### Study plan

# Name of study plan: Stavební inženýrství - pozemní stavby, specializace Projektování pozemních staveb

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Civil Engineering - Building Engineering

Type of study: Follow-up master full-time

Required credits: 90 Elective courses credits: 0 Sum of credits in the plan: 90

Note on the plan: platí pro nástup od akad. roku 2023/24

Name of the block: Compulsory courses Minimal number of credits of the block: 48

The role of the block: Z

Code of the group: NC20230101

Name of the group: Projektování pozemních staveb, 1. semestr

Requirement credits in the group: In this group you have to gain at least 23 credits

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

Credits in the group: 23 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
101MAPS	Mathematics PS Jana Nosková, Michal Zdražil, Iva Malechová, Jozef Bobok Jana Nosková Jana Nosková (Gar.)	Z,ZK	3	2P+1C	Z	Z
124PS4C	Building Structures 4  Vladimír Ž ára, Hana Gattermayerová, Tomáš ejka, Ctislav Fiala Vladimír Ž ára Vladimír Ž ára (Gar.)	Z,ZK	4	2P+2C	Z	Z
124INBB	Integrated Design of Buildings Jan R ži ka, Petr Hájek, Antonín Lupíšek Antonín Lupíšek Petr Hájek (Gar.)	Z,ZK	4	2P+1C	Z	Z
133BOKO	Concrete and Masonry Structures 1  Josef Novák, B etislav Židlický Petr Bílý Petr Bílý (Gar.)	Z,ZK	4	2P+2C	Z	Z
124KOSD	Complex Structural Detail Ji í Pazderka, Radek Zigler <b>Ji í Pazderka</b> Ji í Pazderka (Gar.)	KZ	3	2C	Z	Z
124P03C	Structural Design 3C Tomáš ejka, Tereza Pavl , Ji í Pazderka, Radek Zigler, Kamil Stan k, Martin Jiránek <b>Ji í Pazderka</b> Ji í Pazderka (Gar.)	KZ	5	4C	Z	Z

Characteristics of the courses of this group of Study Plan: Code=NC20230101 Name=Projektování pozemních staveb, 1. semestr

101MAPS	Mathematics PS	Z,ZK	3			
Focused on basic a	nd more advanced statistical and probabilistic methods of data analysis as well as on hypothesis testing and regression.					
124PS4C	Building Structures 4	Z,ZK	4			
124INBB	Integrated Design of Buildings	Z,ZK	4			
The main objective	of the subject Integrated Building Design is to get an complex overview of the principles of integrated buildings design, life cycle a	ssessment of build	dings, evaluation			
of building performa	nce, green/sustainable certification systems and understand environmental, social and economic aspects of the built environme	nt.				
133BOKO	Concrete and Masonry Structures 1	Z,ZK	4			
124KOSD	Complex Structural Detail	KZ	3			
The girm of the course is to extend the knowledge gained in provious courses, it is intended for students who have already received advanced level of knowledge chaut atrustural						

The aim of the course is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of knowledge about structural problems in buildings. The content of the course is focused on the complex solution of construction details, following all legislative requirements and taking into account the maximum efficiency and durability of the chosen solution.

124P03C Structural Design 3C

KZ

The student processes selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurbishment of an older building (assignment "R"). In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a simplified documentation of the current state of the building and an analysis of broader relationships (R). It also optimizes variants of the construction solution (N) or evaluates the construction and technical condition of the specified object - STP (R). In the next phase, he will carry out a conceptual design of construction details (N) or an analysis of faults and their causes - STP (R). It also processes selected parts of the project documentation of the building or its parts (N) or drafts selected rehabilitation measures (R)

Code of the group: NC20230201

Name of the group: Projektování pozemních staveb, 2. semestr

Requirement credits in the group: In this group you have to gain at least 25 credits

Requirement courses in the group: In this group you have to complete at least 7 courses

Credits in the group: 25 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
135ZS02	Foundations 2 Josef Jettmar, Jan Masopust, Daniel Jirásko Jan Masopust Josef Jettmar (Gar.)	Z,ZK	4	2P+2C	L	Z
132DKBU	Diagnostics of Structures and Buildings Ji í Novák, Michal Polák, Pavel Tesárek Michal Polák Michal Polák (Gar.)	KZ	3	1P+2C	L	Z
124TT2C	Thermal Engineering in Construction 2 Zbyn k Svoboda Zbyn k Svoboda Zbyn k Svoboda (Gar.)	KZ	3	1P+2C	L	Z
124PDR2	Failures, Deterioration, Renovations 2 Tomáš ejka, Radek Zigler Tomáš ejka Tomáš ejka (Gar.)	Z,ZK	4	2P+1C	L	Z
124DRS	<b>Timber Constructions</b> Jan R ži ka, Kamil Stan k, Jan Tywoniak, Jaroslav Vychytil, Lukáš Velebil, Vladimír Mózer <b>Jan Tywoniak</b> Jan Tywoniak (Gar.)	Z,ZK	3	2P+1C	L	Z
132DYKC	Dynamics of Building Structures Ji í Máca, Tomáš Krej í <b>Ji í Máca</b> Ji í Máca (Gar.)	Z,ZK	3	2P+1C	L	Z
124P04C	Structural Design 4C Tomáš ejka, Tomáš Vlach, Tereza Pavl , Ji í Pazderka, Radek Zigler, Kamil Stan k, Jan Tywoniak, Karel Kabele <b>Ji í Pazderka</b> Tomáš ejka (Gar.)	KZ	5	4C	L	Z

#### Characteristics of the courses of this group of Study Plan: Code=NC20230201 Name=Projektování pozemních staveb, 2. semestr

1352502	Foundations 2	_ ∠,∠ <b>r</b> \	4
The course deepens the	e knowledge from the previous course ZS1. It covers design principles, risks associated with the foundation of structures, de	eper design of flat	t foundations,
deeper design of deep t	foundations, negative casing friction of drilled piles, grouting (calculations and execution), construction pits, improvement of f	oundation soils.	

132DKBU	Diagnostics of Structures and Buildings	KZ	3
124TT2C	Thermal Engineering in Construction 2	KZ	3

Extension and completion of knowledge from the basic short course on thermal protection of buildings. Thermal transmittance of windows and curtain walls, linear and point thermal transmittance, ventilated constructions, energy performance of buildings and building energy performance certificate, thermal stability of rooms and risk of overheating, thermal protection of historic buildings.

#### 124PDR2 Failures, Deterioration, Renovations 2

Z,ZK

As part of the course, students will become familiar with the structural statics and analytical problems of failures, rehabilitation and restoration of load-bearing and completion structures of historical buildings, including the influence of fire resistance requirements, health safety and building physics. The lectures, structured into thematic areas, will mainly cover the areas of damage and repair of brick tenement houses, rural buildings, industrial buildings, objects realized with prefabricated technology, damage and repair of opening fillings (windows, doors), floor structures, chimneys and staircases of historical buildings.

#### 124DRS Timber Constructions

Z,ZK

Students will learn about the complex issues of designing modern wooden buildings. The introductory block of lectures is dedicated to the material base, structural systems, and mechanical properties of wood and wood-based materials. The principles of ensuring spatial rigidity of the light frame and mass-timber structural systems are presented. It follows a lecture block focused on the design of envelope constructions of wooden buildings, moisture safety, biological threats, and principles of wood protection. In the following two lectures, the structure of wood and the interaction of the wood substance with air humidity, which has a significant effect on all technical properties of wood, are described in more detail. The next lecture is devoted to passive measures to reduce the risk of summer overheating of wooden buildings. In the last lecture, construction technology is discussed and a comprehensive approach to the design of modern wooden buildings is emphasised.

#### 132DYKC Dynamics of Building Structures

Z,ZK

Principles of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Damped vibration. Methods of dynamic analysis of muti-degreee-of-freedom systems.

#### 24P04C Structural Design 4C

ΚZ

5

3

The student processes selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurbishment of an older building (assignment "R"). In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a simplified documentation of the current state of the building and an analysis of broader relationships (R). It also optimizes variants of the construction solution (N) or evaluates the construction and technical condition of the specified object - STP (R). In the next phase, he will carry out a conceptual design of construction details (N) or an analysis of faults and their causes - STP (R). It also processes selected parts of the project documentation of the building or its parts (N) or drafts selected rehabilitation measures (R)

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 6

The role of the block: PV

Code of the group: NC20230101\_2

Name of the group: Projektování pozemních staveb, PV p edm ty, 1. semestr

Requirement credits in the group: In this group you have to gain at least 4 credits

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

Credits in the group: 4

Note on the group:

V případě splnění některého předmětu v bakalářském studiu nelze tento předmět

zapsat znovu.

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
102YFPL	Solid State Physics in Civil Engineering Ji í Konfršt Ji í Konfršt Ji í Konfršt (Gar.)	Z	2	1P+1C	Z	PV
122YTSD	Technology of Component Production Rostislav Šulc Rostislav Šulc (Gar.)	Z	2	1P+1C	Z,L	PV
124YADO	Acoustics and Daylighting of Buildings  Jaroslav Vychytil, Ji í Nová ek <b>Ji í Nová ek</b> Jaroslav Vychytil (Gar.)	Z	2	1P+1C	Z	PV
124YCPV	The Principles of Circular Economy in Building Construction Tereza Pavl Tereza Pavl Tereza Pavl (Gar.)	Z	2	1P+1C	Z	PV
124YDPH	Diagnosis and Surveying of Building Structures Eva Burgetová Eva Burgetová (Gar.)	Z	2	1P+1C	Z	PV
124YDSR	Demolitions of Buildings and Material Recycling Šárka Šilarová, Zuzana Rácová <b>Šárka Šilarová</b> Šárka Šilarová (Gar.)	Z	2	1P+1C	Z	PV
124YPBS	Principles of Building Fire Safety Vladimír Mózer Vladimír Mózer Vladimír Mózer (Gar.)	ZK	2	1P+1C	Z	PV
124YPRS	Failures, Deterioration, Renovations Radek Zigler Radek Zigler (Gar.)	Z	2	1P+1C	Z	PV
125OZE1	Renewable Energy Sources Michal Kabrhel Michal Kabrhel (Gar.)	ZK	3	2P	Z,L	PV
132PRPM	Deformation and Failure of Materials Milan Jirásek, Petr Havlásek, Lenka Dohnalová Milan Jirásek Milan Jirásek (Gar.)	Z,ZK	5	2P+2C	Z	PV
132YKPA	Statics for Architecture  Aleš Jíra	Z	2	1P+1C	Z,L	PV
132YMMO	Modern Methods of Optimization Mat j Lepš, Jan Zeman Mat j Lepš Mat j Lepš (Gar.)	Z	2	1P+1C	Z	PV
132YSEI	Seismic Engineeering Ji í Máca <b>Ji í Máca</b> Ji í Máca (Gar.)	Z	2	1P+1C	Z	PV
132YSSK	Reliability of Structures Jaroslav Kruis Jaroslav Kruis (Gar.)	Z	2	1P+1C	Z	PV
133YBEX	Concrete under Extreme Conditions Radek Štefan, Petr Štemberk, Marek Foglar Radek Štefan Radek Štefan (Gar.)	Z	2	1P+1C	Z	PV
133YPRK	Failures and Rehabilitation of Concrete Structures Petr Štemberk, Jakub Žák Petr Štemberk Petr Štemberk (Gar.)	Z	2	1P+1C	Z	PV
134YDKM	Timber structures and bridges Anna Kuklíková <b>Anna Kuklíková</b> Anna Kuklíková (Gar.)	Z	2	1P+1C	Z	PV
134YROK	Extending the Life of Steel and Timber Structures Karel Mikeš Karel Mikeš (Gar.)	Z	2	1P+1C	Z	PV
134YSMK	Stability and modelling of steel structures  Josef Machá ek, Michal Jandera Michal Jandera Josef Machá ek (Gar.)	Z	2	1P+1C	Z	PV
135YGSM	Geotechnical Software for Numerical modelling Jan Salák, Alena Zemanová, Daniel Turanský, Jan Ježek Alena Zemanová Alena Zemanová (Gar.)	Z	2	1P+1C	Z	PV
210YDSM	Diagnostics of Building Materials Properties  Ji í Litoš Ji í Litoš Ji í Litoš (Gar.)	Z	2	1P+1C	Z	PV
210YSB	Special Concretes Pavel Reiterman, Vendula Kellnerová, Ond ej Hol apek Pavel Reiterman Pavel Reiterman (Gar.)	Z	2	2P	Z,L	PV

# Characteristics of the courses of this group of Study Plan: Code=NC20230101\_2 Name=Projektování pozemních staveb, PV p edm ty, 1. semestr

102YFPL	Solid State Physics in Civil Engineering	Z	2		
Solids, crystal structure	, atomic shell theory, valence layer chemical bonds, dislocation disturbances, critical crack energy, vibration of masses, syste	ms natural freque	ncy of vibration		
and damped vibration, I	and damped vibration, basics concepts of fracture mechanics, types of fracture, electron microscopes, scanning tunneling microscope, atomic force microscope, diffraction, diffraction				
methods, semiconducto	ors, p-n junction, photovoltaic effect, solar cells, heat and moisture transport.				
122YTSD	Technology of Component Production	Z	2		
124YADO	Acoustics and Daylighting of Buildings	Z	2		
The course focuses on	a more detailed explanation and practice of selected topics in the field of daylighting and building acoustics that students may e	ncounter in future	design practice.		
124YCPV	The Principles of Circular Economy in Building Construction	Z	2		
124YDPH	Diagnosis and Surveying of Building Structures	Z	2		
Course sets out key considerations and implications which require structure assessment. The course provides an objective framework and methodical and systematic approach to					
, , ,	surveying (structural diagnosis, preliminary and comprehensive survey, visual inspection, site inspections, laboratory tests, investigation kits, types of defects and damages, symptoms, manifestation, significance, criticality, reason for failures case studies)				

124YDSR	Demolitions of Buildings and Material Recycling	Z	2					
The use of construction	waste from demolitions from the production of building materials and from other sectors in the construction industry with the	aim of: significant	ly reducing the					
volumes of landfilled m	aterials, reducing the consumption of primary raw materials, a new perspective on the design of buildings and structures in a	ccordance with a	closed life cycle.					
Legislation, levels of re	cycling in developed countries, recycling in CR, possibilities of recycling buildings and structures, design of structures from th	e point of view of	sustainable					
development, minimiza	tion of landfills, examples and demonstrations of recycling technologies, low-waste technologies							
124YPBS	Principles of Building Fire Safety	ZK	2					
The course is focused	on the presentation and acquisition of the most important concepts and principles of fire safety in buildings. Attention is paid t	o all the main com	ponents of fire					
safety design that are i	mportant for the protection of life and health, property, the environment and other assets. The course is intended for students	of non-fire discipli	nes and should					
enable them to take int	o account aspects of fire safety from the initial stages of project preparation of buildings.							
124YPRS	Failures, Deterioration, Renovations	Z	2					
The course is focused	on the current issue of restoration, reconstruction and modernization of buildings (residential, industrial, etc.), on historical stru	uctures and mater	als, the issue of					
degradation and aging of	degradation and aging of structures and materials of historical buildings, their residual life and failures of historical buildings and their parts. An integral part is the issue of structural-technical							
and historical surveys, diagnostics and assessment of the structural-technical condition and remaining service life.								
125OZE1	Renewable Energy Sources	ZK	3					
Renewable sources are	becoming increasingly important sources of energy for buildings. Understanding their characteristics is key to the proper design	n and operation o	these systems.					
The course therefore lo	oks in detail at renewable sources and their applications.							
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.	, ,						
132YKPA	Statics for Architecture	Z	2					
132YMMO	Modern Methods of Optimization	Z	2					
	an overview of numerical optimization methods applicable not only in the Civil Engineering area. The emphasis is put more on th	l I	_					
	cations in MATLAB environment are also conducted during exercises.	ic introduction of a	iving principles,					
132YSEI		Z	2					
	Seismic Engineeering gn of earthquake resistant structures. Methods of calculating the response of structures to earthquake loads according to Eu							
132YSSK	Reliability of Structures	Z	2					
	to the reliability of elements and systems. Element reliability is time dependent while the reliability of systems is of type streng	jtn-load. Complica	ted cases are					
	ethod. Two simulation methods are introduced: Monte Carlo and LHS.							
133YBEX	Concrete under Extreme Conditions	Z	2					
	on concrete and concrete structures under extreme conditions.	,						
133YPRK	Failures and Rehabilitation of Concrete Structures	Z	2					
	the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial meas		1					
_	ures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of be	ending moment ar	d shear, and					
foundation structures a	re discussed. The course appropriately combines theoretical approaches with common practice.							
134YDKM	Timber structures and bridges	Z	2					
Timber structures focus	sed to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges. I	Repairing and stre	ngthtening. Fire					
design. Production, pro	tection, erection and maintenance. Design and evaluation of bridges, roofs structures in normal temperature and in fire.							
134YROK	Extending the Life of Steel and Timber Structures	Z	2					
Materials used for beari	ng structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, st	atic assumptions o	f reconstruction.					
Possibilities of strength	ening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstructions a	and development of	of numerical					
models.								
134YSMK	Stability and modelling of steel structures	Z	2					
Subject YSMK covers t	wo parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel fram	ne structures. In th	e first part the					
historic collapses of ste	el structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are prin	ciples of theory of	buckling, linear					
and nonlinear theory of	buckling of thin plates. The results are applied to the 4th class cross sections in harmony with Eurocode. Buckling due to nor	mal, shear and lo	cal loadings					
including their combina	tion is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The s	second part is focu	sed on member					
and structure stability. F	Possible global analysis methods are presented together with methods for compression and bending interaction for slender m	and an area of the state of	specific cases					
of lateral torsional buck	desible global analysis methods are presented together with methods for compression and bending interaction for siender me	embers. In detail,						
135YGSM	ling are explained including also tapered members.	embers. In detail,						
		Z	2					
Students get acquainte	ling are explained including also tapered members.	Z						
	ling are explained including also tapered members.  Geotechnical Software for Numerical modelling	Z introducing the ba	sic principles of					
the Finite Element Meth	ling are explained including also tapered members.  Geotechnical Software for Numerical modelling d with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on	Z introducing the ba	sic principles of in geotechnical					
the Finite Element Meth applications, material m	ling are explained including also tapered members.  Geotechnical Software for Numerical modelling d with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of fin	Z introducing the ba	sic principles of in geotechnical					
the Finite Element Meth applications, material m	ling are explained including also tapered members.  Geotechnical Software for Numerical modelling d with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of financels suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics.	Z introducing the ba	sic principles of in geotechnical					
the Finite Element Meth applications, material m in the modeling of foun 210YDSM	ling are explained including also tapered members.  Geotechnical Software for Numerical modelling d with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on tool and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of fine toolels suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnical dation, embedded walls, and stability problems.	Z introducing the ba nite elements used s. This knowledge i	sic principles of in geotechnical s further applied					
the Finite Element Methapplications, material min the modeling of foun 210YDSM Failures of building materials.	ling are explained including also tapered members.  Geotechnical Software for Numerical modelling d with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of fine todals suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnical dation, embedded walls, and stability problems.  Diagnostics of Building Materials Properties	Z introducing the banite elements useds. This knowledge is Z f their occurrence.	sic principles of in geotechnical sfurther applied  2 Basics of					
the Finite Element Metrapplications, material min the modeling of foun 210YDSM Failures of building material measurer	ling are explained including also tapered members.  Geotechnical Software for Numerical modelling d with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on nod and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of fine todals suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics dation, embedded walls, and stability problems.  Diagnostics of Building Materials Properties erials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of	Z introducing the banite elements useds. This knowledge is  Z If their occurrence resting machines a	sic principles of in geotechnical sfurther applied  2 Basics of nd equipment.					
the Finite Element Methapplications, material min the modeling of foun 210YDSM Failures of building main experimental measurer Deformation measuring	ling are explained including also tapered members.  Geotechnical Software for Numerical modelling d with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of fine in the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics dation, embedded walls, and stability problems.  Diagnostics of Building Materials Properties erials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of nent and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results.	Z introducing the banite elements useds. This knowledge is  Z If their occurrence resting machines a	sic principles of in geotechnical sfurther applied  2 Basics of nd equipment.					
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the Finite Element Metrapplications, material min the modeling of foun 210YDSM Failures of building matexperimental measurer Deformation measuring elements, wood, glass, 210YSB	ling are explained including also tapered members.  Geotechnical Software for Numerical modelling d with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on not and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of fining the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics dation, embedded walls, and stability problems.  Diagnostics of Building Materials Properties erials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of ment and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. To instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materials plastics, composites and others).	Z introducing the banite elements useds. This knowledge is Z of their occurrence. Testing machines arials (concrete, mo	sic principles of in geotechnical is further applied  2 Basics of nd equipment. rtar, metallic					
the Finite Element Metrapplications, material min the modeling of foun 210YDSM Failures of building matexperimental measurer Deformation measuring elements, wood, glass, 210YSB This course is aimed at	Ing are explained including also tapered members.  Geotechnical Software for Numerical modelling d with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of fine index suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics dation, embedded walls, and stability problems.  Diagnostics of Building Materials Properties erials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of ment and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. To instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materialstics, composites and others).  Special Concretes	Z introducing the banite elements useds. This knowledge is This knowledge is their occurrence. The string machines arials (concrete, moscials (concrete, moscials) their occurrence is the string machines are acquaint students.	sic principles of in geotechnical is further applied  2 Basics of nd equipment. rtar, metallic  2 with both the					
the Finite Element Methapplications, material min the modeling of foun 210YDSM Failures of building matexperimental measurer Deformation measuring elements, wood, glass, 210YSB This course is aimed at technological aspects of	Geotechnical Software for Numerical modelling d with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on tool and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of finited suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics dation, embedded walls, and stability problems.  Diagnostics of Building Materials Properties erials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of the and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. To instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materials plastics, composites and others).  Special Concretes expanding knowledge in the field of special concretes and composites for specific applications. The core of the course is to a	Z introducing the banite elements useds. This knowledge is This knowledge is their occurrence. The string machines arials (concrete, moscials (concrete, moscials) their occurrence is the string machines are acquaint students.	sic principles of in geotechnical is further applied  2 Basics of nd equipment. rtar, metallic  2 with both the					

Code of the group: NC20230201\_2

Name of the group: Projektování pozemních staveb, PV p edm ty, 2. 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:

V případě splnění některého předmětu v bakalářském studiu nelze tento předmět zapsat znovu.

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
101YFAV	Introduction to Functional Analysis and Variational Methods  Jozef Bobok, Petr Ku era Aleš Nekvinda Aleš Nekvinda (Gar.)	KZ	2	1P+1C	Z,L	PV
101YMCD	Methods of Time Discretization Petr Mayer František Bubeník František Bubeník (Gar.)	Z	2	1P+1C	L	PV
101YMST	Mathematical statistics for technicians Daniela Jarušková Jana Nosková Daniela Jarušková (Gar.)	Z	2	1P+1C	L	PV
101YNUM	Numerical Methods Ivana Pultarová, Martin Ladecký, Liya Gaynutdinova Ivana Pultarová Ivana Pultarová (Gar.)	Z	2	1P+1C	L	PV
123YMPU	Materials for Coatings Miloš Jerman Miloš Jerman (Gar.)	Z	2	1P+1C	L	PV
124YHVK	Long Span Structures Vladimir Ž ára	Z	2	1P+1C	L	PV
124YKHK	Building Quality Complex Assessment  Martin Volf Martin Volf Martin Volf (Gar.)	Z	2	1P+1C	L	PV
124YMOB	Modelling of Buildings - BIM  Zdenko Malik Zdenko Malik Zdenko Malik (Gar.)	Z	2	1P+1C	L	PV
124YPFS	Precast concrete structures Radek Zigler, Ji í Witzany Radek Zigler Radek Zigler (Gar.)	Z	2	1P+1C	L	PV
124YPS5	Prefabricated structures Tomáš ejka Tomáš ejka (Gar.)	Z	2	1P+1C	L	PV
124YRHS	Reconstruction of Historical Building Structures Tomáš ejka, Radek Zigler, Ji í Witzany Ji í Witzany Ji í Witzany (Gar.)	Z	2	1P+1C	L	PV
125YTCH	Technological Equipment of Buildings Ilona Koubková, Hana Kabrhelová, Pavla Hofbauer Pechová Ilona Koubková Ilona Koubková (Gar.)	Z	2	2P	L	PV
126YBVE	BIM in Public Investments Stanislav Vitásek Stanislav Vitásek (Gar.)	Z	2	2P	L	PV
126YPDV	Development Project Kate ina Eklová Kate ina Eklová (Gar.)	Z	2	2C	L	PV
132YNAK	Nonlinear Analysis of Materials and Structures Petr Kabele, Bo ek Patzák, Daniel Rypl Daniel Rypl Daniel Rypl (Gar.)	Z	2	1P+1C	L	PV
132YNA2	Numerical Analysis of Structures 2 Bo ek Patzák Bo ek Patzák Bo ek Patzák (Gar.)	Z,ZK	4	2P+1C	L	PV
132YPM2	Computer Analysis of Structures 2 Ji í Máca, Petr Fajman <b>Ji í Máca</b> Petr Fajman (Gar.)	Z	2	1P+1C	L	PV
132YSHK	Statics and Reconstruction of Historical Structures Petr Fajman Petr Fajman (Gar.)	Z	2	1P+1C	L	PV
132YUPM	General Principles of Mechanics Milan Jirásek Milan Jirásek Milan Jirásek (Gar.)	Z,ZK	4	2P+1C	L	PV
133YATK	Applied Theory of Structures Radek Hájek, Lukáš Vráblík Lukáš Vráblík (Gar.)	Z,ZK	4	2P+1C	L	PV
133YMVB	Concrete and Masonry Structures 1  Josef Novák, Petr Bílý, Tomáš Trtík 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
133YVHB	Ultrahigh Performance Concretes Josef Fládr Josef Fládr (Gar.)	Z	2	1P+1C	L	PV
134YHNK	Stainless steel and aluminium structures B etislav Židlický, František Wald František Wald (Gar.)	Z	2	1P+1C	L	PV
134YNDK	Load-bearing timber roof constructions Karel Mikeš Karel Mikeš (Gar.)	Z	2	1P+1C	L	PV
134YNSK	Design of Glass Structures Martina Eliášová Martina Eliášová (Gar.)	Z,ZK	2	1P+1C	L	PV
134YPMK	Design of Membrane Structures Svitlana Kalmykova Svitlana Kalmykova (Gar.)	Z	2	1P+1C	L	PV
134YPOD	Fire Resistance of Steel and Timber Structures  Zden k Sokol Zden k Sokol (Gar.)	Z	2	1P+1C	L	PV
134YSOD	Connections of steel and timber structures František Wald, Robert Jára Robert Jára František Wald (Gar.)	Z	2	1P+1C	L	PV
134YSOK	Special steel structures Jakub Dolejš Jakub Dolejš (Gar.)	Z	2	1P+1C	L	PV
135YVPZ	Computer analysis in underground structures Daniel Turanský, Jan Ježek, Jan Pruška, Matouš Hilar <b>Jan Pruška</b> Jan Pruška (Gar.)	Z	2	1P+1C	L	PV

# Characteristics of the courses of this group of Study Plan: Code=NC20230201\_2 Name=Projektování pozemních staveb, PV p edm ty, 2. semestr

101YFAV	Introduction to Functional Analysis and Variational Methods	KZ	2
101YMCD	Methods of Time Discretization	Z	2
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The course is devoted to a universal and very effective method for solving problems involving time, the so-called evolutionary problems, especially for partial differential equations with a time variable. This method represents a modern approach to modeling and solving engineering tasks. These problems, both linear and non-linear, model events in many engineering fields, such as heat conduction, oscillations, also in rheology and other parts.

101YMST	Mathematical statistics for technicians leory of probability. Random variables and its characteristics. Basic methods of mathematical statistics.	Z	2
101YNUM	Numerical Methods in applied mathematics: course for beginners.	Z	2
123YMPU	Materials for Coatings	Z	2
	prerview of how to protect building structures from corrosion and other harmful influences such as UV radiation, acid rain, etc.	1	I
nethods and technolo	gies of surface treatment. The course consists of 6 lectures and 6 exercises. In the lectures, students will learn about both histo	rical and more imp	portantly mode
	different types of structures. In the exercises, students will perform a surface treatment on a fragment of a structure and will b	e able to check th	e quality of the
	ves in the last exercise by means of a tear-off test.		1
124YHVK	Long Span Structures	Z	2
	the analysis of structural solutions applied in building designs by the world's best architects. Although attention will be focused may pay attention to the wider context of the design. Reading existing constructions is a natural way to learn the principles of their		
	nsive database of completed buildings, including more than 5,000 buildings, will enable us to take a trip into history and the pro-	_	=
124YKHK	Building Quality Complex Assessment	Z	2
	overview of design strategies in green architecture and sustainable building and learn how to conduct assessments to achieve	_	. –
hey will learn basic in	formation on life cycle assessment of materials and buildings.		
124YMOB	Modelling of Buildings - BIM	Z	2
ŭ	d to introduce the phenomenon of parametric design, which is becoming very widespread in today's world. It is the connection		
	ng. Instead of writing code in a classical programming language, Nodes are connected, and the resulting script can be created	•	•
	nguage.These scripts can be used primarily for: - creating parametric geometry, - working with data in a BIM model, - structur ally, the course covers two main areas of parametric modeling, replicating two software platforms: Revit + Dynamo (JaVe) Rhi	· ·	-
124YPFS	Precast concrete structures	Z	2
_	ade of precast connecte gands are structured approx. 82 thousand were built in the period 1960-1995 do not meet the required external connected and approx.	_	_
	d in many cases require the implementation of regeneration and modernization interventions enabling their full use. The course		
of renewal, reconstruc	tion and modernization of precast houses, modernization of apartments in precast houses, on the issue of freeing parterres of p	recast houses for	services, shop
	, etc. Renovation, modernization, or regenerations require the removal of functionally inadequate completion structures, technology		
	emanding interventions in supporting structures. As part of the construction of communication networks, modernization of urbar	· ·	
· · · · · · · · · · · · · · · · · · ·	out partial or complete demolition of a precast panel building. As part of the regeneration of precast panel housing estates, a		
	houses. The implementation of the mentioned plans requires a survey and diagnostics of supporting and peripheral structures ical condition and an assessment of the residual life of precast panel structures and buildings.	s, joints of parts a	nd an evaluation
124YPS5	Prefabricated structures	Z	2
124YRHS	Reconstruction of Historical Building Structures	Z	2
	second half of the 19th century by 1960, more than 250 thousand of two- to five-story brick apartment (mainly rental) houses i		_
constructed in the Cze	ch Republic. Brick buildings from this period were built according to regulations, building codes and laws from the turn of the 19		
orick tenement house:	s do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the	oth and 20th centure required extent	ries. Multi-stor t, and in many
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orick tenement houses asses require regeneral focused on the curre and aging of structures focused on the issurbles buildings.  I 25 YTCH Gauna, fireplaces, kitch I 26 YPDV  I 32 YNAK Students become acqual focus of structures and capacity, distributinite element program I 32 YNA2 Advanced course on finand material nonlinear I 32 YPM2 Limit state of frames. Solverification of results.  I 32 YSHK Short overview of historequent causes of fail I 32 YUPM I and I	side of not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the tation and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment en its sue of renewal, reconstruction and modernization of brick multi-storye rental apartment buildings, on historical bructures and as and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and the of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an internal proving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an internal proving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an internal force of improving the well-being of buildings.  Technological Equipment of Buildings  Technol	eth and 20th centure required extent abling their further materials, the issue is parts. Furthern tegral part of the regral par	ries. Multi-stor t, and in many r use. The cour use of degradati more, the cour modernization  2 ment, sprinkle 2 2 cling shape. uation of the ling general-purpo  4 ems: geometri  2 risis of structure  2 s included. More 4 s, energy and the models of  4 l-walled concrete  2 lear modeling of concrete

133YV/HR Ultrahigh Performance Concretes The aim of the course is to present a special type of concrete that achieves great strength and high durability, which enables the realization of very thin structures. The components of high performance concrete are presented and the main differences in composition of ordinary concrete and HPC. A large part of the lectures is devoted to the components of high performance concrete, the composition and the method of manufacturing, which are subsequently accompanied by laboratory exercises, where the students can experience the theoretical knowledge in practical use. 134YHNK Stainless steel and aluminium structures Subject YHNK covers two parts: the first concerns design of structures from aluminium alloys, the second deals with stainless steel structures. Structures of aluminium alloys: Introduction and practice in designing of aluminium structures. Structures of stainless steel: Evolution of stainless steel materials/structures and examples of realized structures. Stainless steels suitable for structures are described in a detail, including their properties. Dissimilarities in assessments of members under common loadings with respect to low-carbon steels is described for both ultimate and serviceability limit states. In the end the possibilities concerning connections of stainless steel members, erection and installation of stainless steel members are described 134YNDK Load-bearing timber roof constructions System of roofs structures. Creation of numerical models for assessment of internal forces and deformations for main different roof systems and structures. Analysis of the static function and behaviour of main individual elements and their design. Historic structures and their reconstruction. Designing typical structural details based on carpentry joints. We will discuss also using modern methods of joining elements of timber structures. 134YNSK Design of Glass Structures Z,ZK

The subject is intended for students of the master's program Civil Engineering, deepens the knowledge acquired in the subject 134YNKS. Extension of theoretical knowledge in the field of stability of glass beams, columns and walls. Principles of designing structural elements made of glass according to normative documents, experimental verification of material properties of glass, safety glass, use of software support for designing.

134YPMK	Design of Membrane Structures	Z	2			
134YPOD	Fire Resistance of Steel and Timber Structures	Z	2			
The class gives introdu	uction to fire modeling, fire safety and fire resistance of steel, steel-concrete composite and timber structural elements.					
134YSOD	Connections of steel and timber structures	Z	2			
The subject allows ins	ght and ability to apply the knowledge related to structural connections and its application by software.					
134YSOK	Special steel structures	Z	2			
Crane supporting structure	Crane supporting structures - actions, design, detailing. Silos - actions, behaviour, silos with rigid and non-rigid section. Masts - division, detiling, design. Cable roofs - procedure of					
calculation.						
135YVPZ	Computer analysis in underground structures	Z	2			
1	0.000.000					

Numerical methods in CAD/CAM in geomechanics. Basic types of constitutive models of soil and rock mass behavior. Summary of PC geotechnical software both in the field of conventional methods and in numerical modelling domain. Practical solutions of selected geotechnical problems.

Name of the block: Povinn volitelné p edm ty, doporu ení S1

Minimal number of credits of the block: 30

The role of the block: S1

Code of the group: NC20230300

Name of the group: Stavební inženýrství - pozemní stavby, diplomová práce

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 1 course

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
124DPM	Diploma Thesis Tomáš ejka, Tomáš Vlach, Ji í Pazderka, Kate ina Mertenová, Martin Jiránek, Marek Pokorný <b>Petr Hájek</b> Ji í Pazderka (Gar.)	Z	30	24C	Z	S1
132DPM	<b>Diploma Thesis</b> Michal Polák, Pavel Tesárek, Ji í Máca, Milan Jirásek, Petr Havlásek, Mat j Lepš, Jan Zeman, Petr Kabele, Bo ek Patzák, <b>Aleš Jíra</b>	Z	30	24C	Z	S1
133DPM	Diploma Thesis Michaela Frantová	Z	30	24C	Z	S1
134DPM	Diploma Thesis Jakub Dolejš Michal Jandera Jakub Dolejš (Gar.)	Z	30	24C	Z	S1
135DPM	Diploma Thesis  Jan Masopust, Jan Pruška Jan Pruška (Gar.)	Z	30	24C	Z	S1

### Characteristics of the courses of this group of Study Plan: Code=NC20230300 Name=Stavební inženýrství - pozemní stavby, diplomová práce

The topics of diploma theses are based on the needs of practice or the scientific research activity of the department, the scope and difficulty corresponds to the student's knowledge acquired during the master's studies. The supervisor of the thesis can designate additional consultants to the student.    32DPM	prace			
acquired during the master's studies. The supervisor of the thesis can designate additional consultants to the student.    32DPM	124DPM	Diploma Thesis	Z	30
32DPM	The topics of diploma	theses are based on the needs of practice or the scientific research activity of the department, the scope and difficulty corresp	oonds to the stude	ent's knowledge
n accordance with the thesis proposal.    33DPM	acquired during the n	naster's studies. The supervisor of the thesis can designate additional consultants to the student.		
33DPM	132DPM	Diploma Thesis	Z	30
n accordance with a thesis proposal.  I34DPM Diploma Thesis Z 30	In accordance with the	e thesis proposal.		·
134DPM Diploma Thesis Z 30	133DPM	Diploma Thesis	Z	30
	In accordance with a	thesis proposal.		
Design of steel / timber load bearing building structure according to external requirements in relation to interaction of load bearing and final completion structural elements. A study	134DPM	Diploma Thesis	Z	30
	Design of steel / timb	er load bearing building structure according to external requirements in relation to interaction of load bearing and final complet	ion structural elen	nents. A study

focused on research of load bearing structures may be also the topic of the the project. The project is assigned by a final project superisor individually.

135DPM Diploma Thesis Z 30

In the diploma thesis, the student deals with a topic chosen by the department from those regularly announced by the department. It addresses, for example, problems related to the design and construction of geotechnical structures, civil engineering structures, special foundations for industrial, transport, housing and water management structures, earth and rock structures in complex cases and waste disposal structures. The thesis builds on and develops the findings of the thesis project.

Name of the block: Povinn volitelné p edm ty, doporu ení S3

Minimal number of credits of the block: 6

The role of the block: S3

Code of the group: NC20230101 1

Name of the group: Projektování pozemních staveb, PV p edm ty dle p edchozího Bc. studia, 1. semestr

Requirement credits in the group: In this group you have to gain at least 3 credits

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

Credits in the group: 3 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
124YPR1	Failures, Deterioration, Renovations 1 Tomáš ejka Tomáš ejka Tomáš ejka (Gar.)	ZK	3	2P	Z	S3
129YPVA	History of Architecture  Lenka Popelová, Barbora V trovská, David Š astný Lenka Popelová Lenka  Popelová (Gar.)	ZK	3	2P	Z	<b>S</b> 3

# Characteristics of the courses of this group of Study Plan: Code=NC20230101\_1 Name=Projektování pozemních staveb, PV p edm ty dle p edchozího Bc. studia, 1. semestr

124YPR1 Failures, Deterioration, Renovations 1

As part of the course, students will learn about the mechanisms of degradation processes and failures of buildings according to the building materials used, structural statics and analytical issues of failures, rehabilitation and restoration of other load-bearing structures of historical buildings. The lectures, structured into thematic areas, will include in particular: familiarization with the principles and building codes applied in the construction solution of historical buildings and their parts, basic structural static and material issues of historical buildings, analysis of degradation processes, effects and influences of variables over time, which together with transportation processes affect the lifetime, durability and construction-technical condition of historical objects, methods and processes applied in the restoration and reconstruction of historical buildings, construction-technical condition of historical buildings and knowledge of diagnostic methods and procedures applied in the survey and monitoring of historical buildings.

129YPVA History of Architecture

ZK 3

Code of the group: NC20230201\_1

Name of the group: Projektování pozemních staveb, PV p edm ty dle p edchozího Bc. studia, 2. semestr

Requirement credits in the group: In this group you have to gain at least 3 credits

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

Credits in the group: 3

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
124PS5C	Building Structures 5 Tomáš ejka, Radek Zigler Radek Zigler Tomáš ejka (Gar.)	Z	3	1P+1C	L	S3
129TYBC	Building Typology Luboš Knytl Luboš Knytl (Gar.)	Z	3	1P+1C	L	S3

### Characteristics of the courses of this group of Study Plan: Code=NC20230201\_1 Name=Projektování pozemních staveb, PV p edm ty dle p edchozího Bc. studia. 2. semestr

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124PS5C	Building Structures 5	Z	3
129TYBC	Building Typology	Z	3

### List of courses of this pass:

Code	Name of the course	Completion	Credits				
101MAPS	Mathematics PS	Z,ZK	3				
	Focused on basic and more advanced statistical and probabilistic methods of data analysis as well as on hypothesis testing and regression.						

101YFAV	Introduction to Functional Analysis and Variational Methods	KZ	2
101YMCD	Methods of Time Discretization	Z	2
	oted to a universal and very effective method for solving problems involving time, the so-called evolutionary problems, especially for particle to a universal and very effective method for solving problems involving time, the so-called evolutionary problems, especially for particle to a universal and very effective method for solving problems involving time, the so-called evolutionary problems, especially for particle to a universal and very effective method for solving problems involving time, the so-called evolutionary problems, especially for particle to a universal and very effective method for solving problems involving time, the so-called evolutionary problems, especially for particle to a universal and the so-called evolutionary problems.		-
	is method represents a modern approach to modeling and solving engineering tasks. These problems, both linear and non-linear, mode fields, such as heat conduction, oscillations, also in rheology and other parts.		
101YMST	Mathematical statistics for technicians Inferential statistics. Theory of probability. Random variables and its characteristics. Basic methods of mathematical statistics	Z	2
101YNUM	Numerical Methods	Z	2
	Numerical computing in applied mathematics: course for beginners.		· –
102YFPL	Solid State Physics in Civil Engineering	Z	2
	ucture, atomic shell theory, valence layer chemical bonds, dislocation disturbances, critical crack energy, vibration of masses, systems in tion, basics concepts of fracture mechanics, types of fracture, electron microscopes, scanning tunneling microscope, atomic force microscopes, according to the control of the contro		
122YTSD	methods, semiconductors, p-n junction, photovoltaic effect, solar cells, heat and moisture transport.  Technology of Component Production	Z	2
123YMPU	Materials for Coatings	Z	2
-	in an overview of how to protect building structures from corrosion and other harmful influences such as UV radiation, acid rain, etc. St		
	nologies of surface treatment. The course consists of 6 lectures and 6 exercises. In the lectures, students will learn about both historical is for different types of structures. In the exercises, students will perform a surface treatment on a fragment of a structure and will be ab	-	-
404DDM	work done by themselves in the last exercise by means of a tear-off test.	7	20
124DPM The topics of diplo	Diploma Thesis  matheses are based on the needs of practice or the scientific research activity of the department, the scope and difficulty correspond acquired during the master's studies. The supervisor of the thesis can designate additional consultants to the student.	Z ds to the student	30 s knowledg
124DRS	Timber Constructions	Z,ZK	3
Students will lea	arn about the complex issues of designing modern wooden buildings. The introductory block of lectures is dedicated to the material bases	se, structural sys	stems, and
	erties of wood and wood-based materials. The principles of ensuring spatial rigidity of the light frame and mass-timber structural system		
	sed on the design of envelope constructions of wooden buildings, moisture safety, biological threats, and principles of wood protection.	_	
	rood and the interaction of the wood substance with air humidity, which has a significant effect on all technical properties of wood, are conted to passive measures to reduce the risk of summer overheating of wooden buildings. In the last lecture, construction technology is dis		
	approach to the design of modern wooden buildings is emphasised.		
124INBB	Integrated Design of Buildings	Z,ZK	4
=	e of the subject Integrated Building Design is to get an complex overview of the principles of integrated buildings design, life cycle asses	-	gs, evaluati
124KOSD	building performance, green/sustainable certification systems and understand environmental, social and economic aspects of the built  Complex Structural Detail	KZ	3
	course is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of		1
roblome in buildir			
TODIETTIS IIT DUIIUII	ngs. The content of the course is focused on the complex solution of construction details, following all legislative requirements and taking.  efficiency and durability of the chosen solution.	ng into account t	he maximu
124P03C	efficiency and durability of the chosen solution.  Structural Design 3C	KZ	5
124P03C The student proce	efficiency and durability of the chosen solution.  Structural Design 3C esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurl	KZ bishment of an o	5 Ider buildir
124P03C The student proce (assignment "R").	efficiency and durability of the chosen solution.  Structural Design 3C  esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurl. In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a sin	KZ bishment of an o	5 Ider buildir
124P03C The student proce (assignment "R"). urrent state of the	efficiency and durability of the chosen solution.  Structural Design 3C esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurl	KZ bishment of an o nplified documen uction and techn	5 der buildir station of th
124P03C The student proce (assignment "R"). urrent state of the	efficiency and durability of the chosen solution.  Structural Design 3C  esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurl. In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a single building and an analysis of broader relationships (R). It also optimizes variants of the construction solution (N) or evaluates (N) or ev	KZ bishment of an o nplified documen uction and techn	5 der buildir station of th
124P03C The student proce (assignment "R"). urrent state of the	efficiency and durability of the chosen solution.  Structural Design 3C  esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurl. In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a sin a building and an analysis of broader relationships (R). It also optimizes variants of the construction solution (N) or evaluates the construction (R). In the next phase, he will carry out a conceptual design of construction details (N) or an analysis of faults and their causes.	KZ bishment of an o nplified documen uction and techn	5 Ider buildinatation of the
124P03C The student proce (assignment "R"). urrent state of the f the specified obj  124P04C The student proce	efficiency and durability of the chosen solution.  Structural Design 3C  esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurd. In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a sine building and an analysis of broader relationships (R). It also optimizes variants of the construction solution (N) or evaluates the construction of the next phase, he will carry out a conceptual design of construction details (N) or an analysis of faults and their cause selected parts of the project documentation of the building or its parts (N) or drafts selected rehabilitation measures (R)  Structural Design 4C  esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurb	KZ bishment of an o nplified documen uction and techn es - STP (R). It al:  KZ bishment of an o	5 Ilder buildir Itation of th ical conditi so process 5 Ilder buildir
124P03C The student proce (assignment "R"). urrent state of the f the specified obj  124P04C The student proce (assignment "R").	efficiency and durability of the chosen solution.  Structural Design 3C  esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurd. In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a sine building and an analysis of broader relationships (R). It also optimizes variants of the construction solution (N) or evaluates the constructor of the next phase, he will carry out a conceptual design of construction details (N) or an analysis of faults and their cause selected parts of the project documentation of the building or its parts (N) or drafts selected rehabilitation measures (R)  Structural Design 4C  esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurd. In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a sin	KZ bishment of an o nplified documen uction and techn es - STP (R). It al:  KZ bishment of an o nplified documen	5 Ilder buildir Itation of the ical condities o process 5 Ilder buildir Itation of the
124P03C The student proce (assignment "R"). urrent state of the f the specified obj  124P04C The student proce (assignment "R"). urrent state of the	efficiency and durability of the chosen solution.  Structural Design 3C  esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurd. In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a single building and an analysis of broader relationships (R). It also optimizes variants of the construction solution (N) or evaluates the constructor of the project documentation of the building or its parts (N) or drafts selected rehabilitation measures (R)  Structural Design 4C  esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurl. In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a single building and an analysis of broader relationships (R). It also optimizes variants of the construction solution (N) or evaluates the constructions of the construction solution (N) or evaluates the constructions of the construction solution (N) or evaluates the constructions of the construction solution (N) or evaluates the constructions of the construction solution (N) or evaluates the constructions of the construction solution (N) or evaluates the constructions of the construction solution (N) or evaluates the constructions of the construction solution (N) or evaluates the constructions of the construction solution (N) or evaluates the constructions of the construction solution (N) or evaluates the construction of the construction solution (N) or e	KZ bishment of an o nplified documen uction and techn es - STP (R). It als  KZ bishment of an o nplified documen uction and techn	5 Ilder buildir station of the ical conditi so process 5 Ilder buildir station of the ical conditi
124P03C The student proce assignment "R"). urrent state of the fithe specified objective student proce assignment "R"). urrent state of the	efficiency and durability of the chosen solution.  Structural Design 3C  esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurd. In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a sine building and an analysis of broader relationships (R). It also optimizes variants of the construction solution (N) or evaluates the constructor of the next phase, he will carry out a conceptual design of construction details (N) or an analysis of faults and their cause selected parts of the project documentation of the building or its parts (N) or drafts selected rehabilitation measures (R)  Structural Design 4C  esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurd. In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a sin	KZ bishment of an o nplified documen uction and techn es - STP (R). It als  KZ bishment of an o nplified documen uction and techn	5 Ilder buildir station of the ical conditi so process 5 Ilder buildir station of the ical conditi
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124P03C The student proceassignment "R").  Jurrent state of the the specified object of the student proceassignment "R").  Jurrent state of the the specified object of the student proceassignment "R").  Jurrent state of the the specified object of the specified object object of the specified object object of the specified object of the spec	efficiency and durability of the chosen solution.  Structural Design 3C  esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurt. In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a sin a building and an analysis of broader relationships (R). It also optimizes variants of the construction solution (N) or evaluates the construction an analysis of the project documentation of the building or its parts (N) or drafts selected rehabilitation measures (R)  Structural Design 4C  Structural Design 4C  Structural Design 4C  Esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurt. In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a sin building and an analysis of broader relationships (R). It also optimizes variants of the construction solution (N) or evaluates the constructor. STP (R). In the next phase, he will carry out a conceptual design of construction details (N) or an analysis of faults and their cause selected parts of the project documentation of the building or its parts (N) or drafts selected rehabilitation measures (R)  Failures, Deterioration, Renovations 2  se, students will become familiar with the structural statics and analytical problems of failures, rehabilitation and restoration of load-bear ags, including the influence of fire resistance requirements, health safety and building physics. The lectures, structured into thematic are sepair of brick tenement houses, rural buildings, industrial buildings, objects realized with prefabricated technology, damage and repair doors), floor structures, chimmeys and staircases of historical buildings.  Building Structures 5  Thermal Engineering in Construction 2  Building Structures 5  Thermal Engineering in Construction 2  Buildings and buildings.	kZ bishment of an on opplified document uction and technology and technology are strongly as a sects and damage.  kZ bishment of an on opplified document uction and technology are strongly as a sects and damage.  kZ bishment of an on opplified document uction and technology are strongly as a sects and damage.  kZ bishment of an on opplified document uction and technology and technology and technology are strongly as a sects and damage.  kZ bishment of an opplified document uction and technology are strongly and technology are strongly as a sects and damage.	5 Idder buildir Intation of the ical condition of the ical conditi
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124P03C The student process assignment "R"), urrent state of the fithe specified object of the student process assignment "R").  124P04C The student process assignment "R"), urrent state of the fithe specified object of the specified object object object of the specified object obje	efficiency and durability of the chosen solution.  Structural Design 3C  esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurt. In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a sin a building and an analysis of broader relationships (R). It also optimizes variants of the construction solution (N) or evaluates the construction an analysis of the project documentation of the building or its parts (N) or drafts selected rehabilitation measures (R)  Structural Design 4C  Structural Design 4C  Structural Design 4C  Esses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refurt. In the first phase, the student proposes a design solution concept and a basic solution of broader relationships (N) or processes a sin building and an analysis of broader relationships (R). It also optimizes variants of the construction solution (N) or evaluates the constructor. STP (R). In the next phase, he will carry out a conceptual design of construction details (N) or an analysis of faults and their cause selected parts of the project documentation of the building or its parts (N) or drafts selected rehabilitation measures (R)  Failures, Deterioration, Renovations 2  se, students will become familiar with the structural statics and analytical problems of failures, rehabilitation and restoration of load-bear ags, including the influence of fire resistance requirements, health safety and building physics. The lectures, structured into thematic are sepair of brick tenement houses, rural buildings, industrial buildings, objects realized with prefabricated technology, damage and repair doors), floor structures, chimmeys and staircases of historical buildings.  Building Structures 5  Thermal Engineering in Construction 2  Building Structures 5  Thermal Engineering in Construction 2  Buildings and buildings.	kZ bishment of an on oplified document uction and technology so so so so polified document uction and technology so so so so polified document uction and technology so	5 Ilder buildir Intation of the ical condition of the ical conditi

124YHVK	Long Span Structures	Z	2
•	ith the analysis of structural solutions applied in building designs by the world's best architects. Although attention will be focused mainly		•
	llso pay attention to the wider context of the design. Reading existing constructions is a natural way to learn the principles of their des ktensive database of completed buildings, including more than 5,000 buildings, will enable us to take a trip into history and the preser	-	
124YKHK	Building Quality Complex Assessment	Z	2
	in overview of design strategies in green architecture and sustainable building and learn how to conduct assessments to achieve hig		
g	they will learn basic information on life cycle assessment of materials and buildings.		,
124YMOB	Modelling of Buildings - BIM	Z	2
The course is desi	igned to introduce the phenomenon of parametric design, which is becoming very widespread in today's world. It is the connection of	3D models and B	IM models
	nming. Instead of writing code in a classical programming language, Nodes are connected, and the resulting script can be created vi	•	ŭ
· -	g language. These scripts can be used primarily for: - creating parametric geometry, - working with data in a BIM model, - structural		_
	ematically, the course covers two main areas of parametric modeling, replicating two software platforms: Revit + Dynamo (JaVe) Rhi		
124YPBS	Principles of Building Fire Safety sed on the presentation and acquisition of the most important concepts and principles of fire safety in buildings. Attention is paid to a	ZK	2 ents of fire
	are important for the protection of life and health, property, the environment and other assets. The course is intended for students of r	=	
, 0	enable them to take into account aspects of fire safety from the initial stages of project preparation of buildings.	·	
124YPFS	Precast concrete structures	Z	2
Residential hous	es made of precast conrete panels, of which approx. 82 thousand were built in the period 1960-1995 do not meet the required exten	t of the current dyn	amically
	and in many cases require the implementation of regeneration and modernization interventions enabling their full use. The course is		
	ruction and modernization of precast houses, modernization of apartments in precast houses, on the issue of freeing parterres of preci ters, etc. Renovation, modernization, or regenerations require the removal of functionally inadequate completion structures, technica		
	n demanding interventions in supporting structures. As part of the construction of communication networks, modernization of urban de		
	arry out partial or complete demolition of a precast panel building. As part of the regeneration of precast panel housing estates, an e	•	•
	ast houses. The implementation of the mentioned plans requires a survey and diagnostics of supporting and peripheral structures, jo		
	of the structural-technical condition and an assessment of the residual life of precast panel structures and buildings.		
124YPR1	Failures, Deterioration, Renovations 1	ZK	3
· · · · · · · · · · · · · · · · · · ·	urse, students will learn about the mechanisms of degradation processes and failures of buildings according to the building materials		
•	failures, rehabilitation and restoration of other load-bearing structures of historical buildings. The lectures, structured into thematic a the principles and building codes applied in the construction solution of historical buildings and their parts, basic structural static an		
	alysis of degradation processes, effects and influences of variables over time, which together with transportation processes affect th		
<del>-</del>	nical condition of historical objects, methods and processes applied in the restoration and reconstruction of historical buildings, const	-	
	historical buildings and knowledge of diagnostic methods and procedures applied in the survey and monitoring of historical buildings and knowledge of diagnostic methods and procedures applied in the survey and monitoring of historical buildings and knowledge of diagnostic methods and procedures applied in the survey and monitoring of historical buildings and knowledge of diagnostic methods and procedures applied in the survey and monitoring of historical buildings.		
124YPRS	Failures, Deterioration, Renovations	Z	2
	ed on the current issue of restoration, reconstruction and modernization of buildings (residential, industrial, etc.), on historical structu		
legradation and agi	ng of structures and materials of historical buildings, their residual life and failures of historical buildings and their parts. An integral part is	the issue of structur	ral-technical
404)/D05	and historical surveys, diagnostics and assessment of the structural-technical condition and remaining service life.	7	
124YPS5	Prefabricated structures	Z	2
124YRHS	Reconstruction of Historical Building Structures ne second half of the 19th century by 1960, more than 250 thousand of two- to five-story brick apartment (mainly rental) houses in tra	Z	2
-	Exect Republic. Brick buildings from this period were built according to regulations, building codes and laws from the turn of the 19th a		
	uses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the		
ases require regen	eration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enabling	ng their further use.	The course
	rrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and mai		-
	ures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their part in the replacement of finishing attentions of the integral		
s locused on the is	sue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integr these buildings.	ai part of the mode	imization of
125OZE1	Renewable Energy Sources	ZK	3
	are becoming increasingly important sources of energy for buildings. Understanding their characteristics is key to the proper design a		
	The course therefore looks in detail at renewable sources and their applications.		,
125YTCH	Technological Equipment of Buildings	Z	2
Sauna, fireplaces, k	citchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, fire	e safety equipment	, sprinklers.
126YBVE	BIM in Public Investments	Z	2
126YPDV	Development Project	Z	2
129TYBC	Building Typology	Z	3
129YPVA	History of Architecture	ZK	3
132DKBU	Diagnostics of Structures and Buildings	KZ	3
132DPM	Diploma Thesis	Z	30
'	In accordance with the thesis proposal.	'	
132DYKC	Dynamics of Building Structures	Z,ZK	3
Principles	of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Damped vibration. Methods of	t dynamic analysis	of
122000014	muti-degreee-of-freeedom systems.	7 71/	
132PRPM	Deformation and Failure of Materials scoelasticity, models for concrete creep. Theory of plasticity, principles of limit and incremental analysis. Fracture mechanics. Damag	Z,ZK	5
132YKPA	Statics for Architecture	_	2
132YMMO		Z Z	2
	Modern Methods of Optimization I at 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.		ioipioo,
132YNA2	Numerical Analysis of Structures 2	Z,ZK	4
	•		-
auvanceu course or	n finite element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction to no	onlinear problems:	geometricai
	n finite element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction to no and material nonlinearity, solution methods, implementation aspects.	onlinear problems:	geometrical
uvanced course of		onlinear problems: (	geometrical

132YNAK	Nonlinear Analysis of Materials and Structures	Z	2
	ne acquainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critic		
	res according to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of str		
load capacity, distr	ibution of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity problems to	by means of a gene	eral-purpose
400VDM0	finite element program.	7	2
132YPM2	Computer Analysis of Structures 2 es. Stability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structures. I	. – .	1
Littiit State Of Italiit	verification of results.	yriaitiic ariaiysis o	n siruciures.
132YSEI	Seismic Engineeering	Z	2
	principles of design of earthquake resistant structures. Methods of calculating the response of structures to earthquake loads accordi		_
132YSHK	Statics and Reconstruction of Historical Structures	7	2
	historical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in foundations of the construction of the	tion conditions incl	
Onort everyion or	frequent causes of failure of panel buildings. Visit to the historical part of Prague Castle.	tion conditions ino	iddod. Mioot
132YSSK	Reliability of Structures	Z	2
	rections of the reliability of elements and systems. Element reliability is time dependent while the reliability of systems is of type strength	1	1
	solved by the FORM method. Two simulation methods are introduced: Monte Carlo and LHS.	, , , , , , , , , , , , , , , , , , , ,	
132YUPM	General Principles of Mechanics	Z,ZK	4
	tial operators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and r		I
duality. Principle	of virtual work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to continu	uous and discrete r	models of
	beams, frames, plates, walls and three-dimensional bodies.		
133BOKO	Concrete and Masonry Structures 1	Z,ZK	4
133DPM	Diploma Thesis	Z	30
	In accordance with a thesis proposal.	'	1
133YATK	Applied Theory of Structures	Z,ZK	4
Detailed introduction	on to theoretical approaches to the effects of creep and shrinkage on structures. Principles of time-dependent analysis. Methods for the	analysis of thin-wall	led concrete
	structures, stability theory.		
133YBEX	Concrete under Extreme Conditions	Z	2
	The course is focused on concrete and concrete structures under extreme conditions.		1
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. Introdu	ction to nonlinear	modeling of
reinforced conc	rete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program	s for the design of	concrete
	structures.		
133YPNB	Fire desgn og concrete and mnsory structures	Z	2
The course is focu	sed on fire resistance of concrete and masonry structures: concrete and concrete structures exposed to fire, design rules, thermal and	-	n principles,
	design methods, material properties of concrete and steel reinforcement at high temperatures, fire design of masonry structu		ı
_133YPRK	Failures and Rehabilitation of Concrete Structures	Z	2
	es on the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial measur		
existing concrete	structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of ben foundation structures are discussed. The course appropriately combines theoretical approaches with common practice.	ding moment and s	snear, and
122V\/LID		Z	2
133YVHB	Ultrahigh Performance Concretes  Use is to present a special type of concrete that achieves great strength and high durability, which enables the realization of very thin		1
	e concrete are presented and the main differences in composition of ordinary concrete and HPC. A large part of the lectures is devote		•
	ncrete, the composition and the method of manufacturing, which are subsequently accompanied by laboratory exercises, where the s	•	_
	theoretical knowledge in practical use.		
134DPM	Diploma Thesis	Z	30
	timber load bearing building structure according to external requirements in relation to interaction of load bearing and final completion	n structural elemen	1
foo	cused on research of load bearing structures may be also the topic of the the project. The project is assigned by a final project superis	or individually.	
134YDKM	Timber structures and bridges	Z	2
Timber structures	focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges. Rep	airing and strength	ntening. Fire
	$design.\ Production,\ protection,\ erection\ and\ maintenance.\ Design\ and\ evaluation\ of\ bridges,\ roofs\ structures\ in\ normal\ temperature$	and in fire.	
134YHNK	Stainless steel and aluminium structures	Z	2
Subject YHNK cove	ers two parts: the first concerns design of structures from aluminium alloys, the second deals with stainless steel structures. Structures o	f aluminium alloys:	Introduction
	esigning of aluminium structures. Structures of stainless steel: Evolution of stainless steel materials/structures and examples of realize		
	ctures are described in a detail, including their properties. Dissimilarities in assessments of members under common loadings with rec	-	
described for bot	th ultimate and serviceability limit states. In the end the possibilities concerning connections of stainless steel members, erection and	installation of stain	nless steel
404)(NIDI/	members are described.	-	
134YNDK	Load-bearing timber roof constructions	Z	2
-	uctures. Creation of numerical models for assessment of internal forces and deformations for main different roof systems and structures	=	
and benaviour or i	main individual elements and their design. Historic structures and their reconstruction. Designing typical structural details based on ca also using modern methods of joining elements of timber structures.	irpentry joints, we	WIII UISCUSS
134YNSK		Z,ZK	2
	Design of Glass Structures ended for students of the master's program Civil Engineering, deepens the knowledge acquired in the subject 134YNKS. Extension o		1
			- 490 111 1110
			of material
	glass beams, columns and walls. Principles of designing structural elements made of glass according to normative documents, exper		n of material
field of stability of	glass beams, columns and walls. Principles of designing structural elements made of glass according to normative documents, exper properties of glass, safety glass, use of software support for designing.	imental verification	
field of stability of 134YPMK	glass beams, columns and walls. Principles of designing structural elements made of glass according to normative documents, exper properties of glass, safety glass, use of software support for designing.  Design of Membrane Structures	imental verification	2
field of stability of	glass beams, columns and walls. Principles of designing structural elements made of glass according to normative documents, exper properties of glass, safety glass, use of software support for designing.  Design of Membrane Structures  Fire Resistance of Steel and Timber Structures	imental verification	
field of stability of  134YPMK  134YPOD	glass beams, columns and walls. Principles of designing structural elements made of glass according to normative documents, exper properties of glass, safety glass, use of software support for designing.  Design of Membrane Structures  Fire Resistance of Steel and Timber Structures  The class gives introduction to fire modeling, fire safety and fire resistance of steel, steel-concrete composite and timber structural	imental verification  Z  Z elements.	2 2
field of stability of  134YPMK  134YPOD  134YROK	glass beams, columns and walls. Principles of designing structural elements made of glass according to normative documents, exper properties of glass, safety glass, use of software support for designing.  Design of Membrane Structures  Fire Resistance of Steel and Timber Structures  The class gives introduction to fire modeling, fire safety and fire resistance of steel, steel-concrete composite and timber structural Extending the Life of Steel and Timber Structures	Z Z elements.	2 2
field of stability of  134YPMK  134YPOD  134YROK  Materials used for I	glass beams, columns and walls. Principles of designing structural elements made of glass according to normative documents, exper properties of glass, safety glass, use of software support for designing.  Design of Membrane Structures  Fire Resistance of Steel and Timber Structures  The class gives introduction to fire modeling, fire safety and fire resistance of steel, steel-concrete composite and timber structural	Z Z elements. Z assumptions of rec	2 2 2 construction.

124VCMV	Ctability and modelling of steel structures	7	2
134YSMK	Stability and modelling of steel structures	_	_
•	ers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel frame		•
	of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are principle	•	•
	eory of buckling of thin plates. The results are applied to the 4th class cross sections in harmony with Eurocode. Buckling due to norm		•
•	bination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The seco	•	
and structure stab	ility. Possible global analysis methods are presented together with methods for compression and bending interaction for slender mem	bers. In detail, spe	ecific cases
	of lateral torsional buckling are explained including also tapered members.		
134YSOD	Connections of steel and timber structures	Z	2
	The subject allows insight and ability to apply the knowledge related to structural connections and its application by softwar	э.	,
134YSOK	Special steel structures	Z	2
Crane supporting	structures - actions, design, detailing. Silos - actions, behaviour, silos with rigid and non-rigid section. Masts - division, detiling, desig	n. Cable roofs - pr	ocedure of
	calculation.	•	
135DPM	Diploma Thesis	Z	30
	sis, the student deals with a topic chosen by the department from those regularly announced by the department. It addresses, for exa	mple, problems re	lated to the
•	ction of geotechnical structures, civil engineering structures, special foundations for industrial, transport, housing and water managem		
<b>3</b>	structures in complex cases and waste disposal structures. The thesis builds on and develops the findings of the thesis proje	,	
135YGSM	Geotechnical Software for Numerical modelling	7	2
	ainted with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on intro	oducing the basic	_
	Method and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of finite		
	ial models suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics. Th	_	•
approatione, mater	in the modeling of foundation, embedded walls, and stability problems.	o in io mougo io iu.	шо арриоа
135YVPZ	Computer analysis in underground structures	7	2
	lods in CAD/CAM in geomechanics. Basic types of constitutive models of soil and rock mass behavior. Summary of PC geotechnical	_	_
Numerical meth	conventional methods and in numerical modelling domain. Practical solutions of selected geotechnical problems.	sortware bour in th	C IICIG OI
135ZS02	Foundations 2	Z.ZK	4
		,	1
	ens the knowledge from the previous course ZS1. It covers design principles, risks associated with the foundation of structures, deep		
	esign of deep foundations, negative casing friction of drilled piles, grouting (calculations and execution), construction pits, improvement	it or foundation so	
210YDSM	Diagnostics of Building Materials Properties	Z	2
	ing materials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of		
•	surement and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. Test	•	
Deformation mea	suring instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materia	s (concrete, morta	ar, metallic
	elements, wood, glass, plastics, composites and others).		
210YSB	Special Concretes	Z	2
This course is ain	ned at expanding knowledge in the field of special concretes and composites for specific applications. The core of the course is to accommod the course is to accommod to the course is the course is the course is accommod to the course is the course is accommod to the cour	quaint students wif	h both the
technological aspe	cts of the production, testing and use of special concretes, as well as the applicable legislative framework for individual types of speci	al concretes. Spec	ific practical

applications and experiences are also presented within the course.

For updated information see <a href="http://bilakniha.cvut.cz/en/FF.html">http://bilakniha.cvut.cz/en/FF.html</a> Generated: day 2025-06-03, time 05:23.