### Study plan

# Name of study plan: Stavební inženýrství, specializace P íprava, realizace a provoz staveb

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 2024/2025

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:

Note on the grot	·P·					
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 <b>Jana ápová</b> 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	5		
Projections and projective	ve methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. Si	mple problems in	axonometry.		
Basics of lighting of solid	ds and groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical su	urfaces. Quadrics	. Surfaces in		
building industry.					
101MA01	Mathematics 1	Z,ZK	6		
https://mat.fsv.cvut.cz/b	Jbenik/mat1detail.htm				
105SVAI	Social Sciences and Architecture	Z,ZK	5		
The subject combines the	ne teaching of several social sciences: economics and economic policies, political science, political philosophy and law, with	an overview of the	e development		
of architecture. In the se	ction devoted to economics, the basic categories of the market economy, the foundations of economic policy and the basic co	ncepts of internat	ional economics		
are explained. Theoretic	al interpretation is effectively combined with practical examples from economic reality. In the lectures devoted to law, a brief of	overview of the de	velopment 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	bemistry - chemical bond, compounds, reactions, equilibrium. Chemistry of environment - water, atmosphere, pedosphere.	Chemistry of build	ing 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 the understanding of basic geological laws and principles in relation to architecture, civil engineering and urban planning. Emphasis is placed on explaining the							
influence of geological processes, both endogenous and exogenous, on the rock environment and how the geological situation affects the design of structures and their interaction with							
the rock environment. At the same time, attention is paid to the technical properties of rocks with regard to their practical applications. The course also includes a brief introduction to							
the regional geology of the Czech Republic.							

### Code of the group: 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 <b>Pavel Novák</b> Pavel Novák (Gar.)	Z,ZK	4	3P+1C	L	Z
123SH01	<b>Building Materials</b> Alena Vimmrová, Eva Vejmelková, Miloš Jerman <b>Alena Vimmrová</b> 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

40414400		7 71	0				
101MA02	Mathematics 2	Z,ZK	6				
https://mat.fsv.cvut.cz/v	yuka/bakalari/eng/ls/MT02/						
102FYI	Physics	Z,ZK	4				
This is a basic physics	course for students of the study programmes Civil Engineering; Management and Economics in Construction. The course for	uses on mechani	cs and basic				
thermodynamics. The fo	plowing 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	s 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 digiti	zed documents,	raster and vector				
graphics, open data sou	rces in the Czech Republic, ICT and enterprise systems, information systems for the construction industry, but also the context	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	tering and understanding the basic principles of object-oriented parametric modelling.						
132SM02	Structural Mechanics 2	Z,ZK	6				
Internal forces diagrams	s of simple statically determinate plane structures and compound two-dimensional structures. Multiaxially loaded cantilever. D	efinition of norma	al stress and				
prepositions of its distribution in a cross section. Equivalence of internal forces. Geometry of mass and areas, centre of gravity and moments of inertia.							
154SG01	Land Surveying in Civil Engineering	Z,ZK	6				
The shape and size of t	he Earth, substitutive surfaces, cartographic projections Horizontal and vertical control, coordinate calculations Quality contro	ol, deviations and	tolerations in				
build-up Angle and distance measurements Heighting measurements Other geodetic methods in build-up (GNSS, DPZ,) Photogrammetry and laser scanning Thematic mapping							
and present state documentation Geodetic works in build-up State map series of CR and thematic maps for build-up Geographic information systems and spatial planning Cadastre							
of real estates Laws and decrees for geodesy and build-up in Czech Republic							

### Code of the group: BJ20190300

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

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

# Credits in the group: 30

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

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

101MA03	Mathematics 3	Z,ZK	6					
https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/								
124PSI1	Building Structures 1I	Z	4					
The concept of design of	f building structures with a comprehensive consideration of the functional requirements imposed on individual elements. Req	uirements for bui	Iding 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	s, 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 continue	um, plates and w	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	tion 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	dynamic loading					
of structures, pipeline flo	w, open channel flow and groundwater flow.							
142VIZP	Water and Environmental Engineering	Z,ZK	4					
During the teaching semester, students are introduced to the fields of water engineering, water management and environmental engineering. In particular, emphasis is placed on the								
practical aspects of water and environmental engineering in close relation to other branches of civil engineering. The course is taught in the form of lectures and tutorials. The lectures								
are divided thematically into 20 blocks according to the different branches of the discipline (13 times water engineering and 7 times environmental engineering). In the exercises,								
students work on basic problems in the field of hydrology, water supply and water structures, especially dams, hydropower and flood issues. All 4 "water" departments of K14x are								
involved in teaching the course.								

#### Code of the group: 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:

#### Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their Code Completion Credits Scope Semester Role members) Tutors, authors and guarantors (gar.) **Building Structures 2I** 124PSI2 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 Ζ **Economics and Management** Eduard Hromada, Martin ásenský, Božena Kade ábková, Petr Kal ev, Pavlína Píchová, Pavlína Píchová **Eduard Hromada** Eduard Hromada (Gar.) 7 4P+2C 126EKMN Z,ZK Ζ **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 Z,ZK 132SM3 5 2P+2C L,Z Ζ Kabele (Gar.)

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	<b>Design of Supporting StructuresI - Steel</b> František Wald, Michal Jandera, Martina Eliášová <b>Martina Eliášová</b> Martina Eliášová (Gar.)	Z,ZK	3	2P+1C	L	z	
136DSUZ	Transport Structures and Urban Planning Ludvík Vébr, František Pospíšil, Ond ej Bret František Pospíšil Ludvík Vébr (Gar.)	Z,ZK	7	5P+1C	L,Z	z	
Characteristics of the	courses of this group of Study Plan: Code=BJ20190400 Name	=Stavební in	ženýrstv	í, varian	ta J, 4. sei	nestr	
	Iding Structures 2I				.ZK	4	
Staircases, sloping ramps, lift	t shafts - requirements, structural and material solutions, basics of typology, design prin	ciples, constructio	on details, ra	iling. Buildiı	ng foundation	s - foundation	
conditions, types of foundation	ons, requirements, building plinth area (construction details). Basement - solution of bas	sement walls, req	uirements, p	rotection a	gainst water,	waterproofing	
systems. Structural expansio	n joints in buildings - principles of joints design in bearing structures, thermal expansio	n, compensation	of differenc	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 construction	n industry and to	familiarize tł	em with ba	sic economic	terms and	
their practical applications. S	tudents will be prepared to solve basic construction-management problems in the construction-management problems in the construction.	struction industry.	They will a	quire 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 ur	nderstanding	the princip	le of econom	ic thinking in	
relation to the construction in	idustry.						
132SM3 Str	uctural Mechanics 3			Z	,ZK	5	
	od for the solution of reactions and internal forces on statically indeterminate beams, fr	ames, and truss s	structures. C		·	nts of beams,	
frames, and truss structures	using the principle of virtual works.						
133NNKB Fui	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, i	ncluding the	e determinatio	on of load	
effects. The properties of con	crete, the production and testing of concrete, the properties of concrete reinforcement	and its interactio	n with conc	ete are dis	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 introdu	uction to ser	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, Buil	ding Structure	es).	
134NNKO De	sign of Supporting StructuresI - Steel			Z	,ZK	3	
The basics of designing steel	, steel-concrete and wooden load-bearing structures according to applicable standards	s, including the de	etermination	of load effe	cts, design di	fferences due	
to the specific properties of in	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 structures	(roads and	rail transport	- scope 3+1)	
and the area of urban planni	ng and spatial planning (scope 2+0). Unlike the road construction and railroad construct	ction sections, the	e urban plan	ning sectior	n does not en	d with credit.	
Transport Structures - Roads (R): Introduction to basic terminology in the part of roads, history. Road Act and related legislative and technical regulations, their impact on road design.							
Design categories of roads and motorways, design speed, directional and elevation design of routes, cross-sectional layout of roads and motorways, earthwork - dimensions, shapes,							
drainage. Urban roads, division and marking, definition of MK space, differences in design, operation and equipment. Carriageway, division, design principles. Safety equipment,							
junctions and crossings. Transport Structures - Rail transport (RT): Introduction to basic terminology, Issues of railway crossings from the point of view of security, design and operation.							
Tram transport - history, principles of tram track construction, interaction with the environment. Metro as a system of urban rail transport. Basic principles and parameters, metro lines.							
Railway constructions - an inf	roduction to the design and construction of a railway track in the conditions of the Czec	h Republic, the ba	asic element	s of the rail	way superstru	icture. Spatial	
Planning (SP): Teaching spat	Planning (SP): Teaching spatial planning and urban planning, spatial planning tools and procedures for their acquisition.						
Nome of the blood	a Compulsory courses in the program						

#### Name of the block: Compulsory courses in the program Minimal number of credits of the block: 102

The role of the block: P

### Code of the group: BL202405

Name of the group: Stavební inženýrství, specializace P íprava, realizace a provoz staveb, 5. semestr Requirement credits in the group: In this group you have to gain at least 30 credits Requirement courses in the group: In this group you have to complete at least 6 courses Credits in the group: 30

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
122TS01	Construction Technology 01 Václav Pospíchal, Rostislav Šulc, Pavel Neumann, Tomáš Váchal, Mária Párová Rostislav Šulc Václav Pospíchal (Gar.)	Z,ZK	7	3P+3C	z	Ρ
124STAO	Building Acoustics and Daylighting Jaroslav Vychytil, Ji í Nová ek <b>Ji í Nová ek</b> Ji í Nová ek (Gar.)	Z	3	2P+1C	Z	Р
124STTT	Hygrothermal Performance of Buildings Ji í Novák, Zdenko Malík, Zbyn k Svoboda, Jakub Diviš <b>Ji í Novák</b> Zbyn k Svoboda (Gar.)	ZK	3	1P+1C	Z	Р
133RBZS	Construction of Concrete and Masonry Structures Iva Broukalová, Petr Bílý, Michaela Frantová <b>Iva Broukalová</b> Iva Broukalová (Gar.)	Z,ZK	6	3P+2C	z	Ρ
134ROD	Steel and Timber Structures Construction Michal Netušil, Karel Mikeš Michal Netušil Michal Netušil (Gar.)	Z,ZK	6	3P+2C	Z	Р
135ZSVT	Foundations Josef Jettmar, Jan Masopust, Jan Kos Jan Masopust Jan Kos (Gar.)	Z,ZK	5	2P+2C	Z	Ρ

# Characteristics of the courses of this group of Study Plan: Code=BL202405 Name=Stavební inženýrství, specializace P íprava, realizace a provoz staveb, 5. semestr

Division of processes, construction participants. Principles and drives of construction machines, efficiency, acquisition, deployment and use of machines. Earthworks, rock mining         classes, excavation types. Machines for preparatory and earthworks. machine assemblies, flow charts. Arming - principles, individual types, procedures, construction and dismantling.         Backfills, embankments, embankments, compaction, drainage. Machines for transport. Traditional and system formwork, application of formwork, shots, dimensioning principles. Placement of reinforcement. Placement of fresh concrete, compaction and treatment of fresh concrete. Central and local concrete production, primary and secondary transport. Lifting devices, tower and car cares, elevators, turnstiles, footbridges. Assembly work, assembly methods. Construction of masonry structures, production and transport of mortars on the construction is les Caffolding, fencing, retaining structures. <b>124STAO</b> Building Acoustics and Daylighting. In the first part, the listener will learn which objects are subject to requirements and what are the options for verifying the time of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the assessment of daylight mainly in the interiors of building with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting opening. In building acoustics, students are first introduced to the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The next part of the course deals with sound propagation in free and diffuse fields and sound propagation around barrier. Particular attention is paid to the sound insulation properties of partition structures and sound asosciptorecand maxing. Adamenters, reinforcing and con				_				
classes, excavation types. Machines for preparatory and earthworks, machine assemblies, flow charts. Arming - principles, individual types, procedures, construction and dismantling. Backlills, embankments, embankments, compaction, drainage. Machines for adjusting, profiling and improving the plain (scrapers, graders, ground stabilization cutters, compaction machines, sphalt finishers and cookers), machines for special foundation, machines for store transport. Tarditional and system formwork, abolts, dimensioning principles. Placement of reinforcement. Placement of fresh concrete, compaction and treatment of fresh concrete. Central and local concrete production, primary and secondary transport. Lifting devices, tower and car cranes, elevators, turnstiles, footbridges. Assembly work, assembly methods. Construction of masonry structures, production and transport of mortars on the construction site Scaffolding, lencing, retaining structures.          124STAO       Building Acoustics and Daylighting       Z       3         Lighting technology deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirements and what are the options for verifying the time of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the assessment of daylight mainly in the interiors of buildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting enables.       Z       3         124STTT       Hygrothermal Performance of Buildings       Z/K       3         133RBZS       Construction of Concrete and Masonry Structures       Z/K       6         The subject is focused on the practical design are presented wi		Construction Technology 01	Z,ZK	7				
Backfills, embankments, empankments, compaction, drainage. Machines for adjusting, profiling and improving the plain (scrapers, graders, ground stabilization cutters, compaction machines, asphalt finishers and cockers), machines for special foundation, machines for transport. Traditional and system formwork, application of formwork, shots, dimensioning principles. Placement of reinforcement. Placement reinforcement. Placement of reinforcement.								
machines, asphalt finishers and cookers), machines for special foundation, machines for transport. Traditional and system formwork, application of formwork, shots, dimensioning principles. Placement of reinforcement. Placement of tresh concrete, compaction and treatment of fresh concrete. Central and local concrete production, primary and secondary transport. Lifting devices, tower and car cranes, elevators, turnstiles, footbridges. Assembly work, assembly methods. Construction of masonry structures, production and transport of mortars on the construction is Scaffolding. fencing, retaining structures.          124STAO       Building Acoustics and Daylighting       Z       3         Lighting technology deals with two main parts, sun exposure and daylighting, in the first part, the listener will learn which objects are subative to requirements and what are the options for verifying the time of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the assessment of daylight mainly in the interiors of buildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting opening. In building acoustics, students are first introduced to the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The next part of the course deals with sound propagation in free and diffuse fields and sound propagation around barrier. Particular attention is paid to the sound insulation properties of partition structures and sound assorbing structures.         124STTT       Hygrothermal Performance of Buildings       ZK       3         133RBZS       Construction of Concrete and Masonry Structures       Z,ZK       6         134ROD       Steel and				-				
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	pressure dependent met	pressure dependent methods Dewatering of construction pits Protection of foundation structures against the effects of aggressive environments						

#### Code of the group: BL202006

Name of the group: Stavební inženýrství, specializace P íprava, realizace a provoz staveb, 6. semestr Requirement credits in the group: In this group you have to gain at least 24 credits Requirement courses in the group: In this group you have to complete at least 4 courses Credits in the group: 24

### 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
122PR01	Project Design L01 Iva Broukalová, Tomáš Trtík, Tomáš Váchal, Lucie Dobiášová, Ilona Koubková, Luboš Musil, Roman Chylík, Karel Polák <b>Tomáš Váchal</b> Václav Pospíchal (Gar.)	ΚZ	5	4C	L	Ρ
122TES2	<b>Construction Technology 02</b> Rostislav Šulc, Pavel Neumann, Jan Konvalinka, Pavel Svoboda, Jaroslav Synek <b>Rostislav Šulc</b> Rostislav Šulc (Gar.)	Z,ZK	8	4P+2C	L	Р
125TZ01	Building services systems 1 Stanislav Frolik, Karel Kabele Karel Kabele (Gar.)	Z,ZK	5	2P+2C	L	Р
126KNL	Costing and Bidding L Renáta Schneiderová Heralová, Stanislav Vitásek, Lucie Brožová Lucie Brožová Renáta Schneiderová Heralová (Gar.)	Z,ZK	6	2P+2C	L	Ρ

### Characteristics of the courses of this group of Study Plan: Code=BL202006 Name=Stavební inženýrství, specializace P íprava, realizace a provoz staveb, 6. semestr

122PR01	Project Design L01	KZ	5			
According to the assigned study of a simpler building (at the level of the project for the zoning decision), the design of the supporting structure of the building in details for the execution						
of the building.						
122TES2	Construction Technology 02	Z,ZK	8			
125TZ01	Building services systems 1	Z,ZK	5			
Basic course in building	services systems - water supply, drainage, gas supply and heating systems.					
126KNL	Costing and Bidding L	Z,ZK	6			
The aim of the subject i	s to teach the student to use basic calculation techniques and procedures, to use normative and database. Another goal of the	ne course is to tea	ach the student			
pricing methods for tenders, to create a bill of quantities and a detailed estimate. Price, factors influencing price, types of prices, legislation. Valuation of building production in all stages						
of the project, data for v	aluation. Estimating, estimating basis. Hourly billing rates, bidding, software for costs estimation. Fees of project and engined	ering activities. Life	e cycle cost			
calculation (LCC) Data and bases for cost calculation - consumption of work and material, standards in construction. Wages and salaries. Costs and their classification, cost breakdown,						
common calculation methods and techniques, calculation bases. Dynamization of calculation, calculation of machine costs, individual cost calculation, calculation schema, content of						
individual cost components. Costs Controlling.						

#### Code of the group: BL202007

Name of the group: Stavební inženýrství, specializace P íprava, realizace a provoz staveb, 7. semestr Requirement credits in the group: In this group you have to gain at least 30 credits Requirement courses in the group: In this group you have to complete at least 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
122MKST	Quality Management System in Construction Company Tomáš Váchal, Pavel Svoboda, Linda Veselá Tomáš Váchal Pavel Svoboda (Gar.)	Z,ZK	6	2P+3C	Z	Ρ
122PR02	Project Design L02 Václav Pospíchal, Pavel Neumann, Tomáš Váchal, Miloslava Popenková Rostislav Šulc Václav Pospíchal (Gar.)	КZ	5	4C	Z	Ρ
122PSBL	Facility Management Pavel Neumann, Ond ej Štrup, Stanislav Smugala, Martin Václavík Rostislav Šulc Pavel Svoboda (Gar.)	Z,ZK	6	2P+3C	Z	Ρ
122TS03	Construction Technology 03 Pavel Neumann Rostislav Šulc Václav Pospíchal (Gar.)	Z,ZK	7	3P+3C	Z	Ρ
126STMN	<b>Construction Management</b> Renáta Schneiderová Heralová, Zita Prost jovská, Dana M š anová, Jaroslava Tománková, Václav Tatýrek <b>Martin ásenský</b> Zita Prost jovská (Gar.)	Z,ZK	6	3P+2C	Z,L	Ρ
100ODPR	Industrial Training (3 weeks) Jan R ži ka, Petr Hájek, Kate ina Sojková Michal Jandera Michal Jandera (Gar.)	Z	0	6C	Z,L	Ρ

# Characteristics of the courses of this group of Study Plan: Code=BL202007 Name=Stavební inženýrství, specializace P íprava, realizace a provoz staveb, 7. semestr

122MKST	Quality Management System in Construction Company	Z,ZK	6
Current world trends in	the field of quality management: quality management system (SMK) according to EN ISO 9001, Total Quality Management	(TQM) and re-engi	neering in
application to a constru	ction company. Analysis of quality management system processes. Forms of familiarization with the subject on specific case	s based on practic	al experience,
namely: management c	f the organization so that quality management and assurance is reflected in the implementation of construction e meeting cust	omer requirements	that are defined
in the contract continuo	us improvement of the effectiveness of SMK and training in the principles of quality policy, such as: Continuous satisfaction of	of external and inte	ernal customer
requirements; execution	of works; active involvement of all staff in quality improvement; creation of conditions by the management of the organization	on for flawless perf	ormance of all
	atest trends in achieving high quality processes and products; effective communication and teamwork in applying the process a	-	
system in the organisat	ion; all-round training of employees in order to capture the current world trend; motivation of employees by management and	differentiated rem	uneration for the
, ,	performance of work tasks; growth of culture in the organisation, economic prosperity and the resulting social approach of m		
122PR02	Project Design L02	KZ	5
	: division into objects, sections, shots, technological stages, determination of the directions of construction procedures of sta	aded processes L	ist of main
u u	al technological stages Determination of the main coefficients of the work queue for the main objects Design and assess	•	
	sis sheet according to the statement of dimensions or budget with the calculation of labor for the 0th - 4th stage process. Te	<b>a</b> 1	
	lesign of work crews with determination of their size, decisive materials (for transport) at the level of partial construction proc		-
	gical analysis sheet for the 0th - 4th stage process of the decisive object, hereinafter referred to as partial construction process		
	ansport processes. Time plan - schedule in the structure of partial construction processes, according to the processed tech		
	raph in the structure of partial construction processes . A complex space-time graph in the structure of stage processes . Gra	• •	·
· / · ·	ed materials over time, graph of the need for decisive machines and mechanisms Dimensioning of social and operational		
	the assignment: for the construction phase), including a technical report at the level of project documentation for a building p		
	(e.g. excavations, supporting structure, rough internal work and surface treatment and the end of construction); DIO, DIR. 1	a	, ,
	sport routes . Technological procedure for the agreed construction process/ including: on determining construction readiness		
	oyment plan (specific data from the rental company, etc.) o the deployment plan of decisive platoons o a detailed material si		
	eality with comparison with calculations) o a detailed list of the necessary tools and auxiliary structures (in detail) o a quality of		-
•	D with citation of decisive articles about documents or measurements that must be delivered or carried out with the delivery		
	) o OSH risks to the process and measures to eliminate them about the environmental aspects of the process and the possi		
effects on the ŽP	,		, <b>.</b>
122PSBL	Facility Management	Z,ZK	6
122TS03	Construction Technology 03	Z,ZK	7
Construction of the buil	ding and investment complex - basic terms. Production process of building and object. Spatial structure of object and comple	ex building process	s. Technological
and time structure of ot	ject and complex construction process. Technological stages for congruent and incongruent objects. Modeling construction p	roduction. Constru	ction technology
project and its main do	cuments, analysis and risk detection. Quality control of construction production. Environmental and health and safety plans. I	Public hearing of th	ne building.
Preparation and manag	ement of the construction of investment units. Designing principles of construction organization respecting the basic principles	of project manager	nent. Realization
of construction. Handin	g over and taking over the construction site, construction manager, foreman and their duties. Basic principles of the theory o	f flow construction	, its application
in practice. Modeling th	e construction progress using spatio-temporal graphs. Simulation of the construction process using network graphs, constru	ction technology n	etwork graph.
The use of computers ir	the modeling of building construction. Principles of designing construction site equipment for a building and an investment unit	. Information mode	eling of buildings,
principles and principle	s of BIM, use for building construction		
126STMN	Construction Management	Z,ZK	6
	procepts. Methods to support project management. Legal standards, SN and ISO standards. The essential aspects of Proje	1 1	onstruction as a
	ves, strategies, phases and surroundings of the construction project. Project manager role. Purchases and contracts in the p	•	
	management and project evaluation. Feasibility study. Cost and resource management. Change procedures. The Act on Sp		
-	the Awarding of Public Contracts, and the definition of terms. Business obligation relationships, the conclusion of contracts,	-	-
-	siness public competition, its influence on the obligations of participants. Securing the commitment - contractual penalty, gu		-

in construction - are contract for the conclusion of a future contract, purchase contract, contract for work, and content of the contract.

1000DPR	Industrial Training (3 weeks)	Z	0			
Professional practice is an important part of academic education in undergraduate degree programmes. The student will gain a basic understanding of duties and professional						
responsibilities. The pro	fessional practice evaluates the sum of all knowledge acquired through previous theoretical studies and is a proof of their ac	quisition.				

#### Code of the group: BL202008

Name of the group: Stavební inženýrství, specializace P íprava, realizace a provoz staveb, 8. semestr Requirement credits in the group: In this group you have to gain at least 18 credits Requirement courses in the group: In this group you have to complete at least 3 courses Credits in the group: 18

Note on the aroup.

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
122BPS	BOZP at work in construction company Tomáš Váchal, Pavel Svoboda, Petr Kube ek Tomáš Váchal Pavel Svoboda (Gar.)	Z,ZK	7	4P+2C	L	Ρ
122ITSL	<b>IT ( Information Technology) L</b> Pavel Neumann, Tomáš Váchal, Jaroslav Synek, Miroslav Vy ítal, Vja eslav Usmanov, Michal Ková ík, Petr Zavadil <b>Michal Ková ík</b> en k Jarský (Gar.)	Z,ZK	5	2P+2C	L	Ρ
124KKL	<b>Completing Constructions L</b> Lenka Hanzalová, Vladimír Ž ára, Hana Gattermayerová, Pavel Kopecký, Šárka Šilarová Šárka Šilarová Šárka Šilarová (Gar.)	Z,ZK	6	2P+3C	L	Ρ

#### Characteristics of the courses of this group of Study Plan: Code=BL202008 Name=Stavební inženýrství, specializace P (prava, realizace a provoz staveb, 8. semestr

122BPS BOZP at work in construction company The safety of work on the construction site is key in the conditions of the modern construction industry and precisely in relation to our integration into EU structures. Within this subject, students are introduced to the application of OSH for a specific industry, namely the construction industry, to the obligations of employees and employees, to the performance of state professional supervision, to the issue of occupational accidents (processes of their registration, investigation and compensation), to the creation of a safe workplace, categorization of work, occupational medical care, occupational risks (obligations of the employer, identification and assessment of risks, measures to minimize them), with personal protective work equipment. Furthermore, they are familiarized with the basic requirements for health and safety during the implementation of construction activities, with the performance of the health and safety coordinator during the preparation and implementation of constructions, health and safety during the use and operation of construction machinery, technical equipment and dedicated technical equipment, with risks associated with construction activities, with fire risks during implementation buildings, with the application of OSH in the design of buildings and the design of their implementation, with transport on the construction site, OSH training. 122ITSI IT (Information Technology) L Z.ZK 5

BIM in construction, basic documents (CDE, BEP), data standard (SNIM), BIM protocol BIM and legislation in the Czech Republic, BIM and its use in the world Geometric model of construction, input data without modelling - scanning, point clouds, mixed reality N-D models and BIM (4D surveys and valuations, 5D scheduling, higher order n-D models) Working with building information model, documentation management systems in a common data environment BIM and guality control, submodel and linked model, model data control, spatial coordination of documentation Quality management and tools, construction operation management, quality control on BIM models, IT tools Modelling and simulation and their use in the BIM model, environmental and health and safety plans, , Machine control using BIM models, industrialisation and prefabrication using 3D construction model Acceptance and data transfer using information models, facility management Logistics and subcontractor management in a BIM environment, construction supply and supply chain management Industrialization and prefabrication using 3D models Digitalisation trends in the construction industry, software

124KKL Completing Constructions L

Z,ZK In the first part, the subject deals with the complex design of indoor and high-rise buildings, especially the influence of marginal conditions on the choice of material and structural variants and with an emphasis on envelope structures. In the second, more extensive part, the principles of solutions for roofs, perimeter walls, opening fillings and internal completion structures for various types of buildings are clearly discussed.

6

Ζ

0

### Name of the block: Povinná t lesná výchova, sportovní kurzy Minimal number of credits of the block: 0 The role of the block: PT

### Code of the group: BTV\_POV

Name of the group: Povinná t lesná výchova

Requirement credits in the group:

Requirement courses in the group: In this group you have to complete at least 2 courses Credits in the group: 0

Note on the group:

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 TV1 **Physical Education**

Name of the block: Compulsory elective courses Minimal number of credits of the block: 6 The role of the block: S

Code of the group: BL202006\_1

Name of the group: Stavební inženýrství, specializace P íprava, realizace a provoz staveb, povinn volitelné p edm ty

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

Requirement courses in the group: In this group you have to complete at least 1 course Credits in the group: 6

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
122YTP	<b>Technology of preparatory processes</b> Václav Pospíchal, Pavel Neumann, Tomáš Váchal, Mária Párová, Karel Polák, Pavel Svoboda, Stanislav Smugala <b>Václav Pospíchal</b> Václav Pospíchal (Gar.)	Z,ZK	6	3P+3C	L	S
122YZS	<b>Special construction and technology</b> Pavel Neumann, Michal Procházka, Michal Ková ík <b>Michal Ková ík</b> Václav Pospíchal (Gar.)	Z,ZK	6	3P+3C	L	S
126YMFL	Managament in Construction Company Martin ásenský, Aleš Tomek, Radan Tomek Martin ásenský Martin ásenský (Gar.)	Z,ZK	6	3P+3C	L	S
134YDK	Additional timber and metal structures Jakub Dolejš Jakub Dolejš Jakub Dolejš (Gar.)	Z,ZK	6	3P+3C	L	S

### Characteristics of the courses of this group of Study Plan: Code=BL202006\_1 Name=Stavební inženýrství, specializace P íprava, realizace a provoz staveb, povinn volitelné p edm ty

122YTP	Technology of preparatory processes	Z,ZK	6				
Technology of the preparatory process in the offer phase. Calculation of decisive works. Production of technological procedures. Supplier documentation. Provision of collection points,							
seizures, primary and s	econdary transport. TPP during construction - passporting, marking, quality control. OHS and PO. Environmental aspects, re	duction of noise,	dust, vibrations,				
traffic pollution, green p	rotection. Tests, revisions, inspections during construction. Work in protective zones, work during operation. Auxiliary process	ses - production o	f reinforcement.				
Production of fresh con	crete. Production and transport of mortars, putty, adhesives, PSV production plant.						
122YZS	Special construction and technology	Z,ZK	6				
Progressive technologie	al procedures resulting from the latest construction research. Introduction to modern technologies used in the construction c	of non-traditional b	buildings and in				
meeting demanding cus	tomer requirements. Special methods of production of monolithic, prefabricated and combined silicate load-bearing structures.	Current technolog	gies of monolithic				
structures. Special tech	nologies of erection of steel structures. Special technologies used in the construction of new buildings as well as in the recor	struction of buildi	ngs and the				
protection of monument	ts. Progressive materials and technological procedures for interior and finishing works resulting from the latest developments	in construction re	search.				
126YMFL	Managament in Construction Company	Z,ZK	6				
The course provides a g	peneral overview of the problems of a business in the construction industry . The student is familiar and works actively with con-	ncepts strategy , s	trategic analysis				
, management - top , m	iddle and operational; planning at all levels and implementation plans, organizational structure, management levels in the c	ompany , controlli	ng, human				
resources managemen	t, marketing, process and project management, risk management in the company.						
134YDK	Additional timber and metal structures	Z,ZK	6				
The course introduces a	tudents to the basics of design and use of steel, timber and aluminum members and structures with emphasis on temporary s	tructures. The co	urse is dedicated				
to the scaffolding, also	timber and aluminum temporary structures.						
-							

Name of the block: Jazyky Minimal number of credits of the block: 3

The role of the block: J

Code of the group: BF20190201\_J Name of the group: Povinn volitelný jazyk, 2. semestr Requirement credits in the group: In this group you have to gain at least 1 credit Requirement courses in the group: In this group you have to complete at least 1 course Credits in the group: 1 Note on the group:

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

1

#### 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 compulsory English course is to enhance								
the knowledge of lexis a	and grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall fc	ocus is on profess	ional language					
(i.e., ESP - technical sty	rle) and communicative competence within the construction industry. The course also seeks to teach students to read technic	cal literature and t	o be able to					
produce essential writte	en discourse and to express themselves in writing on issues in their field of study. The end of course requirements are a cred	it 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 in	dustry, understand	ding professional					
texts, and learning the	necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Li	iterature: A.Hanák	ová, J.Dressel:					
Deutsch im Bauwesen								

Name of the block: Povinn volitelné p edm ty, doporu ení S1 Minimal number of credits of the block: 12 The role of the block: S1

Code of the group: BL202008\_1

Name of the group: Stavební inženýrství, specializace P íprava, realizace a provoz staveb, 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
122BAPL	Bachelor Thesis Miloslava Popenková, Pavel Svoboda Tomáš Váchal Václav Pospíchal (Gar.)	Z	12	10C	L,Z	S1
126BAPL	Bachelor Thesis Eduard Hromada Daniel Macek (Gar.)	Z	12	10C	L,Z	S1

# Characteristics of the courses of this group of Study Plan: Code=BL202008\_1 Name=Stavební inženýrství, specializace P íprava, realizace a provoz staveb, bakalá ská práce

122BAPL	Bachelor Thesis	Z	12				
126BAPL	Bachelor Thesis	Z	12				
The bachelor thesis finishes the bachelor study. A student proves that he/she is able to apply the knowledge acquired in the study on the real project. The bachelor thesis connects to							
the chosen subjects of the study curricula. The partial results are further evaluated and appropriate conclusions are drawn. Min. 4 continuous consultations with the head of bachelor							
study, where the student submits bachelor study in progress. For students of branch L.							

### List of courses of this pass:

Code	Name of the course	Completion	Credits		
1000DPR	Industrial Training (3 weeks)	Z	0		
Professional pra	actice is an important part of academic education in undergraduate degree programmes. The student will gain a basic understanding	of duties and prof	essional		
responsibilities. The professional practice evaluates the sum of all knowledge acquired through previous theoretical studies and is a proof of their acquisition.					
101KG01	Constructive Geometry	Z,ZK	5		
Projections and p	rojective methods. Axonometry. Oblique projection. Orthogonal axonometry. Displaying prisms, cones, cylinders, pyramids, balls. Sin	ple problems in ax	onometry.		
Basics of lighting	of solids and groupes of solids. Perspective projection. Curves, parametrisation. Frenet's trihedron, torsion and curvature. Helical sur	faces. Quadrics. S	urfaces in		
	building industry.				
101MA01	Mathematics 1	Z,ZK	6		
	https://mat.fsv.cvut.cz/bubenik/mat1detail.htm	,	-		
101MA02	Mathematics 2	Z,ZK	6		
101101/02	https://mat.fsv.cvut.cz/vyuka/bakalari/eng/ls/MT02/	2,213	Ū		
101MA03	Mathematics 3	Z.ZK	6		
	https://mat.fsv.cvut.cz/vyuka/bakalari/eng/zs/	2,21	0		
		7 71/	4		
102FYI	Physics	Z,ZK	4		
	ysics course for students of the study programmes Civil Engineering; Management and Economics in Construction. The course focus				
	he following areas are covered in the course: Mechanics of material points (particles) and deformable bodies. Discrete and continuou of a material point (particle). Mechanical force fields. Gravitational field. Mechanical vibrations. Material deformation. Elastic waves. Ac				
	Fundamentals of thermodynamics. Heat transfer.	ouslics. Hydromed	Jildillus.		
4042/004	-	7 71/	0		
104YC2A	English 2	Z,ZK	2		
-	code: 104YC2A Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit and exam The aim of the compulsory	-			
	exis and grammar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus		0 0		
	ical style) and communicative competence within the construction industry. The course also seeks to teach students to read technical				
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 an		Literature:		
4041/001	Horká Hana, Giormani Sandra, Martincová Petra, Nivenová Renata : Professional English for Civil Engineering (Units 6 10		0		
104YC2N	German 2	Z,ZK	2		
	urse - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction indust				
texts, and learning	the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Litera	ature: A.Hanakova	, J.Dressei:		
	Deutsch im Bauwesen	_			
104YCA1	English 1	Z	1		
	bde: 104Y CA1 Scope: 0 + 2 (practical sessions) Number of credits: 1 Final assessment: credit The aim of the compulsory English cours		•		
•	mmar within the scope of the chosen field of study and university studies in general (Academic English); the overall focus is on profess				
	communicative competence within the construction industry. The course also seeks to teach students to read technical literature and t				
written discourse ar	nd 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,	Martincova		
	Petra, Nivenová Renata : Professional English for Civil Engineering (Units 1 - 5)	_			
104YCN1	German 1	Z	1		
	urse - German Language for Civil Engineering is aimed at practising professional vocabulary within the scope of the construction indust				
texts, and learning	the necessary presentation skills in order to present all relevant professional issues. The end-of-course requirement is a credit. Literative state of the second stat	ature: A.Hanáková	, J.Dressel:		
	Deutsch im Bauwesen				
105SVAI	Social Sciences and Architecture	Z,ZK	5		
	nes the teaching of several social sciences: economics and economic policies, political science, political philosophy and law, with an				
	e section devoted to economics, the basic categories of the market economy, the foundations of economic policy and the basic conce				
	eoretical interpretation is effectively combined with practical examples from economic reality. In the lectures devoted to law, a brief ov		•		
	institutions is supplemented by a well-founded interpretation of the constitution, human rights and the labor code. Great attention is				
	d the Construction Act. In the political science lectures, the political development in ancient times is described in an engaging way, the				
systems, democra	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.				
122BAPL	Bachelor Thesis	Z	12		

122BPS	BOZP at work in construction company	Z,ZK	7
	on the construction site is key in the conditions of the modern construction industry and precisely in relation to our integration into EU		
	uced to the application of OSH for a specific industry, namely the construction industry, to the obligations of employers and employee		
	vision, to the issue of occupational accidents (processes of their registration, investigation and compensation), to the creation of a saf al medical care, occupational risks (obligations of the employer, identification and assessment of risks, measures to minimize them),		
	more, they are familiarized with the basic requirements for health and safety during the implementation of construction activities, with		
	ator during the preparation and implementation of constructions, health and safety during the use and operation of construction machines.		
	al equipment, with risks associated with construction activities, with fire risks during implementation buildings, with the application of C		
	and the design of their implementation, with transport on the construction site, OSH training.	0	
122ITSL	IT (Information Technology) L	Z,ZK	5
BIM in construction	n, basic documents (CDE, BEP), data standard (SNIM), BIM protocol BIM and legislation in the Czech Republic, BIM and its use in t	he world Geometri	c model of
	data without modelling - scanning, point clouds, mixed reality N-D models and BIM (4D surveys and valuations, 5D scheduling, high		, ,
-	ation model, documentation management systems in a common data environment BIM and quality control, submodel and linked mod		-
	cumentation Quality management and tools, construction operation management, quality control on BIM models, IT tools Modelling a		
	vironmental and health and safety plans, , Machine control using BIM models, industrialisation and prefabrication using 3D construction		
	nation models, facility management Logistics and subcontractor management in a BIM environment, construction supply and supply chair and prefabrication using 3D models Digitalisation trends in the construction industry, software	i management mut	ISITIAIIZAUUT
122MKST	Quality Management System in Construction Company	Z,ZK	6
	ends in the field of quality management: quality management system (SMK) according to EN ISO 9001, Total Quality Management (T	· 1	
	instruction company. Analysis of quality management system processes. Forms of familiarization with the subject on specific cases be	, ,	0
namely: manageme	ent of the organization so that quality management and assurance is reflected in the implementation of construction e meeting customer	requirements that	are defined
in the contract cor	tinuous improvement of the effectiveness of SMK and training in the principles of quality policy, such as: Continuous satisfaction of e	xternal and interna	l customer
requirements; exe	cution of works; active involvement of all staff in quality improvement; creation of conditions by the management of the organization for	or flawless perform	ance of all
	the latest trends in achieving high quality processes and products; effective communication and teamwork in applying the process appro-		•
	nisation; all-round training of employees in order to capture the current world trend; motivation of employees by management and diffe		
	d in the performance of work tasks; growth of culture in the organisation, economic prosperity and the resulting social approach of m		-
122PR01	Project Design L01		5
According to the as	signed study of a simpler building (at the level of the project for the zoning decision), the design of the supporting structure of the build of the building.	ling in details for th	e execution
122PR02	Project Design L02	KZ	5
	cheme: division into objects, sections, shots, technological stages, determination of the directions of construction procedures of stag	I	
e e	dividual technological stages Determination of the main coefficients of the work queue for the main objects Design and assessme		
	analysis sheet according to the statement of dimensions or budget with the calculation of labor for the 0th - 4th stage process Tech		
decisive mechanis	ms, design of work crews with determination of their size, decisive materials (for transport) at the level of partial construction process	es (manually with	the transfer
of items of the tech	nological analysis sheet for the 0th - 4th stage process of the decisive object, hereinafter referred to as partial construction processe	s for remaining 5th	- 9th stage
. , ,	s of transport processes Time plan - schedule in the structure of partial construction processes, according to the processed technol	0 ,	
. , .	me graph in the structure of partial construction processes . A complex space-time graph in the structure of stage processes . Graph		
	pecified materials over time, graph of the need for decisive machines and mechanisms. Dimensioning of social and operational ZS.		
<b>3</b> (	ig to the assignment: for the construction phase), including a technical report at the level of project documentation for a building perm ages (e.g. excavations, supporting structure, rough internal work and surface treatment and the end of construction); DIO, DIR The s		
	transport routes. Technological procedure for the agreed construction process/ including: on determining construction readiness on t		
	e deployment plan (specific data from the rental company, etc.) o the deployment plan of decisive platoons o a detailed material suppl	-	-
	g to reality with comparison with calculations) o a detailed list of the necessary tools and auxiliary structures (in detail) o a quality contr		
reference to SN	or ISO with citation of decisive articles about documents or measurements that must be delivered or carried out with the delivery of a	specific constructi	on o winter
measures (if nece	ssary) o OSH risks to the process and measures to eliminate them about the environmental aspects of the process and the possibilit	y of minimizing the	ir negative
400000	effects on the ŽP	7 71/	
122PSBL	Facility Management	Z,ZK	6
122TES2	Construction Technology 02	Z,ZK	8
122TS01	Construction Technology 01	Z,ZK	7
	sses, construction participants. Principles and drives of construction machines, efficiency, acquisition, deployment and use of machine		-
	n types. Machines for preparatory and earthworks. machine assemblies, flow charts. Arming - principles, individual types, procedures, ments, embankments, compaction, drainage. Machines for adjusting, profiling and improving the plain (scrapers, graders, ground stal		-
	It finishers and cookers), machines for special foundation, machines for transport. Traditional and system formwork, application of for		-
	ment of reinforcement. Placement of fresh concrete, compaction and treatment of fresh concrete. Central and local concrete production		•
	evices, tower and car cranes, elevators, turnstiles, footbridges. Assembly work, assembly methods. Construction of masonry structure		-
	mortars on the construction site Scaffolding, fencing, retaining structures.		
122TS03	Construction Technology 03	Z,ZK	7
Construction of the	e building and investment complex - basic terms. Production process of building and object. Spatial structure of object and complex bi	uilding process. Te	chnological
	of object and complex construction process. Technological stages for congruent and incongruent objects. Modeling construction produ		
	ain documents, analysis and risk detection. Quality control of construction production. Environmental and health and safety plans. Pu		•
	anagement of the construction of investment units. Designing principles of construction organization respecting the basic principles of pro-		
	anding over and taking over the construction site, construction manager, foreman and their duties. Basic principles of the theory of flo		
	ing the construction progress using spatio-temporal graphs. Simulation of the construction process using network graphs, construction	The composition of the compositi	
	ers in the modeling of building construction. Principles of designing construction site equipment for a building and an investment unit. Info	rmation modeling	of buildinas.
122YTP	ers in the modeling of building construction. Principles of designing construction site equipment for a building and an investment unit. Info principles and principles of BIM, use for building construction	ormation modeling	of buildings,
	principles and principles of BIM, use for building construction		of buildings,
Technology of the p		Z,ZK	6
	principles and principles of BIM, use for building construction Technology of preparatory processes	Z,ZK Provision of collect	6 ction points,
seizures, primary a	principles and principles of BIM, use for building construction Technology of preparatory processes preparatory process in the offer phase. Calculation of decisive works. Production of technological procedures. Supplier documentation and secondary transport. TPP during construction - passporting, marking, quality control. OHS and PO. Environmental aspects, reduce pen protection. Tests, revisions, inspections during construction. Work in protective zones, work during operation. Auxiliary processes	Z,ZK Provision of collection of noise, dust,	6 ction points, , vibrations,
seizures, primary a traffic pollution, gre	principles and principles of BIM, use for building construction Technology of preparatory processes preparatory process in the offer phase. Calculation of decisive works. Production of technological procedures. Supplier documentation and secondary transport. TPP during construction - passporting, marking, quality control. OHS and PO. Environmental aspects, reduce protection. Tests, revisions, inspections during construction. Work in protective zones, work during operation. Auxiliary processes Production of fresh concrete. Production and transport of mortars, putty, adhesives, PSV production plant.	Z,ZK Provision of collection of noise, dust, - production of reir	6 ction points, , vibrations, nforcement.
seizures, primary a traffic pollution, gre 122YZS	principles and principles of BIM, use for building construction Technology of preparatory processes preparatory process in the offer phase. Calculation of decisive works. Production of technological procedures. Supplier documentation and secondary transport. TPP during construction - passporting, marking, quality control. OHS and PO. Environmental aspects, reduce protection. Tests, revisions, inspections during construction. Work in protective zones, work during operation. Auxiliary processes Production of fresh concrete. Production and transport of mortars, putty, adhesives, PSV production plant. Special construction and technology	Z,ZK . Provision of collect tion of noise, dust, - production of reir Z,ZK	6 ction points, , vibrations, nforcement. 6
seizures, primary a traffic pollution, gre 122YZS Progressive techn	principles and principles of BIM, use for building construction Technology of preparatory processes preparatory process in the offer phase. Calculation of decisive works. Production of technological procedures. Supplier documentation and secondary transport. TPP during construction - passporting, marking, quality control. OHS and PO. Environmental aspects, reduct een protection. Tests, revisions, inspections during construction. Work in protective zones, work during operation. Auxiliary processes Production of fresh concrete. Production and transport of mortars, putty, adhesives, PSV production plant. Special construction and technology ological procedures resulting from the latest construction research. Introduction to modern technologies used in the construction of n	Z,ZK Provision of collec- tion of noise, dust, - production of reir Z,ZK on-traditional build	6 ction points, vibrations, nforcement. 6 ings and in
seizures, primary a traffic pollution, gre 122YZS Progressive techn	principles and principles of BIM, use for building construction Technology of preparatory processes preparatory process in the offer phase. Calculation of decisive works. Production of technological procedures. Supplier documentation and secondary transport. TPP during construction - passporting, marking, quality control. OHS and PO. Environmental aspects, reduce protection. Tests, revisions, inspections during construction. Work in protective zones, work during operation. Auxiliary processes Production of fresh concrete. Production and transport of mortars, putty, adhesives, PSV production plant. Special construction and technology	Z,ZK Provision of collec- tion of noise, dust, - production of reir Z,ZK on-traditional build	6 ction points, vibrations, nforcement. 6 ings and in

	al technologies of erection of steel structures. Special technologies used in the construction of new buildings as well as in the recons nonuments. Progressive materials and technological procedures for interior and finishing works resulting from the latest developments	s in construction re	
123CHE	Chemistry	Z,ZK	4
	neral chemistry - chemical bond, compounds, reactions, equilibrium. Chemistry of environment - water, atmosphere, pedosphere. Che		
	glass, ceramic, metals, natural polymers, wood, synthetic polymers on C and Si basis. Introduction to degradation of building materia		
123SH01	Building Materials	Z,ZK	5
Building materials	- basis course. Clasification of the materials. Structure of materials. Main properties of materials. Application of materials in building	constructions. Intro	duction to
	material testing.		
124KKL	Completing Constructions L	Z,ZK	6
	he subject deals with the complex design of indoor and high-rise buildings, especially the influence of marginal conditions on the choi n emphasis on envelope structures. In the second, more extensive part, the principles of solutions for roofs, perimeter walls, opening		
	structures for various types of buildings are clearly discussed.		completion
124PSI1	Building Structures 1	Z	4
	sign of building structures with a comprehensive consideration of the functional requirements imposed on individual elements. Require	ements for building	structures,
structural system, interaction of elements, spatial effect of the structural system. Vertical load-bearing structures (functions, requirements, principles of the structural design of walls,			
	ictures (functions, requirements, principles of the structural design of vaults, wooden ceilings, reinforced concrete ceilings, ceramic co	-	
124PSI2	e ceilings). Expansion joints in load-bearing systems. Structural systems of single and multi-storey buildings, structural systems of lor Building Structures 2I		4
	punding Structures 21 punding Structures 21 pamps, lift shafts - requirements, structural and material solutions, basics of typology, design principles, construction details, railing. Bu	Z,ZK	-
	f foundations, requirements, building plinth area (construction details). Basement - solution of basement walls, requirements, protectio	-	
systems. Structura	al expansion joints in buildings - principles of joints design in bearing structures, thermal expansion, compensation of differences in se	ettlement, construct	tion details.
	Roof truss systems.		
124STAO	Building Acoustics and Daylighting	Z	3
	y deals with two main parts, sun exposure and daylighting. In the first part, the listener will learn which objects are subject to requirem		-
	e of insolation. This part also includes the connection of the results with possible boundary conditions. The second part deals with the uildings with regard to the gradation of sky brightness, shading conditions and the characteristics of the room and the lighting opening.	-	
	ed to the concepts of sound and noise, sound perception, basic quantities, sound sources and corresponding limits. The next part of the	•	
	e and diffuse fields and sound propagation around barrier. Particular attention is paid to the sound insulation properties of partition str		
	structures.	· · · · · ·	
124STTT	Hygrothermal Performance of Buildings	ZK	3
125TZ01	Building services systems 1	Z,ZK	5
	Basic course in building services systems - water supply, drainage, gas supply and heating systems.	7	40
126BAPL	Bachelor Thesis s finishes the bachelor study. A student proves that he/she is able to apply the knowledge acquired in the study on the real project. Th	Z Z	12
	ts of the study curricula. The partial results are further evaluated and appropriate conclusions are drawn. Min. 4 continuous consultati		
,	study, where the student submits bachelor study in progress. For students of branch L.		
126BIM1	BIM	Z	1
The course focuse	and the shine has in the field of Duilding Information Management (DIM) in the section I and an attend and the field of Duilding Information Management (DIM) in the section I and the section I		-
	es on teaching basic knowledge in the field of Building Information Management (BIM) in theoretical and practical areas, applicable and		
and disciplines of t	he construction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digitized	d documents, raste	r and vector
and disciplines of t graphics, open data	he construction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digitized a sources in the Czech Republic, ICT and enterprise systems, information systems for the construction industry, but also the context of	d documents, raste BIM in the current o	r and vector construction
and disciplines of t graphics, open data	he construction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digitized	d documents, raste BIM in the current o	r and vector construction
and disciplines of t graphics, open data	he construction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digitized a sources in the Czech Republic, ICT and enterprise systems, information systems for the construction industry, but also the context of to the entire project life cycle and its specifics (delivery, expert focus, phases of construction projects, etc.) The theoretical knowledge	d documents, raste BIM in the current o	r and vector construction
and disciplines of ti graphics, open data industry in relation 126EKMN	he construction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digitized a sources in the Czech Republic, ICT and enterprise systems, information systems for the construction industry, but also the context of to the entire project life cycle and its specifics (delivery, expert focus, phases of construction projects, etc.) The theoretical knowledge exercises aimed at mastering and understanding the basic principles of object-oriented parametric modelling.	d documents, raste BIM in the current of a is complemented Z,ZK	r and vector construction by practical 7
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and disciplines of ti graphics, open data industry in relation 126EKMN The aim of the co their practical ap	he construction industry. Students will be introduced to data formats, data standards, intellectual property issues, working with digitized a sources in the Czech Republic, ICT and enterprise systems, information systems for the construction industry, but also the context of to the entire project life cycle and its specifics (delivery, expert focus, phases of construction projects, etc.) The theoretical knowledge exercises aimed at mastering and understanding the basic principles of object-oriented parametric modelling. Economics and Management urse is to provide students with an introduction to economics and management in the construction industry and to familiarize them wi plications. 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 principles of the principle of the principle of th	d documents, raste BIM in the current of a is complemented Z,ZK ith basic economic basic information	r and vector construction by practical 7 terms and about the
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132SM02	Structural Mechanics 2	Z,ZK	6
Internal forces di	agrams of simple statically determinate plane structures and compound two-dimensional structures. Multiaxially loaded cantilever. De	finition of normal s	tress and
-	positions of its distribution in a cross section. Equivalence of internal forces. Geometry of mass and areas, centre of gravity and mom	ents of inertia.	
132SM3	Structural Mechanics 3	Z,ZK	5
Deformation and fo	prce method for the solution of reactions and internal forces on statically indeterminate beams, frames, and truss structures. Calculation	on of displacement	s of beams,
	frames, and truss structures using the principle of virtual works.		
133NNKB	Fundamentals of Structural Design - Concrete	Z,ZK	4
	e subject are the basics of load-bearing concrete structures design and the design methodology according to valid standards, includi	-	
	perties of concrete, the production and testing of concrete, the properties of concrete reinforcement and its interaction with concrete		•
	concrete structures for basic types of loading (bending, shear, pressure) are the main part of this course. An introduction to serviceabi he course follows the introductory subject of Civil Engineering program (Structural Mechanics, Elasticity and Strength, Building Mater	•	
			,
133RBZS	Construction of Concrete and Masonry Structures	Z,ZK	6
-	bcused on the practical designing of basic concrete structural elements, relations of the design and behaviour of structural members, i xecution. The principles of structural design are presented with an emphasis on simplified and empirical methods. The subject also in-	-	
	structures, an introduction to the design of bridges and engineering structures, and the basic principles of prestressed concrete elements		rindsoniry
134NNKO	Design of Supporting StructuresI - Steel	Z,ZK	3
	gning steel, steel-concrete and wooden load-bearing structures according to applicable standards, including the determination of load	,	-
	to the specific properties of individual materials.	, <u>-</u>	
134ROD	Steel and Timber Structures Construction	Z,ZK	6
	ed on the basis of the design of steel and timber structures and their construction. Subject increases the knowledge the previous subj	· 1	-
,	of elementary structural members.		0
134YDK	Additional timber and metal structures	Z,ZK	6
	ces students to the basics of design and use of steel, timber and aluminum members and structures with emphasis on temporary struc		-
	to the scaffolding, also timber and aluminum temporary structures.		
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	sis is placed on ex	plaining the
influence of geolog	ical processes, both endogenous and exogenous, on the rock environment and how the geological situation affects the design of struc	tures and their inte	raction with
the rock environme	ent. At the same time, attention is paid to the technical properties of rocks with regard to their practical applications. The course also i	ncludes a brief intr	oduction to
	the regional geology of the Czech Republic.		
135GM2I	Geomechanics 2I	Z,ZK	5
Formation of so	pils, basic properties of soils, water in soil, strength and deformation properties of soils and their determination, improvement of soil pi	operties, application	on tasks
135ZSVT			
1002011	Foundations	Z,ZK	5
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