track system location and arrangement, Capacity issue distory of road construction Soils, road construction design based on subsoil quality Aggregate, non-bonded mixtures, asses layers, laying technology Hydraulically cemented mixtures and aggregates Asphalt materials Numerical Analysis of Transport Processes hermal conditions in civil engineering problems. Basic description of porous space. Description of transport processes (heat ematical models (diffusion-, convection- and mixed type). Computational models for solution of transport problems in porous space re and composition of computer codes WUFI and HEMOT, solution of simple transport problems (heat and moisture). Initial a ct to analysis of transport problems. Small Business Management into lectures 1 hour per week and exercises 1 hour per week. Lectures take place according to the course outline listed belo an for a selected business activity according to the specified syllabus. They draw up a plan for a start-up business. Entrepren- and a legal entity, e.g. Ltd. The financial plan is prepared in Excel, and the credit condition is the presentation of the business	e of airports, flight ar assment of the suitab Z and moisture) in po ace basic descriptior and boundary condi Z bow. In the exercise, s eurship can take the s plan in power poir	eas, influence lity of material 2 rous materials and application tions principle 2 tudents prepa e form of both: it in front of th
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132YMCK Micromechanics of Cement-Based Composites	Z	2
Cement composites form the basis of today's civilization and construction industry; traditional concrete is now the most produced material in the w	-	-
over 1 m3 / person / year. The properties of these composites can be changed in a wide range according to needs - compressive strength up to 80 to environmental influences or the formation of cracks. The subject presents a multi-scale description of these cement composites, from the atomi		
It includes an overview of experimental methods used to identify properties, analytical and numerical methods for modeling hydration, heat transfer,		-
different levels of resolution. The subject is supplemented by a whole range of engineering applications on which these methods have been success		-
of massive concrete structures (arches with cooling, foundation blocks, guide faces of dams), cement concrete highway covers with extended durabilit		-
of Portland cement with calcium sulphide binders, innovative crack-resistant materials, alkali-activated fly ash. Most of the used numerical models		-
open-source software OOFEM, which you can freely use, for example, for your prediction of temperatures during hydration, stress and crack analy	sis including the inf	fluence of
reinforcement and boundary conditions.		
132YPM2 Computer Analysis of Structures 2	Z	2
Limit state of frames. Stability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structu	ures. Dynamic analy	sis of structures.
Verification of results.		
132YSHK Statics and Reconstruction of Historical Structures	Z	2
Short overview of historical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in for	oundation conditions	s included. Most
frequent causes of failure of panel buildings. Visit to the historical part of Prague Castle.		
133YBKP Computer design of concrete structures	Z	2
The subject is focused on practical application of computer aided design of structures in the field of concrete structures.		
133YBSV Concretes with Special Properties	Z	2
High-strength concrete, fibre concrete, self-compacting concrete, shotcrete and fibreconcretes, lightweight concrete, heavyweight concrete; their pr	operties and applica	ations in practice.
New findings in technology.		
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. Ir		-
reinforced concrete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected progr	ams for the design	of concrete
structures.		
133YPNB Fire desgn og concrete and mnsory structures	Z	2
The course is focused on fire resistance of concrete and masonry structures: concrete and concrete structures exposed to fire, design rules, therm	ial analysis, loads, c	lesign principles,
design methods, material properties of concrete and steel reinforcement at high temperatures, fire design of masonry structures.		-
133YTBM Technology of Construction and Reconstructions of Bridge Structures	Z	2
Technology of construction and reconstructions of concrete bridge structures - substructure and foundations, superstructures. Basis of design and	-	
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 st	ructures composed	from different
materials. Principles of strengthening and repairing of timber structures.		
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 or panes beams and fins, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs	-	-
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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:

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

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

TV2 Physical Education Z 0	TV1	Physical Education	Z	0
	TV2	Physical Education	Z	0

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 1

The role of the block: S

Code of the group: BK202006_1

Name of the group: Stavební inženýrství, specializace Konstrukce a dopravní stavby, 6. semestr, výuka v terénu

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
136YSVT	Field Work - Road Construction Petr Mondschein, Petr Pánek Petr Pánek Petr Mondschein (Gar.)	KZ	1	2C	L	S
137YZVT	Field training - Railway structures (1 week) Ond ej Bret, Michal Petýrek Lenka Lomoz Leoš Horní ek (Gar.)	KZ	1	2C	L	S

Characteristics of the courses of this group of Study Plan: Code=BK202006_1 Name=Stavební inženýrství, specializace Konstrukce a dopravní stavby, 6. semestr, výuka v terénu

 136YSVT
 Field Work - Road Construction
 KZ
 1

 Planimetric and hypsometric sight existing communication (polygonal traverse, sight cross section), design reconstruction, graphical part (situation, longitudinal profile, typical cross-section).Choice traffic- engineering inquiry.
 137YZVT
 Field training - Railway structures (1 week)
 KZ
 1

 The subject is focused on the practical acquisition of skills in the field of passporting of the railway line, basic geodetic work (polygon plan, alignment of cross-sections and longitudinal profile, laying out the transition curve) and the processing of related calculation and drawing documentation. Part of the teaching is the performance of a static and impact load test and the measurement of the parameters of the structural arrangement of the track in the curve and in the turnout. The education takes place in the form of a five-day course on a real railway track. Students work in teams.

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.)		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) 7

Ζ

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 voliteIný 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 compulsion	ory English cours	e is to enhance
the knowledge of lexis a	nd grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall fo	cus is on professi	ional language
(i.e., ESP - technical sty	le) and communicative competence within the construction industry. The course also seeks to teach students to read technic	cal literature and t	to be able to
produce essential writte	n discourse and to express themselves in writing on issues in their field of study. The end of course requirements are a credi	t and an examina	tion. 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 inc	dustry, understand	ding professional
texts, and learning the r	necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Li	terature: A.Hanák	ková, J.Dressel:
Deutsch im Bauwesen			

Name of the block: Povinn volitelné p edm ty, doporu ení S1 Minimal number of credits of the block: 17 The role of the block: S1

Code of the group: BK20200700_1 Name of the group: Stavební inženýrství, specializace Konstrukce a dopravní stavby, projekty K, 7. semestr Requirement credits in the group: In this group you have to gain 5 credits Requirement courses in the group: In this group you have to complete at least 1 course Credits in the group: 5 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
132YKPJ	Project Design K Michal Polák, Mat j Lepš, Tomáš Koudelka, Tomáš Plachý, Pavel Tesárek, Aleš Jíra, Petr Kabele, Michal Šejnoha, Milan Jirásek, Aleš Jíra Jan Pruška (Gar.)	κz	5	4C	Z	S1
133YKPJ	Project Design K Lukáš Vráblík Lukáš Vráblík (Gar.)	KZ	5	4C	Z	S1
134YKPJ	Project Design K Jakub Dolejš	KZ	5	4C	Z	S1

Characteristics of the courses of this group of Study Plan: Code=BK20200700_1 Name=Stavební inženýrství, specializace Konstrukce a dopravní stavby, projekty K, 7. semestr

132YKPJ	Project Design K	KZ	5
Students develop indivi	dual projects under supervision of teachers from the Department of Mechanics. Project topics are presented at the departme	nt website. Stude	nts may propose
own topics - in this case	e, suitability of the topic and feasibility of the project will be evaluated by the project supervisor.		
133YKPJ	Project Design K	KZ	5
The content of the subj	et is the basic conceptual design of an engineering structure (bridge, underground structure, chimney, cooling tower, atypica	al building structur	e). The effort is
to focus the student's w	ork on the conceptual design of the loadbearing structure, variant solutions, including their preliminary analysis and subsequ	ent selection of th	ne final variant.
The output of the desig	n project is also a brief research study of literature dealing with the given studied issue. The tuition is in the form of consultati	ons with the leadi	ng teacher.
134YKPJ	Project Design K	KZ	5
Design of a steel or tim	ber structure by a team of three students. In the first phase each student prepares alternative solution, followed by a choice of	of the optimum de	sign by the all
team. In the second ph	ase the team deals jointly with: final layout, static calculation, drawing documentation of selected details and technical report.	In the end the tea	am prepares
powerpoint presentatio	n of the all progress of work.		

Code of the group: BK202008_2

Name of the group: Stavební inženýrství, specializace Konstrukce a dopravní stavby, 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
101BAPK	Bachelor Thesis Jozef Bobok Jozef Bobok Jozef Bobok (Gar.)	Z	12	10C	L,Z	S1
132BAPK	Bachelor Thesis Michal Polák, Mat j Lepš, Aleš Jíra, Michal Šejnoha, Milan Jirásek, Jan Vorel, Martin Došká, Martin Horák, Petr Havlásek, Jan Pruška Jan Pruška (Gar.)	Z	12	10C	L,Z	S1
133BAPK	Bachelor Thesis Lukáš Vráblík	Z	12	10C	L,Z	S1
134BAPK	Bachelor Thesis Jakub Dolejš Jakub Dolejš Jakub Dolejš (Gar.)	Z	12	10C	L,Z	S1
135BAPK	Bachelor Thesis Jan Pruška	Z	12	10C	L,Z	S1
136BAPK	Bachelor Thesis Michal Uhlík Ludvík Vébr (Gar.)	Z	12	10C	L,Z	S1
137BAPK	Bachelor Thesis Ond ej Bret, Vít Lojda, Michal Petýrek Lenka Lomoz Leoš Horní ek (Gar.)	Z	12	10C	L,Z	S1
210BAPK	Bachelor Thesis Jan Zatloukal, Ji í Litoš, Jind ich Forn sek, Pavel Reiterman, Radoslav Sovják Ji í Litoš Ji í Litoš (Gar.)	Z	12	10C	L,Z	S1
220BAPK	Bachelor Thesis Ji í Svoboda, Radek Vaší ek Radek Vaší ek Radek Vaší ek (Gar.)	Z	12	10C	L,Z	S1

Characteristics of the courses of this group of Study Plan: Code=BK202008_2 Name=Stavební inženýrství, specializace Konstrukce a dopravní stavby, bakalá ská práce

101BAPK	Bachelor Thesis	Z	12
Please contact your tea	cher or guarantor of this subject.		
132BAPK	Bachelor Thesis	Z	12
The assignment of the f	inal thesis is always individual based on the agreement of the teacher and the student. The vast majority of assignments are	connected with the	he scientific and
research activities of the	e respective employee. The output of the solution may be a brief research study of the given problem, experimental activity, p	rogramming and	others according
to the respective assign	iment.		
133BAPK	Bachelor Thesis	Z	12
A bachelor thesis is the	qualification thesis of a bachelor's degree. The assignment can be a structural design of bridge or engineering structure with a fo	ocus on chosen de	tails, technology
etc. or a research study	of partial issue with a variant comparative analysis or a parametric study or performing and analysing experiments, etc.		
134BAPK	Bachelor Thesis	Z	12
In this course, student f	ormulates a bachelor's thesis that is necessary to reach the bachelor's degree. This course is focused on steel or timber stru	ctural design.	

135BAPK Bachelor Thesis	7	12
The bachelor thesis concludes the bachelor studies. The student demonstrates that he/she can apply the knowledge acquired during the study on a sp	ecific project The	
is related to selected subjects of the study plan. For students of K.		
136BAPK Bachelor Thesis	7	12
The assigned topic of bachelor theses can be a project, traffic surveys, research of selected issues with application in practice for various technical solution	ions of road struc	
tests to verify the functionality of various materials for pavements, etc. In terms of design, the most common topics of theses are, for example, the de-		
reconstruction of a selected section of a road (bypass, flyover), the design of a road network in a selected area of the city, the design of a new constr	uction or reconst	ruction of
intersections, the design of an airport, heliport, etc. In terms of pavement structures and road construction technologies, the most frequent topics of w	ork are, for exam	ple, comparison
of different material solutions for asphalt or concrete pavements, including the relevant composite materials or input components (binders, aggregates, e	etc.), assessment	of the behaviour
of a particular material or type of structure by laboratory methods, or carrying out simulations, etc.		
137BAPK Bachelor Thesis	Z	12
A bachelor's thesis is the first comprehensive work prepared by students during their university studies on a chosen topic. The basic tasks are: work	with professional	literature,
processing of professional text, citation habits, etc. A bachelor's thesis usually takes the form of a design (reconstruction of a section of a railway line,	study of new lin	es), research
(processing an overview of the current state of solutions in a certain area) or laboratory (including the execution and evaluation of specified laborator	y tests).	
210BAPK Bachelor Thesis	Z	12
Students will get the opportunity to organize complex process of experimental work from the beginning of production, experimental investigation to of	the data. Thesis	are designed to
fit scientific and research activity of the Experimental Centre.		
220BAPK Bachelor Thesis	Z	12
Bachelor thesis elaboration with possible use of geotechnical laboratory and underground facility Josef.		

Name of the block: Povinn volitelné p edm ty, doporu ení S2 Minimal number of credits of the block: 5 The role of the block: S2

Code of the group: BK20200700_2

Name of the group: Stavební inženýrství, specializace Konstrukce a dopravní stavby, projekty D, 7. semestr Requirement credits in the group: In this group you have to gain 5 credits

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

Credits in the group: 5

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
135YDPJ	Project Design D Jan Salák, Alena Zemanová, Ji í Barták, Jan Kos, Jan Pruška Jan Pruška Jan Pruška (Gar.)	КZ	5	4C	Z	S2
136YDPJ	Project Design D Jaromíra Ježková, Petr Mondschein Petr Mondschein (Gar.)	КZ	5	4C	Z	S2
137YDPJ	Project Design D Michal Petýrek, Ji í Pospíšil, Leoš Horní ek Lenka Lomoz Leoš Horní ek (Gar.)	KZ	5	4C	Z	S2
220YDPJ	Project Design D Markéta Ku erová, Ji í Svoboda, Radek Vaší ek Radek Vaší ek Radek Vaší ek (Gar.)	КZ	5	4C	Z	S2

Characteristics of the courses of this group of Study Plan: Code=BK20200700_2 Name=Stavební inženýrství, specializace Konstrukce a dopravní stavby, projekty D, 7. semestr

135YDPJ Project Design D	KZ	5
The project assignment is always individual based on the agreement of the teacher and the student. The vast majority of assignments are linked to the	he professional fo	ocus of the
respective employee. The output of the solution may be a brief research study of the given problem, experimental work, solution of a selected geotec	hnical problem, p	rogramming and
others according to the respective assignment.		
136YDPJ Project Design D	KZ	5
The design of three-leg grade intersection based on the capacity assessment, the evaluation of the additional lanes requirement of the grade intersection	on and its designi	ng. Technological
tasks in the field of soils, asphalt mixtures and quality control.		
137YDPJ Project Design D	KZ	5
The project includes variants of the route, a detailed final variant, longitudinal section, cross sections and a technical report including the design of the	ne sleeper bed. T	he project also
includes an economic assessment of the proposed variant.		
220YDPJ Project Design D	KZ	5
Solution of practical topic from the field of experimental geotechnics - familiarization with testing procedures in the laboratory and in the field (Underg	ground Laborator	y Josef -
http://ceg.fsv.cvut.cz). Literature review, preparation and execution of tests, evaluation. Topics are linked to CEG research projects. Suitable as a prep	paration for bache	elor thesis. The
solution takes place after an individual agreement with the supervisor of particular topic.		

List of courses of this pass:

Code	Name of the course	Completion	Credits
100ODPR	Industrial Training (3 weeks)	Z	0
	tice is an important part of academic education in undergraduate degree programmes. The student will gain a basic understanding of bilities. The professional practice evaluates the sum of all knowledge acquired through previous theoretical studies and is a proof of		essional
101BAPK	Bachelor Thesis Please contact your teacher or guarantor of this subject.	Z	12
101KG01	Constructive Geometry	Z,ZK	5
Projections and proj	jective methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. Sinr f solids and groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical surf building industry.		-
101MA01	Mathematics 1 https://mat.fsv.cvut.cz/bubenik/mat1detail.htm	Z,ZK	6
101MA02	Mathematics 2 https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/	Z,ZK	6
101MA03	Mathematics 3 https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/	Z,ZK	6
102FYI	Physics	Z,ZK	4
I	sics course for students of the study programmes Civil Engineering; Management and Economics in Construction. The course focus	•	and basic
-	e following areas are covered in the course: Mechanics of material points (particles) and deformable bodies. Discrete and continuous a material point (particle). Mechanical force fields. Gravitational field. Mechanical vibrations. Material deformation. Elastic waves. Acc Fundamentals of thermodynamics. Heat transfer.		
104YC2A	English 2	Z,ZK	2
the knowledge of lex (i.e., ESP - technica	de: 104YC2A Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit and exam The aim of the compulsory f is and grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus al style) and communicative competence within the construction industry. The course also seeks to teach students to read technical ritten discourse and to express themselves in writing on issues in their field of study. The end of course requirements are a credit an Horká Hana, Giormani Sandra, Martincová Petra, Nivenová Renata : Professional English for Civil Engineering (Units 6 10)	is on professional literature and to	Il language be able to
104YC2N	German 2	Z.ZK	2
	se - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction industr	,	_
	ne necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Litera		
104YCA1	Deutsch im Bauwesen English 1	Z	1
104YCA1 English 1 Course code of lexis and gramm technical style) and co	Deutsch im Bauwesen	Z e is to enhance the ional language (i. o be able to produ	1 e knowledge e., ESP - ce essentia
104YCA1 English 1 Course code of lexis and gramm technical style) and co	Deutsch im Bauwesen English 1 e: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English course nar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on profess ommunicative competence within the construction industry. The course also seeks to teach students to read technical literature and to to express themselves in writing on issues in their field of study. The end of course requirements are a credit. Literature: Horká Hana,	Z e is to enhance the ional language (i. o be able to produ	1 e knowledge e., ESP - ce essentia
104YCA1 English 1 Course code of lexis and gramm technical style) and co written discourse and 104YCN1 The compulsory course	Deutsch im Bauwesen English 1 e: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English course har within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on profess ommunicative competence within the construction industry. The course also seeks to teach students to read technical literature and to to express themselves in writing on issues in their field of study. The end of course requirements are a credit. Literature: Horká Hana, Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5)	Z e is to enhance the ional language (i. o be able to produ Giormani Sandra Z y, understanding	1 e., ESP - ce essentia Martincová 1 professiona
104YCA1 English 1 Course code of lexis and gramm technical style) and co written discourse and 104YCN1 The compulsory course	Deutsch im Bauwesen English 1 e: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English courses than within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on profess oommunicative competence within the construction industry. The course also seeks to teach students to read technical literature and to to express themselves in writing on issues in their field of study. The end of course requirements are a credit. Literature: Horká Hana, Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5) German 1 se - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction industry the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Literature	Z e is to enhance the ional language (i. o be able to produ Giormani Sandra Z y, understanding	1 e., ESP - ce essentia Martincova
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104YCA1 English 1 Course code of lexis and gramm technical style) and co written discourse and 104YCN1 The compulsory course texts, and learning the 105SVAI The subject combine of architecture. In the are explained. Theoir Roman law and its ir the Civil Code and ti systems, democracy	Deutsch im Bauwesen English 1 e: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English course ara within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on profess ommunicative competence within the construction industry. The course also seeks to teach students to read technical literature and to to express themselves in writing on issues in their field of study. The end of course requirements are a credit. Literature: Horká Hana, Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5) German 1 se - German Language for Civil Engineering is aimed at practising professional issues. The end-of-course requirement is a credit. Literature: Deutsch im Bauwesen Social Sciences and Architecture es the teaching of several social sciences: economics and economic policies, political science, political philosophy and law, with an or section devoted to economics, the basic categories of the market economy, the foundations of economic policy and the basic concept retical interpretation is effectively combined with practical examples from economic reality. In the lectures devoted to law, a brief ove nstitutions is supplemented by a well-founded interpretation of the constitution, human rights and the labor code. Great attention is p he Construction Act. In the political science lectures, the political development in ancient times is described in an engaging way, the y 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.	Z e is to enhance the ional language (i. o be able to produ Giormani Sandra Z ry, understanding ture: A.Hanáková Z,ZK overview of the deve paid to selected pi theory of the sta terpretation of the	1 e knowledge e., ESP - ce essentia Martincova 1 professiona , J.Dressel: 5 evelopment l economics lopment of ovisions of te, political e history of
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104YCA1 English 1 Course code of lexis and gramm technical style) and co written discourse and 104YCN1 The compulsory course texts, and learning the 105SVAI The subject combine of architecture. In the are explained. Theo Roman law and its ir the Civil Code and the systems, democracy 122TDOS The subject deals with of construction produce It introduces the principles. It illuminate earthworks, logistics	Deutsch im Bauwesen English 1 e: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English course nar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on profess ommunicative competence within the construction industry. The course also seeks to teach students to read technical literature: Horká Hana, Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5) German 1 Se - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction industry ne necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Litera Deutsch im Bauwesen Social Sciences and Architecture as the teaching of several social sciences: economics and economic policies, political science, political philosophy and law, with an or section devoted to economics, the basic categories of the market economy, the foundations of economic policy and the basic conceptretical interpretation is effectively combined with practical examples from economic reality. In the lectures devoted to law, a brief ove stitutions is supplemented by a well-founded interpretation of the construction provides a comprehensive in architecture from antiquity to postmodernism and deconstruction. Technology of Traffic Buildings In the issue of construction progress and mechanization of processes on engineering infrastructure construction sites. Students will be choice of construction provides a comprehensive in architecture from antiquity to postmodernism and deconstruction istes. Students will be choice of construction progress	Z a is to enhance the ional language (i. b be able to produ Giormani Sandra Z y, understanding ture: A.Hanáková Z,ZK overview of the deve baid to selected pi theory of the sta terpretation of the ZK become familiar w uality managemen the use of work ma crete monolithic co odern methods of	1 howledge e., ESP - ce essentia Martincová 1 professiona , J.Dressel: 5 evelopment l economics lopment of rovisions of te, political history of 4 th the issue int principles nagement postructions controlling
104YCA1 English 1 Course code of lexis and gramm technical style) and co written discourse and 104YCN1 The compulsory course texts, and learning the 105SVAI The subject combine of architecture. In the are explained. Theo Roman law and its in the Civil Code and the systems, democracy 122TDOS The subject deals with of construction produce It introduces the prime principles. It illuminate earthworks, logistics 123CHE Introduction to generation	Deutsch im Bauwesen English 1 e: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English course are within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on profess ommunicative competence within the construction industry. The course also seeks to teach students to read technical literature and to to express themselves in writing on issues in their field of study. The end of course requirements are a credit. Literature: Horká Hana, Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5) German 1 se - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction industry. The course and Architecture se - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction industry. The eutsch im Bauwesen Social Sciences and Architecture es the teaching of several social sciences: economics and economic policies, political science, political philosophy and law, with an or section devoted to economics, the basic categories of the market economy, the foundations of economic policy and the basic concept retical interpretation is effectively combined with practical examples from economic reality. In the lectures devoted to law, a brief ove stitutions is supplemented by a well-founded interpretation of the constitution, human rights and the labor code. Great attention is phe Construction Act. In the political science lectures, the political development in ancient times is described in an engaging way, the y and totalitarianism are clarified. The series of lectures on t	Z a is to enhance the ional language (i. b be able to produ Giormani Sandra Z y, understanding ture: A.Hanáková Z,ZK overview of the deve baid to selected pu theory of the sta terpretation of the ZK become familiar w uality managemen the use of work ma crete monolithic co odern methods of Z,ZK mistry of building	1 howledge e., ESP - ce essentia Martincova Martincova 1 professiona , J.Dressel: 5 evelopment 1 economics lopment of rovisions of te, political history of 4 th the issue nagement principles nagement onstructions controlling 4 materials -
104YCA1 English 1 Course code of lexis and gramm technical style) and co written discourse and 104YCN1 The compulsory course texts, and learning the 105SVAI The subject combine of architecture. In the are explained. Theo Roman law and its in the Civil Code and the systems, democracy 122TDOS The subject deals with of construction produce It introduces the prime principles. It illuminate earthworks, logistics 123CHE Introduction to generic inorganic binders, gla	Deutsch im Bauwesen English 1 e: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English course are within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on profess ommunicative competence within the construction industry. The course also seeks to teach students to read technical literature and to to express themselves in writing on issues in their field of study. The end of course requirements are a credit. Literature: Horká Hana, Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5) German 1 se - German Language for Civil Engineering is aimed at practising professional issues. The end-of-course requirement is a credit. Literature the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Literature beutsch im Bauwesen Social Sciences and Architecture se the teaching of several social sciences: economics and economic policies, political science, political philosophy and law, with an or section devoted to economics, the basic categories of the market economy, the foundations of economic policy and the basic concep retical interpretation is effectively combined with practical examples from economic reality. In the lectures devoted to law, a brief ove stitutions is supplemented by a well-founded interpretation of the construction actsruction provides a comprehensive in architecture from antiquity to postmodernism and deconstruction. Technology of Traffic Buildings h the issue of construction processes and mechanization of processes of preparation and production management. Qu nc	Z a is to enhance the ional language (i. o be able to produ Giormani Sandra Z y, understanding ture: A.Hanáková Z,ZK overview of the deve baid to selected pi theory of the sta terpretation of the ZK pecome familiar w uality managemen te use of work ma crete monolithic co odern methods of Z,ZK mistry of building s and to analytica	1 e knowledge e., ESP - ce essentia Martincová 1 professiona , J.Dressel: 5 evelopment I economics lopment of rovisions of te, political e history of 4 th the issue nagement onstructions controlling 4 materials - I chemistry.
104YCA1 English 1 Course code of lexis and gramm technical style) and co written discourse and 104YCN1 The compulsory course texts, and learning the 105SVAI The subject combine of architecture. In the are explained. Theo Roman law and its in the Civil Code and the systems, democracy 122TDOS The subject deals with of construction produce It introduces the prime principles. It illuminate earthworks, logistics 123CHE Introduction to gener inorganic binders, gla 123SH01	Deutsch im Bauwesen English 1 e: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English course and within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on profess ommunicative competence within the construction industry. The course also seeks to teach students to read technical literature and to to express themselves in writing on issues in their field of study. The end of course requirements are a credit. Literature: Horká Hana, Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5) Se - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction industr te necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Litera Deutsch im Bauwesen Social Sciences and Architecture as the teaching of several social sciences: economics and economic policies, political science, political philosophy and law, with an or section devoted to economics, the basic categories of the market economy, the foundations of economic policy and the basic conceptration is supplemented by a well-founded interpretation of the construction, human rights and the labor code. Great attention is p the Construction Act. In the political science lectures, the political development in ancient times is described in an engaging way, the y and totalitarianism are clarified. The series of lectures on the history of architecture and construction provides a comprehensive in architecture from antiguity to postmodernism and deconstruction stens. Students will b ction preparation form the construction processes on engineering infrastructure construction management. Qun	Z a is to enhance the ional language (i. b be able to produ Giormani Sandra Z y, understanding ture: A.Hanáková Z,ZK overview of the deve baid to selected pl theory of the sta terpretation of the ZK become familiar w uality managemen to use of work ma crete monolíthic co odern methods of Z,ZK mistry of building s and to analytica Z,ZK	1 howledge e., ESP - ce essentia Martincova Martincova 1 professiona , J.Dressel: 5 evelopment 1 economics topment of rovisions of te, political history of 4 th the issue nagement onstructions controlling 4 materials - 1 chemistry. 5
104YCA1 English 1 Course code of lexis and gramm technical style) and co written discourse and 104YCN1 The compulsory course texts, and learning the 105SVAI The subject combine of architecture. In the are explained. Theo Roman law and its in the Civil Code and the systems, democracy 122TDOS The subject deals with of construction produce It introduces the prime principles. It illuminate earthworks, logistics 123CHE Introduction to gener inorganic binders, gla 123SH01	Deutsch im Bauwesen English 1 e: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English course an within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on profess communicative competence within the construction industry. The course also seeks to teach students to read technical literature and to to express themselves in writing on issues in their field of study. The end of course requirements are a credit. Literature: Horká Hana, Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5) German 1 se - German Language for Civil Engineering is aimed at practising professional issues. The end-of-course requirement is a credit. Litera Deutsch im Bauwesen Social Sciences and Architecture as the teaching of several social sciences: economics and economic policies, political science, political philosophy and law, with an or section devoted to economics, the basic categories of the market economy, the foundations of economic policy and the basic concep retical interpretation is effectively combined with practical examples from economic reality. In the lectures devoted to law, a brief ove subtuitonis is supplemented by a well-founded interpretation of the constitution, human rights and the labor code. Great attention is p he Construction Act. In the political science lectures, the political development in ancient times is described in an engaging way, the y 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. Technology of Traffic Builidings h the isi	Z a is to enhance the ional language (i. b be able to produ Giormani Sandra Z y, understanding ture: A.Hanáková Z,ZK overview of the deve baid to selected pl theory of the sta terpretation of the ZK become familiar w uality managemen to use of work ma crete monolíthic co odern methods of Z,ZK mistry of building s and to analytica Z,ZK	1 howledge e., ESP - ce essentia Martincova Martincova 1 professiona , J.Dressel: 5 evelopment 1 economics topment of rovisions of te, political history of 4 th the issue nagement onstructions controlling 4 materials - 1 chemistry. 5

Introduction to stri	ucture 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.	oundary condition	is principies,
123YTVM	Production technology of building materials	Z	2
	Basic building materials, different types of the production technology, energy consumption of the production, storage and transport, sa	afety at work.	
124PSI1	Building Structures 1I	Z	4
	sign of building structures with a comprehensive consideration of the functional requirements imposed on individual elements. Requir, , interaction of elements, spatial effect of the structural system. Vertical load-bearing structures (functions, requirements, principles of		-
	uctures (functions, requirements, principles of the structural design of vaults, wooden ceilings, reinforced concrete ceilings, ceramic co		-
	te ceilings). Expansion joints in load-bearing systems. Structural systems of single and multi-storey buildings, structural systems of lo	-	
124PSI2	Building Structures 2I	Z,ZK	4
Staircases, sloping	g ramps, lift shafts - requirements, structural and material solutions, basics of typology, design principles, construction details, railing. But	uilding foundations	- foundation
	of foundations, requirements, building plinth area (construction details). Basement - solution of basement walls, requirements, protection	-	
systems. Structura	al expansion joints in buildings - principles of joints design in bearing structures, thermal expansion, compensation of differences in se	ettlement, construc	ction details.
126BIM1	Roof truss systems. BIM	Z	1
-	es on teaching basic knowledge in the field of Building Information Management (BIM) in theoretical and practical areas, applicable a	. –	1 -
	the construction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digitize		
	a sources in the Czech Republic, ICT and enterprise systems, information systems for the construction industry, but also the context of		
industry in relation	to the entire project life cycle and its specifics (delivery, expert focus, phases of construction projects, etc.) The theoretical knowledge	e is complemented	d by practical
	exercises aimed at mastering and understanding the basic principles of object-oriented parametric modelling.	1	1
126EKMN	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 w oplications. Students will be prepared to solve basic construction-management problems in the construction industry. They will acquire		
	construction works and master the basic methods of managing a construction company. Emphasis is placed on understanding the pr		
	relation to the construction industry.		
126STMN	Construction Management	Z,ZK	6
Overview of select	ted concepts. Methods to support project management. Legal standards, SN and ISO standards. The essential aspects of Project M	lanagement. Cons	
	bjectives, strategies, phases and surroundings of the construction project. Project manager role. Purchases and contracts in the proj	, ,	
°	Financial management and project evaluation. Feasibility study. Cost and resource management. Change procedures. The Act on Sp	•	•
	e Act on the Awarding of Public Contracts, and the definition of terms. Business obligation relationships, the conclusion of contracts, th		0
business conditio	Ins. Business public competition, its influence on the obligations of participants. Securing the commitment - contractual penalty, guara in construction - are contract for the conclusion of a future contract, purchase contract, contract for work, and content of the co		nitaci types
126YVSF	Small Business Management	Z	2
	ded into lectures 1 hour per week and exercises 1 hour per week. Lectures take place according to the course outline listed below. In	-	
	s plan for a selected business activity according to the specified syllabus. They draw up a plan for a start-up business. Entrepreneursh		
self-employed per	rson and a legal entity, e.g. Ltd. The financial plan is prepared in Excel, and the credit condition is the presentation of the business pla	n in power point in	n front of the
	auditorium.		
			1
132ANKC	Analysis of Structures	Z,ZK	5
	Analysis of Structures ally determinate and statically/deformable indeterminate structures, concerning live loads solution, stresses in thin-wall beams, analy	sis of walls and pl	-
Analyses of static	Analysis of Structures ally determinate and statically/deformable indeterminate structures, concerning live loads solution, stresses in thin-wall beams, analy formulation of deformation method, principles of FEM, models for a beam on elastic foundation and stability of structures.	vsis of walls and pl	ates, matrix
Analyses of static	Analysis of Structures ally determinate and statically/deformable indeterminate structures, concerning live loads solution, stresses in thin-wall beams, analy	sis of walls and pl	ates, matrix
Analyses of static 132BAPK The assignment o	Analysis of Structures ally determinate and statically/deformable indeterminate structures, concerning live loads solution, stresses in thin-wall beams, analy formulation of deformation method, principles of FEM, models for a beam on elastic foundation and stability of structures. Bachelor Thesis	rsis of walls and pl Z nnected with the s	ates, matrix
Analyses of static 132BAPK The assignment o	Analysis of Structures cally determinate and statically/deformable indeterminate structures, concerning live loads solution, stresses in thin-wall beams, analy formulation of deformation method, principles of FEM, models for a beam on elastic foundation and stability of structures. Bachelor Thesis f the final thesis is always individual based on the agreement of the teacher and the student. The vast majority of assignments are co	rsis of walls and pl Z nnected with the s	ates, matrix
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of Portland cement with calcium sulphide binders, innovative crack-resistant materials, alkali-activated fly ash. Most of the used numerical models have been implemented in the open-source software OOFEM, which you can freely use, for example, for your prediction of temperatures during hydration, stress and crack analysis including the influence of

open-source softwa	are OOFEM, which you can freely use, for example, for your prediction of temperatures during hydration, stress and crack analysi reinforcement and boundary conditions.	s including the influ	uence of
132YMMO	Modern Methods of Optimization	Z	2
I	an overview of numerical optimization methods applicable not only in the Civil Engineering area. The emphasis is put more on the in however, practical applications in MATLAB environment are also conducted during exercises.	-	1
132YNMI	Numerical Methods in Engineering Practice	Z	2
	on basic numerical methods for solving large sets of algebraic equations and boundary or initial value problems. In the context of o difference and finite element methods are explained from the viewpoints of an engineering scientist and a mathematician.	-	ns, the finite
132YPM1	Computer Analysis of Structures 1 Static model of a structure. Computer codes RFEM-Dlubal, SCIA Engineer.	Z	2
132YPM2	Computer Analysis of Structures 2	Z	2
	Stability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structures. D Verification of results.	_	
132YPV1	Programming in C++ for Engineering Calculations 1 Introduction to C++ programming, non-objective primer of the language, basic algorithms used in the engineering computin	Z g.	2
132YSHK	Statics and Reconstruction of Historical Structures	Z	2
Short overview of histo	orical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in founda frequent causes of failure of panel buildings. Visit to the historical part of Prague Castle.	tion conditions incl	luded. Most
133BAPK	Bachelor Thesis	Z	12
	e qualification thesis of a bachelor's degree. The assignment can be a structural design of bridge or engineering structure with a focus . or a research study of partial issue with a variant comparative analysis or a parametric study or performing and analysing experi		, technology
133BK01	Concrete and Masonry Structures 1	Z,ZK	6
	d on the design of concrete elements and constructions of multi-storey buildings - it follows on from the subject Fundamentals of S lition and generalization of procedures for verifying the load-bearing capacity of reinforced concrete structural elements for cases of	-	
of biaxial bending an	nd normal force, designing elements stressed by torsion, punching shear, assessment of slender compressed elements. Design p individual types of structures, including the choice of suitable calculation models and calculation methods and reinforcement prir		cussed for
133BK02	Concrete and Masonry Structures 2	Z,ZK	7
	he courses NNK and BK01 and widens the knowledge to the necessary minimum for the bachalor studium branches C and K. 13.	-	-
•	nding, shear, reinforced masonry, strenghtening of masonry structures 4 6. Design of concrete structures to serviceability limit st ck width limitation, deflections, application on waterproof structures 78. Introduction to pre-stressed concrete: design of pre-stres		
	cast concrete structures 13. Bridges: nomenclature in bridges, cross-section arrangement, loading, construction methods, Introdu		
133BM1K	Concrete Bridges 1	Z.ZK	6
· · · · · · · · · · · · · · · · · · ·	is an introduction into principles of design of concrete ans masonry bridges. The course involves also corresponding problems fr	, ,	-
	and loads on bridges up to design of various types of concrete bridge structures and technology of their construction.		Ū
133NNKB	Fundamentals of Structural Design - Concrete	Z,ZK	4
	ubject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi		
	ties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete		-
	rete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceable	-	
	course follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Mater	Z	2
133YBKP	Computer design of concrete structures The subject is focused on practical application of computer aided design of structures in the field of concrete structures.		1
133YBSV	Concretes with Special Properties	Z	2
Hign-strength concrete	b, fibre concrete, self-compacting concrete, shotcrete and fibreconcretes, lightweight concrete, heavyweight concrete; their propertie New findings in technology.	is and applications	s in practice
133YKPJ	Project Design K	KZ	5
The content of the sub	pject is the basic conceptual design of an engineering structure (bridge, underground structure, chimney, cooling tower, atypical b	uilding structure). T	The effort is
	work on the conceptual design of the loadbearing structure, variant solutions, including their preliminary analysis and subsequen		
	esign project is also a brief research study of literature dealing with the given studied issue. The tuition is in the form of consultation	-	-
133YMVB	Concrete and Masonry Structures 1	Z	2
	oject will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Introdu structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program structures.		-
133YPNB	Fire desgn og concrete and mnsory structures	Z	2
	on fire resistance of concrete and masonry structures: concrete and concrete structures exposed to fire, design rules, thermal and		1
	design methods, material properties of concrete and steel reinforcement at high temperatures, fire design of masonry structu	res.	
133YPRK	Failures and Rehabilitation of Concrete Structures	Z	2
The course focuses o	on the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial measur	es. Methods of stre	engthening
existing concrete stru	ictures 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.	ding moment and s	shear, and
133YTB	Technology of Concrete II	Z	2
	concrete components and their influence on the concrete properties are presented. Furthermore, destructive and non-destructive elements are introduced. The last chapters of the lectures are devoted to the real applications of concrete structures. The theorem	tical lectures are ad	
133YTBM	by exercises, where the students have the unique opportunity to try out the acquired knowledge in laboratory, including special Technology of Construction and Reconstructions of Bridge Structures	Z	2
	gy of construction and reconstructions of concrete bridge structures - substructure and foundations, superstructures. Basis of des		1
134BAPK			12
I	Bachelor Thesis	Z	1
In this course	e, student formulates a bachelor's thesis that is necessary to reach the bachelor's degree. This course is focused on steel or timb	er structural desigr	n.
In this course 134DK01 Introduction and prese		er structural desigr Z,ZK gn, ultimate limit st	n. 5 tates, valid

134NNKO	Design of Supporting StructuresI - Steel	Z,ZK	3
The basics of desig	gning steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load	effects, design diffe	erences due
	to the specific properties of individual materials.		
134OK01	Steel Structures 1	Z,ZK	6
The course OK01	aims to expand the knowledge acquired in the subject NNK and concerning design of basic steel structures. In the theoretical part are	delivered possibilit	ties of global
	res including classification from view of necessities of nonlinear analyses. Design of steel elements is widen for global analysis method		
and concrete bea	ms/columns and cold-formed thin-walled elements. The main part of the subject deals with complex design of multi-storey steel build	ings and steel indu	istrial halls.
	Final lectures concern large-span structures, uniqueness in design of tall buildings, including effects of seismicity.		
134OM1K	Steel Bridges 1	Z,ZK	4
	This course includes basic problems of design of steel and composite steel - concrete road and railway bridges	_	
134YDUV	Timber and Sustainable Construction	Z	2
Introduction to su	istainable use of wood in construction with respect to previous courses. Theoretical methods of structural design and design of struct	ures composed fro	m different
	materials. Principles of strengthening and repairing of timber structures.	1	1
134YKPJ	Project Design K	KZ	5
-	or timber structure by a team of three students. In the first phase each student prepares alternative solution, followed by a choice of		-
team. In the sec	ond phase the team deals jointly with: final layout, static calculation, drawing documentation of selected details and technical report. I	n the end the team	n prepares
	powerpoint presentation of the all progress of work.	_	
134YMOD	Numerical Modeling of Steel and Timber Structures	Z	2
Subject familiarize	students with the basis of modelling od steel and timber structures. Students manage basis of simulation during the creation of static	model of the struc	cture as well
	as the global analysis and check with respect to European design codes.		
134YNKS	Glass Structures	Z	2
	ding to introduce the students the field of structural applications of glass and to give them some specific skills for calculation and detaili		
	d fins, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs and	-	-
	ss as structural material will be presented in comparison with other basic building materials, together with selected examples of glass	• • • • •	•
details and connec	ting technology, relevant technical regulations, specification and current methods applied in design will be described. Worked example	es will accompany	the lectures
	for better understanding, and design project will help to fix specific knowledge.	_	
134YOM2	Steel Bridges 2	Z	2
	The subject deals with the analysis, design and specifics of steel railway bridges.		1
134YPNK	Fire Resistance of Steel and Timber Structures	Z	2
	The class gives introduction to fire safety and fire resistance of steel, steel-concrete composite and timber structural element		1
134YTSK	Thin-Walled and Composite Structures	Z	2
The course includ	a advanced analysis and structural design of slender sections and cold-formed sections. Advanced structural design of steel-concre	te composite is als	so included.
135BAPK	Bachelor Thesis	Z	12
The bachelor thesi	s concludes the bachelor studies. The student demonstrates that he/she can apply the knowledge acquired during the study on a spec	ific project. The bac	chelor thesis
	is related to selected subjects of the study plan. For students of K.		
135GM01	Geomechanics 1	Z	3
	s on the understanding of basic geological laws and principles in relation to architecture, civil engineering and urban planning. Empha	•	
	jical processes, both endogenous and exogenous, on the rock environment and how the geological situation affects the design of strue		
the rock environm	ent. At the same time, attention is paid to the technical properties of rocks with regard to their practical applications. The course also	includes a brief intr	roduction to
	the regional geology of the Czech Republic.		1
135GM2I	Geomechanics 2I	Z,ZK	5
	pils, basic properties of soils, water in soil, strength and deformation properties of soils and their determination, improvement of soil p		ion tasks
135PZMH	Rock mechanics and underground structures	Z,ZK	5
Geotechnical inves	stigation, basic conceptions of rock classification and properties evaluation, laboratory and field testing, elements of calculations in roc		underground
	construction, tunnelling methods (NATM, drill and blast, tunnel boring machines, cut and cover structures), grouting, waterpro	-	1
135YDPJ	Project Design D	KZ	5
	ignment is always individual based on the agreement of the teacher and the student. The vast majority of assignments are linked to t	•	
respective employe	ee. The output of the solution may be a brief research study of the given problem, experimental work, solution of a selected geotechni	cal problem, progra	amming and
	others according to the respective assignment.	_	
_135YING	Engineering geology	Z	2
	logical survey methods. Geological and engineering geological maps and profiles. Foundation soils in terms of engineering geology a		
waters. KOCK mass	s - areas of discontinuities, their evaluation. Deposits of natural building materials. Landslides and slope protection. Engineering geology of civil engineering structures. Challenges of urban geology Engineering geology in environmental design and protection.		ierent types
125\/\/D7	of civil engineering structures. Challenges of urban geology. Engineering geology in environmental design and protection	Z	2
135YVPZ	Computer analysis in underground structures	-	2
Numerical metr	nods in CAD/CAM in geomechanics. Basic types of constitutive models of soil and rock mass behavior. Summary of PC geotechnical	software both in th	ie field of
4051/1/71/	conventional methods and in numerical modelling domain. Practical solutions of selected geotechnical problems.	7	<u> </u>
135YVZK	Computer analysis in foundation engineering	Z	2
	nods in CAD/CAM in geomechanics. Basic types of constitutive models of soil and rock mass behavior. Summary of PC geotechnical conventional methods and in numerical modelling domain. Practical solutions of selected geotechnical problems.	Soliware both in th	
1257004		7 71/	
135ZS01	Foundations 1	Z,ZK	7
	the subject, literature, design principles, geotechnical categories Strength and deformation characteristics of foundation soils, slab for ation of bearing capacity and settlement of flat foundations Deep foundations - typology, pile foundations, drilled and driven pile techn		
	ests Determination of bearing capacity of transversely loaded piles, pile group Micropiles, anchors, technology Conventional and jet		
	echnology of shoring of construction pits Principles for the design and assessment of shoring structures, earth pressure, water effect C		
	pressure dependent methods Dewatering of construction pits Protection of foundation structures against the effects of aggressive er		aotaroo,
136BAPK	Bachelor Thesis	Z	12
			14
The assigned from		-	s. laboratory
	of bachelor theses can be a project, traffic surveys, research of selected issues with application in practice for various technical solution	is of road structures	-
tests to verify the		is of road structures	truction or

of different material solutions for asphalt or concrete pavements, including the relevant composite materials or input components (binders, aggregates, etc.), assessment of the behaviour of a particular material or type of structure by laboratory methods, or carrying out simulations, etc.

of a particular material or type of structure by laboratory methods, or carrying out simulations, etc.		
136DSUZ Transport Structures and Urban Planning The course 136DSUZ is composed of 3 issues, which build on each other and complement each other. These are the area of transport structures (roads and transport structures)	Z,ZK and rail transport -	7 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 Transport Structures - Roads (R): Introduction to basic terminology in the part of roads, history. Road Act and related legislative and technical regulations		
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 pr		
junctions and crossings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of s		-
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	-	
Planning (SP): Teaching spatial planning and urban planning, spatial planning tools and procedures for their acquisition.		6
136SS01 Road Structures 1 Law about roads, protection zones, components and accessories, use, drivability and passability. Introduction to traffic engineering, movement of an indiv	Z,ZK	-
characteristics. Traffic flow and its characteristics, traffic intensity and its monitoring, communication capacity and traffic quality. Capacity of intersection time gaps, negative effects of traffic. Routing principles, area of interest, directional solution, directional curves - division, application, layout scheme. H	s, level of service,	, theory of
transverse and resultant slope. Tilting of the roadway - types, requirements, ascents and descents, tilting of the earth plain. Road objects. Technical and tec	•	•
multi-criteria assessment, earthwork, distribution of materials and materials. Roadway - design of rigid and non-rigid roadway construction, computational		
of non-rigid roadway. Urban roads - differences between urban roads and roads, space requirements - pedestrians, cyclists, disabled people - barrier-free	e adaptations. Tra	ffic surveys
- breakdown, types, progress, prospective intensities, recalculation of intensities, special surveys. turntables, switches. Parking, traffic areas, contour c including drainage. Traffic calming at urban roads - principle, methods, examples.	urves, traffic area	solutions
136SS02 Road construction 2	Z,ZK	5
Design classification of roads and motorways, design speed, road horizontal alignment and level design, form of road and motorway cross sections, ro		•
shapes and design, volume of earthworks, muss-haul diagram, road engineering structures, equipment of roads and motorways, crossroads and intersection of urban road traffic and construction, function classes and marking of urban road types, traffic place and street place, principles of traffic calm		
136YBD1 BIM for Transport Infrastructure and Building Structures	Z	4
Introduction to the issue of BIM - BIM in the LC project, BIM in the Czech Republic and in the world, Designing structures - Examples of the use of inform		
constructions, databases and facility management, Facility management - Modeling of load-bearing structures, design and placement of detail, level of de		
construction, BIM tools and technologies, Design and implementation in road structures, BIM for construction project management, legislation, BIM project production valuation.	management for c	construction
136YDPJ Project Design D	KZ	5
The design of three-leg grade intersection based on the capacity assessment, the evaluation of the additional lanes requirement of the grade intersection ar		-
tasks in the field of soils, asphalt mixtures and quality control.		
136YMKO Urban Roads	Z	2
Specifics of urban roads, functions and transverse layout of urban roads, principles of at-grade intersections design, roundabouts, organization, traffic r	egulation and mar	nagement,
traffic calming, safety audit and inspection, traffic survey and documentation of selected elements of urban roads.		
136YSKL Airports	Z	2
136YSKL Airports History of aviation, supersonic air transport Division of aircraft, LPJ, LPH, Legislation selected terms and definitions from the field of airports Aircraft model	vement, take-off a	nd landing,
136YSKL Airports History of aviation, supersonic air transport Division of aircraft, LPJ, LPH, Legislation selected terms and definitions from the field of airports Aircraft mo determination of runway length Aircraft parameters affecting airport design, Code marking, track system location and arrangement, Capacity issue of aircraft	vement, take-off a ports, flight areas,	nd landing, influence of
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137ZE01	Railway Structures 1	Z,ZK	7					
Vehicle and track, track construction and geometry, track spatial disposition, research and projection, project documentation, tracing and pegging out of a railway track, railway								
construction, sub	construction, sub-ballast layers, earth solid and trackbed construction, defect and stability increment of substructure, requirements for soil bearing capacity and soil consolidation,							
	substructure drainage, railway artificial structures.							
141HYA	Hydraulics	Z,ZK	5					
A course deals wit	h issues of hydrostatics and hydrodynamics with aiming at civil engineering applications. There are analysed tasks related to hydrosta	atic and hydrodyna	mic loading					
	of structures, pipeline flow, open channel flow and groundwater flow.							
142VIZP	Water and Environmental Engineering	Z,ZK	4					
During the teachin	g semester, students are introduced to the fields of water engineering, water management and environmental engineering. In particu	lar, emphasis is pla	aced on the					
practical aspects o	f water and environmental engineering in close relation to other branches of civil engineering. The course is taught in the form of lectu	res and tutorials.	The lectures					
are divided thematically into 20 blocks according to the different branches of the discipline (13 times water engineering and 7 times environmental engineering). In the exercises,								
students work on	basic problems in the field of hydrology, water supply and water structures, especially dams, hydropower and flood issues. All 4 "wat	er" departments of	K14x are					
	involved in teaching the course.							
154SG01	Land Surveying in Civil Engineering	Z,ZK	6					
The shape and si	ze of the Earth, substitutive surfaces, cartographic projections Horizontal and vertical control, coordinate calculations Quality control,	deviations and tol	erations in					
build-up Angle and distance measurements Heighting measurements Other geodetic methods in build-up (GNSS, DPZ,) Photogrammetry and laser scanning Thematic mapping								
and present state	documentation Geodetic works in build-up State map series of CR and thematic maps for build-up Geographic information systems a	and spatial plannin	g Cadastre					
	of real estates Laws and decrees for geodesy and build-up in Czech Republic							
210BAPK	Bachelor Thesis	Z	12					
Students will get the opportunity to organize complex process of experimental work from the beginning of production, experimental investigation to of the data. Thesis are designed to								
fit scientific and research activity of the Experimental Centre.								
220BAPK	Bachelor Thesis	Z	12					
	Bachelor thesis elaboration with possible use of geotechnical laboratory and underground facility Josef.							
220YDPJ	Project Design D	KZ	5					
Solution of practical topic from the field of experimental geotechnics - familiarization with testing procedures in the laboratory and in the field (Underground Laboratory Josef -								
http://ceg.fsv.cvut.cz). Literature review, preparation and execution of tests, evaluation. Topics are linked to CEG research projects. Suitable as a preparation for bachelor thesis. The								
solution takes place after an individual agreement with the supervisor of particular topic.								
TV1	Physical Education	Z	0					
TV2	Physical Education	Z	0					

For updated information see <u>http://bilakniha.cvut.cz/en/FF.html</u> Generated: day 2025-07-17, time 19:12.