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 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 Petr Hájek, Antonín Lupíšek Antonín Lupíšek Petr Hájek (Gar.)	Z,ZK	4	2P+1C	Z	Z
133BOKO	Concrete and Masonry Structures 1 Josef Novák, Petr Bílý, B etislav Židlický Petr Bílý Petr Bílý (Gar.)	Z,ZK	4	2P+2C	Z	Z
124KOSD	Complex Structural Detail Ji í Pazderka, Radek Zigler Ji í Pazderka Ji í Pazderka (Gar.)	KZ	3	2C	Z	Z
124P03C	Structural Design 3C Tomáš ejka, Ji í Pazderka, Radek Zigler, Kamil Stan k, Martin Jiránek Ji í Pazderka 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

TUTMAPS	Mathematics PS	Z,ZK	3		
Focused on basic and n	nore 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 th	e subject Integrated Building Design is to get an complex overview of the principles of integrated buildings design, life cycle as	ssessment of build	dings, evaluation		
of building performance	, green/sustainable certification systems and understand environmental, social and economic aspects of the built environmental	nt.			
133BOKO	Concrete and Masonry Structures 1	Z,ZK	4		
124KOSD	Complex Structural Detail	KZ	3		
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	of knowledge abo	ut structural		
problems in buildings. T	he content of the course is focused on the complex solution of construction details, following all legislative requirements and	taking into accou	nt the maximum		
efficiency and durability	of the chosen solution.				
124P03C	Structural Design 3C	KZ	5		
The student processes	selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the re	furbishment of a	n 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	Timber Constructions Kamil Stan k, Jan Tywoniak, Milan Peukert, Richard Hlavá , Jan R ži ka, Lukáš Velebil, Vladimír Mózer Jan Tywoniak Kamil Stan k (Gar.)	Z,ZK	3	2P+1C	L	Z
132DYKC	Dynamics of Building Structures Ji í Máca, Tomáš Krej í Ji í Máca Ji í Máca (Gar.)	Z,ZK	3	2P+1C	L	Z
124P04C	Structural Design 4C Tomáš ejka, Tereza Pavl , Ji í Pazderka, Radek Zigler, Kamil Stan k, Jan Tywoniak, Karel Kabele Ji í Pazderka Radek Zigler (Gar.)	КZ	5	4C	L	Z

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

135ZS02	Foundations 2	Z,ZK	4		
The course deepens the	e knowledge from the previous course ZS1. It covers design principles, risks associated with the foundation of structures, dee	per design of flat	foundations,		
deeper design of deep t	oundations, negative casing friction of drilled piles, grouting (calculations and execution), construction pits, improvement of fo	undation soils.			
132DKBU	Diagnostics of Structures and Buildings	KZ	3		
124TT2C	Thermal Engineering in Construction 2	KZ	3		
Extension and completi	on of knowledge from the basic short course on thermal protection of buildings. Thermal transmittance of windows and curtai	n walls, linear an	d point thermal		
transmittance, ventilated	l constructions, energy performance of buildings and building energy performance certificate, thermal stability of rooms and risk	of overheating, th	ermal protection		
of historic buildings.					
124PDR2	Failures, Deterioration, Renovations 2	Z,ZK	4		
As part of the course, st	udents will become familiar with the structural statics and analytical problems of failures, rehabilitation and restoration of load-b	earing and comp	letion structures		
of historical buildings, in	cluding 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 o	f brick tenement houses, rural buildings, industrial buildings, objects realized with prefabricated technology, damage and repa	ir of opening fillin	gs (windows,		
doors), floor structures,	chimneys and staircases of historical buildings.				
124DRS	Timber Constructions	Z,ZK	3		
Students will learn about	t the complex issues of designing modern wooden buildings. The introductory block of lectures is dedicated to the material ba	ase, structural sy	stems, and		
mechanical properties of	of wood and wood-based materials. The principles of ensuring spatial rigidity of the light frame and mass-timber structural sys	tems are present	ed. It follows a		
lecture block focused or	n the design of envelope constructions of wooden buildings, moisture safety, biological threats, and principles of wood protect	ion. In the followi	ng two lectures,		
the structure of wood an	nd the interaction of the wood substance with air humidity, which has a significant effect on all technical properties of wood, a	re described in m	ore detail. The		
next lecture is devoted to	o passive measures to reduce the risk of summer overheating of wooden buildings. In the last lecture, construction technology is	s discussed and a	a comprehensive		
approach to the design	of modern wooden buildings is emphasised.				
132DYKC	Dynamics of Building Structures	Z,ZK	3		
Principles of theory of v	ibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Damped vibration. Methods of dyna	amic analysis of			
muti-degreee-of-freeed	om systems.				
124P04C	Structural Design 4C	ΚZ	5		
The student processes	selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the re-	furbishment of ar	1 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 docum	entation of the		
current state of the build	ting and an analysis of broader relationships (R). It also optimizes variants of the construction solution (N) or evaluates the co	nstruction and tee	chnical 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 ca	uses - STP (R). I	t also processes		
selected parts of the project documentation of the building or its parts (N) or drafts selected rehabilitation measures (R)					
Name of the b	lock: Compulsory elective courses				

Name of the block: Compulsory elective course 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 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 Ji í Nová ek Jaroslav Vychytil (Gar.)	Z	2	1P+1C	Z	PV
124YCPV	The Principles of Circular Economy in Building Construction Tereza Pavl Tereza Pavl (Gar.)	Z	2	1P+1C	Z	PV
124YDPH	Diagnosis and Surveying of Building Structures Eva Burgetová Eva Burgetová Eva Burgetová (Gar.)	Z	2	1P+1C	Z	PV
124YDSR	Demolitions of Buildings and Material Recycling Šárka Šilarová Šárka Šilarová 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 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 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 Ji í Máca Ji í Máca (Gar.)	Z	2	1P+1C	Z	PV
132YSSK	Reliability of Structures Jaroslav Kruis 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, Yuliia Khmurovska, Jakub Žák Petr Štemberk Petr Štemberk (Gar.)	Z	2	1P+1C	z	PV
134YDKM	Timber structures and bridges Anna Kuklíková Anna Kuklíková Anna Kuklíková (Gar.)	Z	2	1P+1C	z	PV
134YROK	Extending the Life of Steel and Timber Structures Karel Mikeš 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 Daniel Turanský, Jan Pruška, Jan Ježek Alena Zemanová Jan Pruška (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 Davidová 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, system	, ms natural freque	ncy of vibration		
and damped vibration, basics concepts of fracture mechanics, types of fracture, electron microscopes, scanning tunneling microscope, atomic force microscope, diffraction, diffraction					
methods, semiconducto	methods, semiconductors, 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	a more detailed explanation and practice of selected topics in the field of daylighting and building acoustics that students may e	encounter 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 cor	sideratons and implications which require structure assessment. The course provides an objective framework and methodic	al and systematic	approach to		
surveying (structural dia	ignosis, preliminary and comprehensive survey, visual inspection, site inspections, laboratory tests, investigation kits, types of	defects and dama	ages, symptoms,		
manifestation, significar	nce, 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: significan	itly reducing the		
volumes of landfilled materials, reducing the consumption of primary raw materials, a new perspective on the design of buildings and structures in accordance with a closed life cycle.					
Legislation, levels of recycling in developed countries, recycling in CR, possibilities of recycling buildings and structures, design of structures from the point of view of sustainable					
development, minimizat	development, minimization of landfills, examples and demonstrations of recycling technologies, low-waste technologies				

The ocume is focused or the presentation and acquisition of the note more than compets and principles of the select in buildings. Attention is pair to all the main components of the select interview is more than the select interview approach of the select promethene of the select presentation of buildings. Later compares is tradeed for students of norther disciplines and should unable them to take into access and encoder the select presentation of buildings. Later compares is tradeed for students of norther disciplines and should unable them to take into access the interview and moder that the select and the select students of the select and the select students of the select and the select students and into take in the select and moder that the select students of the select and these systems. The course is there also be not stall at the select students of the select and the select an	124YPBS Principles of Building Fire Safety	ZK	2
safety essign that are important to the protection of life and health, property, the environment and after assets. The course is intended to students of non-fine disciplines and should earlie that builts of the accure to prevent to the students of the initial sugges of programment of buildings. Interview is the same of the transmission of the student student initial sugges of programment of buildings. The same of the same the same of the student students and materials, the locus of the sources is based on the current states of the strice is buildings. There readual life and allures of historical buildings and their parts. An integral part is the issue of extructival-schnical and historical buildings, description and capacity and prevants of the same stress and their applications. T22K 3 a Renewable Europey Sources are based in the current states assessment of the articular students of the same systems. The current stress stress based in the current state stress of the same systems. The current stress stress the same stress and their applications. T22K 3 the course is after and the same stress assessment of the articular students of the same systems. The current stress stress the same stress and their applications. T2 2 2 the current stress stress the same stress assessment the same stress stress the same stress stress assessment the same stress stress the same stress stress assessment the same stress stress the same stress assessment the same stress stre	The course is focused on the presentation and acquisition of the most important concepts and principles of fire safety in buildings. Attention is pair	to all the main con	nponents of fire
enable them to take non caccum species of the safety trom the initial stages of project preparation of buildings. Parl Larks, Deterministics of the strategy trom the initial stages of project preparation of a buildings, there detailed in the strategy of the strategy and materials. The stage of deparation of a buildings, there detailed in the analysis of the strategy and the strategy of the strategy and materials. The strategy of the strategy and materials are strategy of the strategy and materials are strategies and strategies and strategies and strategies and materials. The strategy of the strategy and materials are strategies and the strategy of the strategy and materials are strategies and the strategy of the strategy and materials. The strategy of the strategy and materials are strategies and the strategy of the strategy of the strategy of the strategy and strategy and materials. The strategy and strategy and materials are strategies and the strategy of the strategy of the strategy and strategy and materials. The strategy and	safety design that are important for the protection of life and health, property, the environment and other assets. The course is intended for studen	ts of non-fire discipli	ines and should
12/MPRS Failures, Detriforation, Renovations 2 2 12/0000 and antivitation of the correct issues of resortion, resortion and optimical moderization of building (residential, inclustrial, etc.), on histonical structures and materials, his sues of adjustation and optimical moderization. The sues of adjustation and optimical moderization and resortion and optimical moderization of buildings. Understanding faer characteristics is key to the proper design and optimical moderization. 2 3 12/0000 Deformation on and Failuro of Materials. Z.K. 5 12/0000 Deformation and Failuro of Materials. Z.K. 5 12/0000 Deformation and Failuro of Materials. Z.Z.Z. 2 2 12/0000 Moderim Methods of Optimization Z.Z.Z. 2 2 12/0000 Moderim Methods of Optimization Z.Z.Z. 2 2 12/0000 Moderim Methods of Optimization Z.Z.Z. 2 2 12/00000 Moderim Methods of Optimization Z.Z.Z.Z. 2 2 12/0000 Moderim Methods of Optimization Z.Z.Z.Z.Z.Z.Z.Z.Z.Z.Z.Z.Z.Z.Z.Z.Z.Z.Z.	enable them to take into account aspects of fire safety from the initial stages of project preparation of buildings.		
The ourse is floated on the current issue of restoration, reconstruction and modernization of buildings (residential, industrial, etc). An integral part is the issue of structure-idential and historical structures and meterical issues of restoration of the expected issues of the structure-identical and instructures. An integral part is the issue of structure-identical and its instructure is and meterical issues of restoration of these systems. The current structure issues is the issue of structure-identical and its instructures and meterical issues of restoration of these systems. The current structure issues issues of the current structure-identical analysis. Flacture mechanics. Damage mechanics is used to instructure issues of the structure-identical analysis. Flacture mechanics. Damage mechanics is a structure-identical analysis. Flacture mechanics. Damage mechanics is a structure-identical analysis. Flacture mechanics. Damage mechanics is a structure-identical analysis. Flacture mechanics is and intervention of these systems. The second structures is the instructure is and intervention intervention intervention is a structure in the control is and incremental analysis. Flacture mechanics. Damage mechanics is a structure is analysis. Flacture mechanics is a structure is and intervention interve	124YPRS Failures Deterioration Renovations	7	2
degradation and aging of structures and materials of historical subdings, meet reskalal life and failures of historical subdings, and her parts. An integral part is the issue of structure-lechnical and historical survival life. ZK 3 12502E1 Renewable sources are hororing in creations of merge to buildings. Understanding their characteristics is key to the proper design and operation of these systems. The ourse herefore locks in detail at renewable sources and their applications. Z.ZK 5 1282PEM Deformation and Failure of Matorials Z.ZK 5 132YWAR Statics for Architecture Z 2 132YWAR Statics for Architecture Z 2 132YWAR Nodern Methods of Ophimization Z 2 132YWSEI Selfismic Engineeering Z 2 132YWSEI Selfismic Engineeering Z 2 132YWSEI Selfismic Engineeering Z 2 2 132YWSEI Reliability of Structures Z 2 2 2 132YWSEI Reliability of Structures Z 2 2 2 2 2 2 2 2 2 2 2 2	The course is focused on the current issue of restoration, reconstruction and modernization of buildings (residential, industrial, etc.), on historical s	tructures and mater	ials, the issue of
and hastories surveys, degradeds and assessment of the structure-included condition and menaning service life. ISO/2E1 Renewable Energy Sources ISO/2E1 Renewable For construct renewable sources and their applicable not only in the Cvil Engineering area. The emphasis is put more on the introduction of driving principles, the source is and outperformed on glomaziation methods applicable not only in the Cvil Engineering area. The emphasis is put more on the introduction of driving principles, the source is and antiputed interesting and sources are and outperformed on glomaziation methods applicable not only in the Cvil Engineering area. The emphasis is put more on the introduction of driving principles, driving excited applicable on torvive inter methods applicable not only in the Cvil Engineering area. The emphasis is put more on the introduction of driving principles, driving excited applicable on design of extrusting excited applicable not only in the Cvil Engineering area. The emphasis is put more on the introduction of driving principles, driving excited applicable on design of extrusting excited applicable not only in the cvil Engineering area. The explores of structures to earthquike loads according to Eurocode as are source and uncertex and conceres and	degradation and aging of structures and materials of historical buildings, their residual life and failures of historical buildings and their parts. An integral	art is the issue of str	uctural-technical
1250ZE1 Renewable Energy Sources ZK 3 Renewable sources are hororing incremental sources and heir applications. ZZK 5 132PRPM Deformation and Faiture of Materials ZZK 5 132PRPM Statics for Architecture Z 2 132PRPM Statics for Architecture Z 2 132VKAR Statics for Architecture Z 2 132VKRA Statissing for a statissing and contrast and conducted during evericles. Z 2 132VSEI Statissing for advance existsing structures. Methods of calculating the response of structures to earthquake loads according to Eurocode 8. 2 2 132VSEX Reliability of Structures Z 2 2 2 132VSEX Concrete europerise existant structures and concated and concate and concat	and historical surveys, diagnostics and assessment of the structural-technical condition and remaining service life.		
Revenues is sources are becoming increasingly inportant sources of energy for buildings. Understanding their characteristics is key to the proper design and operation of these systems. 132 PRPM Deformation and Failures of Materials Z,ZK 5 132 VRAM Statics for Architecture Z 2 132 VRAM Noncorea teep, Theory of plasticity, principles of limit and incremental analysis. Fracture mechanics. Damage mechanics. Z 2 132 VRAM Statics for Architecture Z 2 2 132 VSBM Selsmic Engineeering Z 2 2 24 course is almostive on menical expinitization methods as glicital not only in the Civil Engineering area. The emphasis is put more on the introduction of diving series/set. 2 2 23 VSBK Feliability of Structures Z 2 2 The ourse is divided to the onorise term chandobility of series and systems. Element reliability of systems is of type strength-load. Complicated cases are safeted by the FORM method. To assimulation methods as gnications Z 2 2 133 VEK Concrete under Extreme Conditions Z 2 2 2 2 2 2 2 2 2 2 2 2 <td< td=""><td>12507E1 Renewable Energy Sources</td><td>7K</td><td>3</td></td<>	12507E1 Renewable Energy Sources	7K	3
The course herefore loss in detail at renewable sources and their applications. 132PRPM Deformation and Faiture of Materials Z,ZK 5 132VRAPA Statics for Architecture Z 2 132VSSK Reliability of Structures Z 2 2 132VSSK Reliability of Structures Z 2 2 133YBZ Concrete under Extreme Conditions Z 2 2 133YBX Concrete under Extreme Conditions Z 2 2 2 133YBK Concrete under Extreme Conditions Z 2 2 2 2 2 2 2 2 2 2 2 2 2	Renewable sources are becoming increasingly important sources of energy for buildings. Understanding their characteristics is key to the proper de	sign and operation of	f these systems
132PRPM Deformation and Failure of Materials Z,ZK 5 Vaccessition, models for concrete creep. Theory of plassitoly principles of limit and incremental analysis. Fracture mechanics. Damage mechanics. Z 2 132YRAM Modern Methods of Coptimization Z 2 2 132YMMO Modern Methods of Optimization Z 2 2 The curves is almosting in MRLAB environment are also conducted during exercises. 132YSEI Selsmic Engineeering Z 2 2 Basic principles of design of earthquake resistant structures. Methods of calculating the response of structures to anthquake loads according to Eurocode 8. 2 2 2 1 2 </td <td>The course therefore looks in detail at renewable sources and their applications</td> <td>sign and operation o</td> <td>i these systems.</td>	The course therefore looks in detail at renewable sources and their applications	sign and operation o	i these systems.
Displanment Displanment <thdisplanment< th=""> <thdisplanment< th=""></thdisplanment<></thdisplanment<>	122DBDM Deformation and Exilure of Materials	7.7%	Б
Vaccodation, include to detail of the planck, plinopes of mining in characterize relations in details. Image: Control of the plance of the planc	132F KF M Deformation and Failure of instead lass of limit and ingremental analysis Erecture mechanics. Demoge mechanic		5
1321YMPA Statics for ArChitecture 2 2 132YMD0 Modern Methods of Optimization Z 2 132YSEI Selsmic Engineeering Z 2 132YSMX Reliability of Structures Z 2 132YSEI Selsmic Engineeering Z 2 132YSKX Reliability of Structures Z 2 133YBEX Concrete under Extreme Conditions Z 2 133YBEX Concrete structures are introduced theore structures extreme conditions. Z 2 134YDKM Timber structures and sciences structures are introduced sciences structures are discussed. The course lossed on nonreat and concrete structures, extreme conditions. Z 2 134YDKM Timber structures and bridges Z 2 2 134YDKM Timber structures and bridges Z 2 2 134YDKMX Timb	Viscoelasticity, models of concrete crept, models of plasticity, principles of minit and incremental analysis. Fracture mechanics, banage mechanic		0
132YMMO Modern Methods of Optimization 2 2 The course is indicated an overview of numerical optimization methods applicable not only in the Civil Engineering area. The emphasis is put more on the introduction of driving principles, however, practical applications in MATLAB environment are also conducted during exercises. 2 2 Basic principles of design of earthquake resistant structures. Methods of calculating the response of structures to earthquake loads according to Eurocode 8. 2 2 The course is indexed to the reliability of structures. Z 2 2 The course is indexed to the reliability of structures. Z 2 2 The course is indexed to the reliability of structures and systems. Element reliability is time dependent while the reliability of systems is of type strength-load. Complicated cases are solved by the FORM method. Two simulation methods are introduced; Monte Carlo and LHS. Z 2 133YPBEX Concrete under Extreme Conditions Z 2 2 The course is indicated to national stratagy of sustainable development. New time-hased materials. Structural systems to the deficit of hending moment and shear, and foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. Z 2 2 134YPEM Timber structures and obscruttures, incert structures and theoretism of theoretism. Survey of objots, stalic assumptions of reconstruction. Advecomment and shear.	132YKPA Statics for Architecture	Z	2
The course is alread at an overview of numerical optimization methods applicable not only in the CNE fengineering area. The emphasis is put more on the introduction of driving principles, however, practical applications in MATLAB environment are also conducted during exercises. 132YSEI Selismic Engineeering Z 2 Basic principes of design of earthquake resistant structures. Methods of calculating the response of structures to earthquake loads according to Eurocode 8. Z 2 132YSEX Concrete under Extreme Conditions Z 2 133YDEX Concrete under Extreme Conditions. Z 2 133YDEX Concrete under Extreme conditions. Z 2 134YDKM Failures and Rometes structures and concrete structures, sequenation of the causes of these failures and the design of remedial measures. Methods of structure are discussed. The cause globace on the description of allures of concrete structures, submatistication and maintename. Z 2 134YDKM Timber structures and bridges. Z 2 2 134YDKM Timber structures and bridges, oronalization of aduations of concrete structures, submatistication. Causes of these failures and the design of the descips. Production, protection, necercons, and development. New timber-based materials. Structural system of houses and bridges. Repairing and strengthering of strengthering of strengthering of strengthering of strengthering. The area of qualiablation advisor datadization. Causes of detects	132YMMO Modern Methods of Optimization	Z	2
havever, practical applications in MATLAB environment are also conducted during exercises. 132YSEI Seismic Engineeering Z 2 Basic principles of design of earthquate resistant structures. Methods of calculating the response of structures to earthquate loads according to Eurocode 8. 2 2 The course is dovoted to the reliability of elements and systems. Element reliability is time dependent while the reliability of systems is of type strength-load. Complicated cases are solved by the FORM method. Two simulation methods are introduced. Mone Carl and LHS. 2 2 133YPEX Concrete under Externee Conditions. Z 2 2 The course is focused on concrete and concrete structures, explanation of these structures and the design of remedal measures. Methods of strengthening eating concrete structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structures is normal transport structures and bridges Z 2 134YPEX Extension. Z 2 2 134YPEXK Extension of maintenance. Design and evaluation of bridges, cross structures in normal transport structures and bridges Z 2 2 134YPEXK Extension get the course appropriately combines theoretical approaches with common practice. Z 2 2 134YPEXK Extension get the course as and strang of stratasinable development. New timber-based materials. Structural system of houses and bridges.	The course is aimed at an overview of numerical optimization methods applicable not only in the Civil Engineering area. The emphasis is put more on	the introduction of d	lriving principles,
132YSEI Seismic Engineeering Z 2 Basic principles of design of earthquake resistant structures. Methods of calculating the response of structures to earthquake loads according to Eurocete 8. Z 2 132YSK Reliability of Structures Z 2 132YSK Reliability of structures Z 2 132YSK Concrete under Extreme Conditions. Z 2 133YPRK Failures and Rehabilitation of Concrete Structures. Z 2 10 course is focused on concrete structures under extreme conditions. Z 2 11 course is focused on concrete structures under extreme conditions. Z 2 12 concrete under Extreme Conditions Z 2 2 12 concrete under Extreme Conditions	however, practical applications in MATLAB environment are also conducted during exercises.		
Basic principles of design of earthquake resistant structures. Methods of calculating the response of structures to earthquake loads according to Eurocode 8. 132YSSK Reliability of Structures Z 2 The course is devoted to the reliability of structures Z 2 2 The course is devoted to the reliability of structures Z 2 2 The course is focused on concrete and concrete structures and endotions. Z 2 2 The course focuses on the description of statures of concrete structures, explanation of the cause of these failures and the design of remedial measures. Methods of strengthening ostisting concrete structures are discussed. The course appropriately combines theoretical approaches with common practice. Z 2 134YDKM Timber structures and bridges Z 2 2 Tamber structures focused on action at stratagy of assumable development. New timber-based materials. Structural elements to the effects of bending moment and strengthening, free distances. Dessign and evaluation of bridges, roots structures in normal temperature and infre. 134YDKM Extending the Life of Steel and Timber Structures Z 2 134YDKK Extending the Life of Steel and Timber Structures Z 2 2 134YDKK Extability and modeling of steel structures and standed developments in	132YSEI Seismic Engineeering	Z	2
132YSSK Reliability of Structures Z 2 The course is deviced to the reliability of elements and systems. Element reliability is time dependent while the reliability of systems is of type strength-load. Complicated cases are solved by the FORM method. Two simulation methods are introduced: Monte Carlo and LHS. Image: Concrete under Extreme Conditions. Z 2 133YBEX Concrete under Extreme Conditions. Z 2 13ayrex Failures and Rehabilitation of Concrete Structures on the descipation of failures of concrete structures, explanation of the causes of these failures and the design of remedial measures. Methods of strengthening esisting concrete structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of bending moment and shear, and foundation structures are discussed. The course porprivately combines theoretical approaches with common practice. 134YDKM Z 2 134YDKM Timber structures and edicussed development. New timber-based materials. Structural system of houses and bridges. Repairing and strengthening. Fire design. Production, protection, areguinance. Design and valuation of thicker, too structures in normal temperature and in fire. 2 2 134YDKM Extending the Life of Steel and Timber Structures Z 2 2 2 Materials used for bearing structure. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, state assumption of steel structures. Z	Basic principles of design of earthquake resistant structures. Methods of calculating the response of structures to earthquake loads according to E	urocode 8.	
The course is devoled to the reliability of elements and systems. Element reliability is time dependent while the reliability of systems is of type strength-load. Complicated cases are solved by the FORM method. Two simulation methods are introduced: Monte Carlo and LHS. 133YBEX Concrete under Extreme Conditions Z 2 The course is focueed on concrete and concrete structures under extreme conditions. Z 2 The course is focueed on concrete and concrete structures, explanation of the causes of these failures and the design of remedial measures. Methods of strengthening desisting concrete structures are also discussed. Sufface repairs, strengthening of contactors, strengthening of structural elements to the effects of bending moment and shear, and foundation structures are discussed. Unice are spontable combines theoretical approaches with common practice. 134YDEM Timber structures and bridges Z 2 The structures are discussed. Unice and maintenance. Design and evaluation of bridges, roots structural system of houses and bridges. Repairing and strengthening, fire design. Production, protection, erection and maintenance. Design and evaluation and strengthening of steel and Timber Structures Z 2 134YDEM Extending the Life of Steel and Timber Structures Z 2 2 134YSMK Stability and modelling of steel structures and strengthening of structures. The strengthening of steel structures. The strengthening of steel and timber structures and strengthening of steel structures. The strengthening of steel and timber structures and strengthening of	132YSSK Reliability of Structures	Z	2
solved by the FORM method. Two simulation methods are introduced: Monte Carlo and LHS. 133YBEX Concrete under Extreme Conditions. Z 2 The course is focused on concrete structures and exterime conditions. Z 2 The course is focused on concrete structures and exterime conditions. Z 2 The course is focused on concrete structures and exterime conditions. Z 2 The course is focused on concrete structures are also discussed. Structural externely of contactors, strengthening of structural elements to the effects of bending moment and shear, and foundation structures are also discussed. Under repairs, strengthening of contactors, strengthening of structura structures and strengthening. Fire design. Production, protection, erection and maintenance. Design and evaluation of bridges, roots structures in normal temperature and in file. Image: Structura Str	The course is devoted to the reliability of elements and systems. Element reliability is time dependent while the reliability of systems is of type stre	ngth-load. Complica	ated cases are
133YBEX Concrete under Extreme Conditions. Z 2 The course is focused on concrete and concrete structures under extreme conditions. Z 2 133YPBK Failures and Rehabilitation of Concrete Structures. Z 2 133YPBK Failures and Rehabilitation of Concrete structures, explanation of the causes of these failures and the design of remedial measures. Methods of strengthening of structural elements to the effects of bending moment and shear, and foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. Z 2 134YPDKM Timber structures are discussed. The course appropriately combines theoretical approaches with common practice. Z 2 134YPRKK Extending the Life of Steel and Timber Structures in normal temperature and infre. Identify a substantable development. New timber-based materials. Structures in normal temperature and infre. 134YROK Z 2 134YROK Extending the Life of Steel and Timber Structures Z 2 2 134YROK Stability and modelling of steel structures and standardization. Causes of defects, malfunctions, survey of objects, static assumptions of reconstruction. 134YSMK Stability and modelling of steel attructures. Z 2 2 134YSMK Stability and modelling of steel structures and standardization. Causes of defects, m	solved by the FORM method. Two simulation methods are introduced: Monte Carlo and LHS.		
The course is focused on concrete and concrete structures under extreme conditions. Image: Concrete Structures (Concrete Structures) Image: Concrete Structures (Concrete Structures) Image: Concrete Structures (Concrete Structures) Image: Concrete Structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structures are also discussed. The course focuses appropriately combines theoretical approaches with common practice. Image: Concrete Structures are also discussed. Surface repairs, strengthening of structures is the other of the structures are discussed. The course focuses and bridges context structures to used to national strategy of sustainable development. New timber-based materials. Structural system of houses and bridges. Repairing and strengthening. Fire design. Production, protection, recetton and maintenance. Design and evaluation of bridges, roots structures in normal temperature and in fire. Image: Concrete Structures are discussed. Structures and bridges is the structures and development in the area of regulations and standardization. Causes of delets, malfunctions, survey of objects, static assumptions of normercial models. 134YDK Extending the Life of Steel and Timber Structures Z 2 2 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of delets, malfunctions, survey of objects, static assumptions of normercial models. Z 2 2 134YDK Stability and modelling of steel structures X 2 2 2 204SYSMK Stability and modelling of steel structures are analysed including the inte	133YBEX Concrete under Extreme Conditions	7	2
133YPRK Failures and Rehabilitation of Concrete Structures Z 2 The course focues on the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial measures. Methods of strengthening existing concrete structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of bending moment and shear, and foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. Z 2 134YDKM Timber structures are discussed. The course appropriately combines theoretical approaches with common practice. Z 2 134YDKM Timber structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, static assumptions of reconstruction. Possibilities of strengthening, strengthening of steel and Timber Structures Z 2 134YDKK Stability and modelling of steel structures Z 2 2 134YSMK Stability and modelling of steel structures Z 2 2 134YSMK Stability and modelling of steel structures Z 2 2 134YSMK Stability and modelling of steel structures Z 2 2 2 134YSMK Stability on the deals with stability and strength of steel plates, the second one with stability and strengths of steel frame structures are	The course is focused on concrete and concrete structures under extreme conditions.		-
The course focuses on the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial measures. Methods of strengthening disting concrete structures are discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of bending moment and shear, and foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Z 2 Timber structures are discussed. The course appropriately combines theoretical approaches with common practice. Z 2 134YDKM Timber structures and bridges Z 2 134YROK Extending the Life of Steel and Timber Structures X logs Z 2 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of detects, malfunctions, survey of objects, static assumptions of reconstruction. Possibilities of strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstructions and development of numerical models. 134YDKK Stability and modelling of steel structures Z 2 Subject YSMK covers two parts. The first one deals with stability and strength of its elest structures, are analysed including the importance of imperfections in harmony with leorode. Buckling due to normal, shear and local loadings including the intervery of buckling, interversion of the results is shown together with design of neceasary stiffenes. The secure areal applied to t	122VDDK Enjlyros and Pohabilitation of Constrate Structures	7	2
The costs budges tructures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of bending moment and shear, and foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of bending moment and shear, and foundation structures locused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges. Repairing and strengthtening. Fire design. Production, protection, erection and maintenance. Design and evaluation of bridges, roots structures in normal temperature and in fre. 134YDKK Extending the Life of Steel and Timber Structures Z 2 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, static assumptions of reconstruction. 2 2 134YDKK Stability and modelling of steel structures and strengthening of connections. Using of computers in reconstructures and development of numerical models. 2 2 134YSMK Stability and modelling of steel structures are applied to the 4th class cross sections in harrowy with Eurocode. Buckling due to normal, shear and local loadings including the importance of imperfections for a design of thin bated structures. Presented are principles of theory of buckling, linear and nonlinear theory of buckling of thin plates. The results are applied to the 4th class cross sections in harrowy with Eurocode. Buckling due to normal, shear and local loadings including the transity	The course focuses on the description of failures of concrete structures evaluation of the causes of these failures and the design of remedial me	asures Methods of	2 strengthening
 Boundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134/DKM Timber structures and bickupsed to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges. Repairing and strengthening. Fire design. Production, protection, erection and maintenance. Design and evaluation of bridges, roofs structures in normal temperature and in fire. 134/DKM Timber structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, static assumptions of reconstruction. Prostbillities of strengthening, strengthening of steel and timber structures and standardization. Causes of defects, malfunctions, survey of objects, static assumptions of reconstruction. Prostbillities of strengthening. Strengthening of steel and timber structures and standardization. Causes of defects, malfunctions, survey of objects, static assumptions of reconstruction. Prostbillities of strengthening. Strengthening of steel structures and strength of steel plates, the second one with stability and strengths of steel frame structures. In the first part the historic collapses of steel structures in the disa of the class cross sections in harmony with Eurocode. Buckling during the area analysed in cluding the importance of imperfections for a design of this plated structures. In the first part the historic collapses of steel structures are analysed in cluding abs are presented together with methods for compression and bending interaction for sleader and principles of theory of buckling. Inear and nonlinear theory of buckling and explanear induction gate are perinciples of the evalue is shown together with design of necessary stifferers. The second part is focused on member and nonlinear theory of buckling. Inear and nonlinear theory of buckling and explanear inducing as the appering of the number. The second part is focused on member and nonlinear	The course of the description of related source and the states, explanation of related sources and the design of relation and the	bending moment ar	od shear and
TayTpKM Timber structures and bridges Z 2 Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural system of houses and bridges. Repairing and strengthtening. Fire design. Production, protection, erotection and maintenance. Design and evaluation of bridges, roofs structures in normal temperature and in fire. Z 2 134YDKK Extending the Life of Steel and Timber Structures Z 2 2 Materials used for bearing structures. Developments in the area of regulations and strengthening of connections. Using of computers in reconstructions and development of numerical models. Z 2 134YDKK Stability and modelling of steel structures and strengthening of connections. Using of computers in reconstructions and development of numerical models. Z 2 134YDKK Stability and modelling of steel structures are analysed including the importance of imperfections for a design of thin plates structures. In the first ner the historic collapses of steel structures are analysed including the application of the results are spoled to the 4th class cross sections in harmony with Eurocode. Buckling due to normal, shear and local loadings including their portability and strengthenols. Z 2 134YDKK Geotechnical Software for Numerical modelling Z 2 2 134YDKK Students get acquainted with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on introducing	ו באושנוות טטוטובנב שנותטנתובש מוב משט תשטתששבת. טתומטב ובשמווש. שנובותנוובוווות טו טטונמטנטוש. שנובותנוובווות טו שנותטנתומו בובוובוונש נט נווב בוובטש	Denunu momenta	iu sileai, aliu - i
134 TDNM 11100e1 structures and DRQSS 124 TDNP 12 12 125 Traber structures focused to national strategy of sustainable development. New timber-based materials. Structures in normal temperature and in fire. 134 YROK Extending the Life of Steel and Timber Structures 134 YROK Extending the Life of Steel and Timber Structures 2 2 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, static assumptions of reconstruction. Design and evaluation of the static assumptions of teconstructions. 134YSMK Stability and modelling of steel structures 2 2 Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel frame structures. In the first part the historic collapses of steel structures. The results are applied to the 4th class cross sections in harmony with Eurocode. Buckling due to normal, shear and local loadings including the importance of imperfections for a design of necessary stiffeners. The second are to focused on member and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender members. 135YGSM Geotechnical Software for Numerical modelling Z 2 2 Students get acquainted with the Finite Element Method, the currently dominant tool for numerical modeling in geotechnics. Emphasis is placed on Intoducing the basic prin	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice		,
Timber structures locused to hautonal strategy of sustainable development. New limber-based materials. Structures systeme of notices and bridges, Repaining and strengtmening, Fire 134YROK Extending the Life of Steel and Timber Structures Z 2 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, static assumptions of reconstruction. Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstructions and development of numerical models. 134YSMK Stability and modelling of steel structures Z 2 Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strength of steel frame structures. In the first part the historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are principles of theory of buckling, linear and nonlinear theory of buckling of thin plates. The results are application of the esplication of the esplication of the esplication of the opplications in harmony with Eurocode. Buckling due to normal, shear and local loadings including their combination is analysed in advalide to gether with methods for compression and bending interaction for slender members. In detail, specific cases of the finite element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on Introducing the basic principles of the Finite Element Method and their subsequent application to selected problems of Geotechnical Engineering. The course sumarises the types of finite elements used in geotechnic	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice.	7	
design - Production, protection, election and manufactive Design and evaluation to bridges, notis studicties in nonna temperature and an inter- 134/ROK Extending the Life of Steel and Timber Structures Z 2 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, static assumptions of reconstruction. Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstructions and development of numerical models. 134/ROK Stability and modelling of steel structures Z 2 Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel frame structures. In the first part the historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are principles 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 Eurococe. Buckling due to normal, shear and local loadings including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The second part is focused on member and torkling. Possible global analysis methods are presented together with methods for compression and bending interaction for slender members. In detail, specific cases of lateral torsional buckling explaned including also tapered members. 135YGSM Geotechnical Software for Numerical modelling in Geotechnics. Emphasis is placed on introduci	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges	Z	2
134YROK Extending the Life of Steel and Timber Structures 2 2 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, static assumptions of reconstruction. Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstructions and development of numerical models. 2 2 134YSMK Stability and modelling of steel structures 2 2 Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel frame structures. In the first part the historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structure. Presented are principles 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 Eurocade. Buckling due to normal, shear and local loadings including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The second part is focused on member and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender members. In detail, specific cases of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Z 2 20YDSM Diagnostics of Building Materials Properties Z	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges Timber structures are under an appropriately combines theoretical approaches with common practice.	Z S. Repairing and stre	2 engthtening. Fire
Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, static assumptions of reconstruction. Possibilities of strengthening, strengthening of steel and timber structures and strengthening of computers in reconstructions and development of numerical models. 134YSMK Stability and modelling of steel structures Z 2 Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel frame structures. In the first part the first part the first part the storic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are principles 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 normal, shear and local loadings including the importance of imperfections for compression and bending interaction for slender members. In detail, specific cases of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Z 2 135YGSM Geotechnical Software for Numerical modelling, and selected specifics associated with numerical modeling of foundation, embedded walls, and stability problems. Z 2 210YDSM Diagnostics of Building Materials Properties Z 2 2 210YDSM Diagnostics of herical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of their	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, erection and maintenance. Design and evaluation of bridges, roofs structures in normal temperature and in fire.	Z S. Repairing and stre	2 engthtening. Fire
Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstructions and development of numerical models. 134YSMK Stability and modelling of steel structures Z 2 Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel frame structures. In the first part the historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plates structures. In the first part the historic collapses of steel structures are analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The second part is focused on member and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender members. In detail, specific cases of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Z 2 135YGSM Geotechnical Software for Numerical modelling in Geotechnics. Emphasis is placed on introducing the basic principles of the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. This knowledge is further applied in the model walls, and stability problems. Z 2 210YDSM Diagnostics of Building Materials Properties Z 2 2 210YDSM Diagnostics of Building Materials Properties. Z 2 2 2	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Repairing and stre	2 engthtening. Fire 2
134YSMK Stability and modelling of steel structures Z 2 134YSMK Stability and modelling of steel structures Z 2 Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel frame structures. In the first part the historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are principles 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 normal, shear and local loadings including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The second part is focused on member and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender members. In detail, specific cases of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Z 2 Students get acquainted with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on introducing the basic principles of the Finite Element Method and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of finite elements used in geotechnical applications, material models suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics. This knowledge is further applied in the modeling of fou	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects,	Z Repairing and stre Z static assumptions of	2 engthtening. Fire 2 of reconstruction.
134YSMK Stability and modelling of steel structures 2 2 Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel frame structures. In the first part the historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are principles 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 normal, shear and local loadings including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The second part is focused on member and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender members. In detail, specific cases of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Z 2 Students get acquainted with the Finite Element Method, the currently dominant tool for numerical modeling in geotechnics. This knowledge is further applications, material models suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics. The sknowledge is further applied in the modeling of foundation, embedded walls, and stability problems. 210YDSM Diagnostics of Building Materials Properties Z 2 Failures of building materials, mechanical, thermal, chemical and other influences on the development of failures of building mat	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction	Z Repairing and stre Z static assumptions of s and development	2 engthtening. Fire 2 of reconstruction. of numerical
Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel plates, the second one with stability and strengths of steel plates, the second one with stability and strengths of steel frame structures. In the first part the historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are principles of theory of buckling, linear and nonlinear theory of buckling due to normal, shear and local loadings including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The second part is focused on member and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender members. In detail, specific cases of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Z 2 Students get acquainted with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on introducing the basic principles of the Finite Element Method and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of finite elements used in geotechnical applications, material models with a stability problems. 210YDSM Diagnostics of Building Materials Properties Z 2 Failures of building materials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of their occurrence. Basics of experimental measurement and instruments. Non destructive	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstructions models.	Z S. Repairing and stre Z Static assumptions of s and development	2 engthtening. Fire 2 of reconstruction. of numerical
historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are principles 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 normal, shear and local loadings including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The second part is focused on member and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender members. In detail, specific cases of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Students get acquainted with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on introducing the basic principles of the Finite Element Method and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of finite elements used in geotechnical applications, material models suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics. This knowledge is further applied in the modeling of foundation, embedded walls, and stability problems. 210YDSM Diagnostics of Building Materials Properties Z 2 Pailures of building materials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of their occurrence. Basics of experimental measurement and instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materials (concrete, mortar, metallic elements, wood, glass, plastics, composites and others). 210YSB Special Concretes Z 2 Phis course is aimed at expanding knowledge	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures	Z S. Repairing and stre Z Static assumptions of s and development Z	2 engthtening. Fire 2 of reconstruction. of numerical 2
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 normal, shear and local loadings including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The second part is focused on member and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender members. In detail, specific cases of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Z 2 Students get acquainted with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on introducing the basic principles of the Finite Element Method and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of finite elements used in geotechnical applications, material models suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics. This knowledge is further applied in the modeling of foundation, embedded walls, and stability problems. 210YDSM Diagnostics of Building Materials Properties Z 2 Failures of building materials, composite and others. Seciel concrete, mortar, metallic elements. 2 2 210YDSM Diagnostics of Building Materials Properties. Non-destructive test methods. Test methodology for various materials (concrete, mortar, metallic elements, wood, glass, plastics, composites and others). Z 2	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel from the stability and strengths of steel for steel plates, the second one with stability and strengths of steel for steel plates, the second one with stability and strengths of steel for steel plates, the second one with stability and strengths of steel for steel plates, the second one with stability and strengths of steel for steel plates, the second one with stability and strengths of steel for steel plates, the second one with stability and strengths of steel for steel plates, the second one with stability and strengths of steel for steel plates, the second one with stability and strengths of steel for steel plates, the second one with stability and strengths of steel for steel plates, the second one with stab	Z S. Repairing and stree Z static assumptions of s and development Z ame structures. In t	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the
including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The second part is focused on member and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender members. In detail, specific cases of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Ceotechnics. Emphasis is placed on introducing the basic principles of the Finite Element Method and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of finite elements used in geotechnical applications, material models suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics. This knowledge is further applied in the modeling of foundation, embedded walls, and stability problems. 210YDSM Diagnostics of Building Materials Properties Failures of building materials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of their occurrence. Basics of experimental measurement and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. Testing machines and equipment. Deformation measuring instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materials (concrete, mortar, metallic elements, wood, glass, plastics, composites and others). 210YSB Special Concretes 2 2 This course is aimed at expanding knowledge in the field of special concretes and composites for specific applications. The core of the course is to acquaint students with both the technological aspects of the production, testing and use of special concretes, as well as the applicable legislative framework for individual types of special concretes. Spec	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel for historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are provide and provenes of structures.	Z s. Repairing and stre Z static assumptions of s and development Z ame structures. In t inciples of theory of	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear
and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender members. In detail, specific cases of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Z 2 Students get acquainted with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on introducing the basic principles of the Finite Element Method and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of finite elements used in geotechnical applications, material models suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics. This knowledge is further applied in the modeling of foundation, embedded walls, and stability problems. 210YDSM Diagnostics of Building Materials Properties Z 2 Failures of building materials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of their occurrence. Basics of experimental measurement and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. Testing machines and equipment. Deformation measuring instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materials (concrete, mortar, metallic elements, wood, glass, plastics, composites and others). Z 2 210YSB Special Concretes Z 2 2 210YSB	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel for historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are private 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 normal and nonlinear theory of buckling of thin plates.	Z s. Repairing and stre Z static assumptions of s and development Z ame structures. In t inciples of theory of ormal, shear and lo	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings
of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Z 2 Students get acquainted with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on introducing the basic principles of the Finite Element Method and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of finite elements used in geotechnical applications, material models suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics. This knowledge is further applied in the modeling of foundation, embedded walls, and stability problems. 210YDSM Diagnostics of Building Materials Properties Z 2 Failures of building materials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of their occurrence. Basics of experimental measurement and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. Testing machines and equipment. Deformation measuring instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materials (concrete, mortar, metallic elements, wood, glass, plastics, composites and others). Z 2 210YSB Special Concretes Z 2 This course is aimed at expanding knowledge in the field of special concretes, as well as the applicable legislative framework for individual types of special concretes. Specific	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel for historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are private 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 n including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The first one deater is an applied to the 4th class cross sections in harmony with Eurocode. Buckling due to n including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The	Z s. Repairing and stree Z static assumptions of s and development Z ame structures. In t inciples of theory of ormal, shear and lo e second part is focc	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member
135YGSM Geotechnical Software for Numerical modelling Z 2 Students get acquainted with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on introducing the basic principles of the Finite Element Method and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of finite elements used in geotechnical applications, material models suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics. This knowledge is further applied in the modeling of foundation, embedded walls, and stability problems. 210YDSM Diagnostics of Building Materials Properties Z 2 Failures of building materials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of their occurrence. Basics of experimental measurement and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. Testing machines and equipment. Deformation measuring instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materials (concrete, mortar, metallic elements, wood, glass, plastics, composites and others). Z 2 210YSB Special Concretes Z 2 This course is aimed at expanding knowledge in the field of special concretes, as well as the applicable legislative framework for individual types of special concretes. Specific practical applications and experiences are also presented within the course.	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel for historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are private 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 n including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender	Z s. Repairing and stree Z static assumptions of s and development Z ame structures. In t inciples of theory of ormal, shear and lo e second part is focu members. In detail,	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases
Students get acquainted with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on introducing the basic principles of the Finite Element Method and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of finite elements used in geotechnical applications, material models suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics. This knowledge is further applied in the modeling of foundation, embedded walls, and stability problems. 210YDSM Diagnostics of Building Materials Properties Z 2 Failures of building materials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of their occurrence. Basics of experimental measurement and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. Testing machines and equipment. Deformation measuring instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materials (concrete, mortar, metallic elements, wood, glass, plastics, composites and others). Z 2 210YSB Special Concretes Z 2 This course is aimed at expanding knowledge in the field of special concretes, as well as the applicable legislative framework for individual types of special concretes. Specific practical applications and experiences are also presented within the course.	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel proceed. Buckling due to n including their combination is analysed including the importance of imperfections for a design of thin plated structures. Presented are privand nonlinear theory of buckling of thin plates. The results are applied to the 4th class cross sections in harmony with Eurocode. Buckling due to n including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender of lateral torsional buckling are explained including also tapered members. <td>Z s. Repairing and stree Z static assumptions of s and development Z ame structures. In t inciples of theory of ormal, shear and lo e second part is foct members. In detail,</td> <td>2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases</td>	Z s. Repairing and stree Z static assumptions of s and development Z ame structures. In t inciples of theory of ormal, shear and lo e second part is foct members. In detail,	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases
the Finite Element Method and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of finite elements used in geotechnical applications, material models suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics. This knowledge is further applied in the modeling of foundation, embedded walls, and stability problems. 210YDSM Diagnostics of Building Materials Properties Z 2 Failures of building materials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of their occurrence. Basics of experimental measurement and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. Testing machines and equipment. Deformation measuring instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materials (concrete, mortar, metallic elements, wood, glass, plastics, composites and others). Z 2 210YDSB Special Concretes Z 2 This course is aimed at expanding knowledge in the field of special concretes, as well as the applicable legislative framework for individual types of special concretes. Specific practical applications and experiences are also presented within the course.	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel free including the importance of imperfections for a design of thin plated structures. Presented are prive 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 not including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender of lateral torsional buckling are explained including also tapered members. 134YSMM Geotechnical Software for Numerical modelling <td>Z s. Repairing and stree Z static assumptions of s and development Z ame structures. In t inciples of theory of ormal, shear and lo e second part is focu members. In detail, Z</td> <td>2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2</td>	Z s. Repairing and stree Z static assumptions of s and development Z ame structures. In t inciples of theory of ormal, shear and lo e second part is focu members. In detail, Z	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2
applications, material models suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics. This knowledge is further applied in the modeling of foundation, embedded walls, and stability problems. 210YDSM Diagnostics of Building Materials Properties Z 2 Failures of building materials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of their occurrence. Basics of experimental measurement and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. Testing machines and equipment. Deformation measuring instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materials (concrete, mortar, metallic elements, wood, glass, plastics, composites and others). 210YSB Special Concretes Z 2 This course is aimed at expanding knowledge in the field of special concretes, as well as the applicable legislative framework for individual types of special concretes. Specific practical applications and experiences are also presented within the course.	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel fn historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are prive 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 n including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender of lateral torsional buckling are explained including also tapered members. 134YSM<	Z s. Repairing and stree Z static assumptions of s and development Z ame structures. In t inciples of theory of ormal, shear and lo e second part is focu members. In detail, Z n introducing the ba	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2 asic principles of
in the modeling of foundation, embedded walls, and stability problems. Z 2 210YDSM Diagnostics of Building Materials Properties Z 2 Failures of building materials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of their occurrence. Basics of experimental measurement and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. Testing machines and equipment. Deformation measuring instruments. Destructive testing of mechanical properties. Non-destructive test methodology for various materials (concrete, mortar, metallic elements, wood, glass, plastics, composites and others). 210YSB Special Concretes Z 2 This course is aimed at expanding knowledge in the field of special concretes, as well as the applicable legislative framework for individual types of special concretes. Specific practical applications and experiences are also presented within the course.	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel for historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are print and nonlinear theory of buckling of thin plates. The results are application of the results is shown together with design of necessary stiffeners. The orbination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The orbination is analysed in a detail. In the end members. 135YGSM Geotechnical Software for Numerical modelling Students get acquainted with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechn	Z S. Repairing and stree Z static assumptions of s and development Z ame structures. In trinciples of theory of ormal, shear and lo a second part is focc members. In detail, Z n introducing the bas finite elements used	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2 asic principles of d in geotechnical
210YDSMDiagnostics of Building Materials PropertiesZ2Failures of building materials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of their occurrence. Basics of experimental measurement and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. Testing machines and equipment. Deformation measuring instruments. Destructive testing of mechanical properties. Non-destructive test methodology for various materials (concrete, mortar, metallic elements, wood, glass, plastics, composites and others).210YSBSpecial ConcretesZ2This course is aimed at expanding knowledge in the field of special concretes, as well as the applicable legislative framework for individual types of special concretes. Specific practical applications and experiences are also presented within the course.Z2	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel for historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plate structure. Presented are print 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 no including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Students get acquainted with the Finite Element Method, the currently dominant tool	Z s. Repairing and stree Z static assumptions of s and development Z ame structures. In t inciples of theory of ormal, shear and lo e second part is focu members. In detail, Z n introducing the ba finite elements used cs. This knowledge i	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2 asic principles of d in geotechnical is further applied
Failures of building materials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of their occurrence. Basics of experimental measurement and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. Testing machines and equipment. Deformation measuring instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materials (concrete, mortar, metallic elements, wood, glass, plastics, composites and others). 210YSB Special Concretes Z 2 This course is aimed at expanding knowledge in the field of special concretes, as well as the applicable legislative framework for individual types of special concretes. Specific practical applications and experiences are also presented within the course.	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel fr historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are pr 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 n including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender of lateral torsional buckling are explained including also tapered members. 135YGSM <td>Z S. Repairing and street Z static assumptions of sand development Z ame structures. In trinciples of theory of ormal, shear and loe second part is foct members. In detail, Z n introducing the bar finite elements used cs. This knowledge in the second part is foct t</td> <td>2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2 asic principles of d in geotechnical is further applied</td>	Z S. Repairing and street Z static assumptions of sand development Z ame structures. In trinciples of theory of ormal, shear and loe second part is foct members. In detail, Z n introducing the bar finite elements used cs. This knowledge in the second part is foct t	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2 asic principles of d in geotechnical is further applied
experimental measurement and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. Testing machines and equipment. Deformation measuring instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materials (concrete, mortar, metallic elements, wood, glass, plastics, composites and others). 210YSB Special Concretes Z 2 2 This course is aimed at expanding knowledge in the field of special concretes, as well as the applicable legislative framework for individual types of special concretes. Specific practical applications and experiences are also presented within the course.	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel for historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are print and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Students get acquainted with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed of the Finite Element Method and their subsequent application to selected problems of Geotechnica	Z S. Repairing and stree Z static assumptions of s and development Z ame structures. In trinciples of theory of ormal, shear and lo e second part is foct members. In detail, n introducing the ba finite elements used cs. This knowledge is	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2 asic principles of d in geotechnical is further applied 2
Deformation measuring instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materials (concrete, mortar, metallic elements, wood, glass, plastics, composites and others). 210YSB Special Concretes Z 2 This course is aimed at expanding knowledge in the field of special concretes, as well as the applicable legislative framework for individual types of special concretes. Specific practical applications and experiences are also presented within the course.	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel fr historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are prise 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 n including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The analysed including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Students get acquainted with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechn	Z S. Repairing and street Z static assumptions of theory of ormal, shear and loe second part is foct members. In detail, an introducing the bar finite elements used cs. This knowledge is of their occurrence	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2 asic principles of d in geotechnical is further applied 2 b. Basics of
elements, wood, glass, plastics, composites and others). 210YSB Special Concretes This course is aimed at expanding knowledge in the field of special concretes and composites for specific applications. The core of the course is to acquaint students with both the technological aspects of the production, testing and use of special concretes, as well as the applicable legislative framework for individual types of special concretes. Specific practical applications and experiences are also presented within the course.	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel f historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are prive 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 n including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender of lateral torsional buckling and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of app	Z S. Repairing and street Z static assumptions of sand development Z ame structures. In trinciples of theory of ormal, shear and loe second part is foct members. In detail, Z in introducing the bar finite elements used cs. This knowledge is of their occurrence. Testing machines a	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2 asic principles of d in geotechnical is further applied 2 . Basics of and equipment.
210YSB Special Concretes Z 2 This course is aimed at expanding knowledge in the field of special concretes and composites for specific applications. The core of the course is to acquaint students with both the technological aspects of the production, testing and use of special concretes, as well as the applicable legislative framework for individual types of special concretes. Specific practical applications and experiences are also presented within the course.	toundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel f historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plate structure. Presented are prior and noinlear theory of buckling of thin plates. The results are applied to the 4th class cross sections in harmony with Eurocode. Buckling due to n including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software	Z S. Repairing and street Z static assumptions of sand development Z ame structures. In trinciples of theory of ormal, shear and loe second part is foct members. In detail, n introducing the bar finite elements used cs. This knowledge is of their occurrence. Testing machines a terials (concrete, model)	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2 asic principles of d in geotechnical is further applied 2 . Basics of and equipment. ortar, metallic
This course is aimed at expanding knowledge in the field of special concretes and composites for specific applications. The core of the course is to acquaint students with both the technological aspects of the production, testing and use of special concretes, as well as the applicable legislative framework for individual types of special concretes. Specific practical applications and experiences are also presented within the course.	toundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and standardization. Causes of defects, malfunctions, survey of objects, Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel for 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 no including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The and structure stability. Posible global analysis methods are presented together with methods for compression and bending interaction for slender of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Students get acquainted with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed of the finite Element Method and their subsequent application to selected problems of Geotechnical Engineering. The	Z S. Repairing and street Z static assumptions of sand development Z ame structures. In trinciples of theory of ormal, shear and loe second part is foct members. In detail, n introducing the bar finite elements used cs. This knowledge is of their occurrence. Testing machines a terials (concrete, model)	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2 asic principles of d in geotechnical is further applied 2 . Basics of and equipment. ortar, metallic
technological aspects of the production, testing and use of special concretes, as well as the applicable legislative framework for individual types of special concretes. Specific practical applications and experiences are also presented within the course.	toundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges design. Production, protection, 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 Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel structures 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel fromotions in sanalysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The 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 no including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The and structure stability. Possible global analysis methods are presented together with methods for compre	Z S. Repairing and street Z static assumptions of s and development Z ame structures. In the transport of theory of ormal, shear and load second part is focct members. In detail, Z ann estructures. In the transport of theory of ormal, shear and load second part is focct members. In detail, Z n introducing the bas finite elements used cs. This knowledge is of their occurrence. Testing machines a terials (concrete, model) Z A of their occurrence terials (concrete, model)	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2 asic principles of d in geotechnical is further applied 2 . Basics of and equipment. ortar, metallic
applications and experiences are also presented within the course.	toundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges 134YDKM Extending the Life of Steel and Timber Structures Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel frhistoric collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are print and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Students get acquainted with the finite Element Method, the currently dominant tool for numerical modeling in geotechnics. Emphasis is placed on the modeling of foundation, embedded walls, and stability problems. 210YDSM Diagnostics of Building Materials Properties Failures of building materials, mecha	Z S. Repairing and street Z static assumptions of s and development Z ame structures. In the structures. In the structures. In the second part is focce members. In detail, Z n introducing the base finite elements used cs. This knowledge if Z of their occurrence . Testing machines a terials (concrete, model) Z 0 Z 0 Z 0 Z 0 Z 0 Z 0 Z 0 Z 0 Z 0 Z 0 Z 0 Z 0 Z 0 2 0 2 0 2 0 2 0 0 0 <td>2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2 asic principles of d in geotechnical is further applied 2 . Basics of and equipment. ortar, metallic 2 with both the</td>	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2 asic principles of d in geotechnical is further applied 2 . Basics of and equipment. ortar, metallic 2 with both the
	toundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures focused to national strategy of sustainable development. New timber-based materials. Structural systeme of houses and bridges 134YDKM Extending the Life of Steel and Timber Structures Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel for historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are pri and nonlinear theory of buckling of thin plates. The results are applied to the 4th class cross sections in harmony with Eurocade. Buckling due to n including their combination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Students get acquainted with the Finite Element Method, the currently dominant tool	Z S. Repairing and street Z static assumptions of s and development Z ame structures. In the structures. In the structures of theory of ormal, shear and looe second part is focct members. In detail, Z anne structures. In the second part is focct members. In detail, Z n introducing the bas finite elements used cs. This knowledge is of their occurrence. Testing machines a terials (concrete, moderne). The second part students special concretes. Second concretes and the second part students special concretes.	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2 asic principles of d in geotechnical is further applied 2 . Basics of and equipment. ortar, metallic 2 with both the Specific practical
	toundation structures are discussed. The course appropriately combines theoretical approaches with common practice. 134YDKM Timber structures and bridges Timber structures tocused to national strategy of sustainable development. New timber-based materials. Structural system of houses and bridges design. Production, protection, erection and maintenance. Design and evaluation of bridges, roots structures in normal temperature and in fire. 134YDKM Extending the Life of Steel and Timber Structures Materials used for bearing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, Possibilities of strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstruction models. 134YSMK Stability and modelling of steel structures Subject YSMK covers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel fr historic collapses of steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are pri 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 n and structure stability. Possible global analysis methods are presented together with methods for compression and bending interaction for slender of lateral torsional buckling are explained including also tapered members. 135YGSM Geotechnical Software for Numerical modelling Students get acquainted with the Finite Element Method, the currently dominant too	Z S. Repairing and street Z static assumptions of s and development Z ame structures. In triinciples of theory of ormal, shear and lo e second part is foct members. In detail, Z an introducing the bas finite elements user cs. This knowledge if Z of their occurrence terials (concrete, model) Z o acquaint students special concretes. S	2 engthtening. Fire 2 of reconstruction. of numerical 2 he first part the f buckling, linear cal loadings used on member specific cases 2 asic principles of d in geotechnical is further applied 2 . Basics of and equipment. ortar, metallic 2 with both the Specific practical

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 Aleš Nekvinda 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 Vladimír Ž ára Vladimír Ž ára (Gar.)	Z	2	1P+1C	L	PV
124ҮКНК	Building Quality Complex Assessment Martin Volf Martin Volf Martin Volf (Gar.)	Z	2	1P+1C	L	PV
124YMOB	Modelling of Buildings - BIM Zdenko Malík Zdenko Malík (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 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	Z	2	2P	L	PV
126YPDV	Development Project Kate ina Válková Kate ina Válková Kate ina Válková (Gar.)	Z	2	2C	L	PV
132YNAK	Nonlinear Analysis of Materials and Structures Petr Kabele, Bo ek Patzák, 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 Ji í Máca Petr Fajman (Gar.)	Z	2	1P+1C	L	PV
132YSHK	Statics and Reconstruction of Historical Structures Petr Fajman Petr Fajman Petr Fajman (Gar.)	Z	2	1P+1C	L	PV
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, Roman Chylík 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 Josef Fládr (Gar.)	Z	2	1P+1C	L	PV
134YHNK	Stainless steel and aluminium structures Josef Machá ek, František Wald František Wald Josef Machá ek (Gar.)	Z	2	1P+1C	L	PV
134YNDK	Load-bearing timber roof constructions Karel Mikeš 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	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 Jakub Dolejš (Gar.)	Z	2	1P+1C	L	PV
135YVPZ	Computer analysis in underground structures Daniel Turanský, Jan Pruška, Jan Ježek Jan Pruška 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		
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 me	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 con	duction, oscillations, also in rheology and other parts.				
101YMST	Mathematical statistics for technicians	Z	2		
Inferential statistics. Theory of probability. Random variables and its characteristics. Basic methods of mathematical statistics.					
101YNUM	Numerical Methods	Z	2		
Numerical computing in	Numerical computing in applied mathematics: course for beginners.				

	Materials for Coatings	Z	2
Students will gain an ov	erview of how to protect building structures from corrosion and other harmful influences such as UV radiation, acid rain, etc.	Students will also	learn about
methods and technologi	es of surface treatment. The course consists of 6 lectures and 6 exercises. In the lectures, students will learn about both histor	rical and more imp	ortantly modern
surface treatments for d	ifferent types of structures. In the exercises, students will perform a surface treatment on a fragment of a structure and will be	e able to check the	e quality of the
work done by themselve	as in the last exercise by means of a tear-off test.		
124YHVK	Long Span Structures	Z	2
The subject deals with th	e analysis of structural solutions applied in building designs by the world's best architects. Although attention will be focused ma	inly on the solution	n of load-bearing
structures, we will also	bay attention to the wider context of the design. Reading existing constructions is a natural way to learn the principles of their	design. And natur	ally we will learn
from the best. An extens	sive database of completed buildings, including more than 5,000 buildings, will enable us to take a trip into history and the pre	esent on all the wo	orld's continents.
124YKHK	Building Quality Complex Assessment	<u> </u>	2
Students will gain an ov	erview of design strategies in green architecture and sustainable building and learn how to conduct assessments to achieve	high quality build	ngs. In addition,
they will learn basic info			
124YMOB	Modelling of Bullaings - BIW	∠	Z d DIM modele
The course is designed	to introduce the phenomenon of parametric design, which is becoming very widespread in today's world. It is the connection	or 3D models and	a Blivi models
of the programming land	. Instead of whiting code in a classical programming language, nodes are connected, and the resulting script can be created nuage. These scripts can be used primarily for: - creating parametric geometry - working with data in a BIM model - structure	al and physical an	alvsis design
optimization. Thematica	ly, the course covers two main areas of parametric modeling, replicating two software platforms: Revit + Dynamo (JaVe) Rhi	no + Grasshoppe	r (ZdMa)
124YPES	Precast concrete structures	7	2
Residential houses mad	le of precast connete panels, of which approx, 82 thousand were built in the period 1960-1995 do not meet the required exter	<u> </u>	
developing society and	in many cases require the implementation of regeneration and modernization interventions enabling their full use. The course	e is focused on the	e current issues
of renewal, reconstruction	on and modernization of precast houses, modernization of apartments in precast houses, on the issue of freeing parteries of p	recast houses for	services, shops,
offices, fitness centers,	etc. Renovation, modernization, or regenerations require the removal of functionally inadequate completion structures, techn	ical equipment, in	stallations and,
in some cases, even der	nanding interventions in supporting structures. As part of the construction of communication networks, modernization of urbar	development, etc	., it is necessary
in some cases to carry	but partial or complete demolition of a precast panel building. As part of the regeneration of precast panel housing estates, a	n extension is also	o carried out, or
completion of precast h	buses. The implementation of the mentioned plans requires a survey and diagnostics of supporting and peripheral structures	, joints of parts ar	nd an evaluation
of the structural-technic	al condition and an assessment of the residual life of precast panel structures and buildings.		
124YPS5	Prefabricated structures	Z	2
124YRHS	Reconstruction of Historical Building Structures	Z	2
In the period from the se	econd half of the 19th century by 1960, more than 250 thousand of two- to five-story brick apartment (mainly rental) houses in	n traditional brick	technology were
constructed in the Czec	n Republic. Brick buildings from this period were built according to regulations, building codes and laws from the turn of the 19	th and 20th centu	ries. Multi-storey
brick tenement houses	do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the	ne required extent	, and in many
cases require regenerat	ion and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment en-	abling their further	use. The course
is focused on the current	issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and	materials, the issu	e of degradation
and aging of structures	and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and th	eir parts. Furthern	nore, the course
is focused on the issue	of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an int	egral part of the n	nodernization of
	Technological Equipment of Duildings	7	0
1251101	rechnological Equipment of Buildings	L 2	
Course finenderes litele		the set at a second	
Sauna, fireplaces, kitch	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling	, fire safety equip	ment, sprinklers.
Sauna, fireplaces, kitche 126YBVE	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments	, fire safety equip	ment, sprinklers. 2
Sauna, fireplaces, kitche 126YBVE 126YPDV	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project	, fire safety equip Z Z	ment, sprinklers. 2 2
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures	, fire safety equip Z Z Z	ment, sprinklers. 2 2 2
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acque	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critic	, fire safety equip Z Z Z cal load and buck	ment, sprinklers. 2 2 ling shape.
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ac	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critic coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of Content of the stability and calculation of the structure initial stress matrix. Elastoplastic analysis of Structure initial stress matrix. Elastoplastic analysis of the structure initial stress matrix.	, fire safety equip Z Z cal load and buck f structures - evalu	ment, sprinklers. 2 2 ling shape. Juation of the limit
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ac load capacity, distributio	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the criti coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis o n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity problem	, fire safety equip Z Z cal load and buck f structures - evalu ns by means of a g	ment, sprinklers. 2 2 ling shape. uation of the limit general-purpose
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ac load capacity, distributio finite element program.	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critic coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity problem Numerical Applications of Otherstope a	, fire safety equip Z Z cal load and buck f structures - evalu ns by means of a	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ac load capacity, distributio finite element program. 132YNA2	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critic coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 to elament method. Formulation of plate elaments avitable for this and this plates a plate an elament method.	, fire safety equip Z Z cal load and buck f structures - evalu ns by means of a Z,ZK	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ac load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material poplinoaci	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critic coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction to a colution methods. implementation apports	, fire safety equipp Z Z cal load and buck f structures - evalu ns by means of a Z,ZK o nonlinear proble	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ac load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit	In technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critic coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction to y, solution methods, implementation aspects.	, fire safety equipp Z Z cal load and buck f structures - evalu ns by means of a Z,ZK o nonlinear proble	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St	In technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critic coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction the y, solution methods, implementation aspects. Computer Analysis of Structures 2 bility and elastoplastic solutions of a device theory. Poome and aridwark eighters on elastic foundation. Blate and wall structures 2 bility and least theory. Blate and wall structures 2 bility and walls of structures 2 bility and walls structures 2 bility and bility and bill bill bility a	, fire safety equipp Z Z cal load and buck f structures - evalu ns by means of a Z,ZK o nonlinear proble	2 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acque Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results	In technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critic cording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction te y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures 2	, fire safety equipp Z Z cal load and buck f structures - evalu ms by means of a Z,ZK o nonlinear proble Z s. Dynamic analys	2 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures.
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acque Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results.	an technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critic cording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis o n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction t y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structure Statics and Pocopetruction of Historical Structures	, fire safety equip Z Z cal load and buck f structures - evalu ms by means of a Z,ZK o nonlinear proble Z s. Dynamic analys	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures.
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acque Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK	In technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures anted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critic cording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction try, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structures Statics and Reconstruction of Historical Structures induction of trustors Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four	, fire safety equipp Z Z cal load and buck f structures - evalu ms by means of a Z,ZK o nonlinear proble Z s. Dynamic analys	2 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included Most
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acque Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failu	an technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critic coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction te y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures 2 ability analysis of structures 2 Statics and Reconstruction of Historical Structures ical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four e of panel buildings. Visit to the bistorical part of Prague Castle	, fire safety equipp Z Z cal load and buck f structures - evalu ns by means of a g Z,ZK o nonlinear proble Z s. Dynamic analys Z ndation conditions	2 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acque Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failur 132YLIPM	an technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critic coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction t y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structures Statics and Reconstruction of Historical Structures ical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four e of panel buildings. Visit to the historical part of Prague Castle. Capacital Principles of Machanics	, fire safety equip Z Z cal load and buck f structures - evalu ns by means of a g Z,ZK o nonlinear proble Z s. Dynamic analys dation conditions	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failur 132YUPM Tensors, differential oper	an technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critit coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction t y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures 2 General Principles of Mechanics General Principles of Mechanics rators and their application in mechanics. General structure of the basic equations of linear and statics and their application in mechanics.	, fire safety equip Z Z cal load and buck f structures - evalu ns by means of a g Z,ZK o nonlinear proble Z s. Dynamic analys Z ndation conditions Z,ZK	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 energy and
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failuu 132YUPM Tensors, differential ope duality. Principle of virtu	an technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critit coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction te y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures 0 General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castioliano, Hellinger-Reissner, Hu-Washizu) and their application to contin	i, fire safety equipp Z Z Cal load and buck f structures - evalu ns by means of a Z,ZK o nonlinear proble Z s. Dynamic analys Z ndation conditions Z,ZK d nonlinear statics puous and discrete	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failuu 132YUPM Tensors, differential oped duality. Principle of virtu beams, frames, plates, virtue	In technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critic cording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity problem Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction try, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures 2 ability analysis of structures 2 ability analysis of structures 1 Statics and Reconstruction of Historical Structures ical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four e of panel buildings. Visit to the historical part of Prague Castle. General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to contin walls and three-dimensional bodies.	i, fire safety equipp Z Z Cal load and buck f structures - evalu ns by means of a Z,ZK o nonlinear proble Z s. Dynamic analys Z ndation conditions Z,ZK d nonlinear statics nuous and discrete	ment, sprinklers. 2 2 2 ling shape. uation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ac load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failuu 132YUPM Tensors, differential oped duality. Principle of virtu beams, frames, plates, virtu 133YATK	an technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critit cording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction t y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures 2 ability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structures Statics and Reconstruction of Historical Structures ical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four e of panel buildings. Visit to the historical part of Prague Castle. General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to conting walls and three-dimensional bodies. Applied Theory of Structures	i, fire safety equipp Z Z Cal load and buck f structures - evalu ns by means of a Z,ZK o nonlinear proble Z s. Dynamic analys Z ndation conditions Z,ZK d nonlinear statics nuous and discrete	ment, sprinklers. 2 2 ling shape. uation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of 4
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ac load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failuu 132YUPM Tensors, differential oped duality. Principle of virtu beams, frames, plates, virtu Detailed introduction to b	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures inted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the criti- te cording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis o n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction te y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structures ical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four e of panel buildings. Visit to the historical part of Prague Castle. General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to contini walls and three-dimensional bodies. Applied Theory of Structures heoretical approaches to the effects of creep and shrinkage on structures. Principles of time-dependent analysis. Methods for t	i, fire safety equipp Z Z Cal load and buck f structures - evalu ns by means of a Z,ZK o nonlinear proble Z s. Dynamic analys dation conditions Z,ZK d nonlinear statics nuous and discrete Z,ZK he analysis of thin	ment, sprinklers. 2 2 ling shape. uation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of 4 -walled concrete
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ac load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failuu 132YUPM Tensors, differential oped duality. Principle of virtu beams, frames, plates, 133YATK Detailed introduction to structures, stability theo	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critit coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction t y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structure Statics and Reconstruction of Historical Structures ical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four te of panel buildings. Visit to the historical part of Prague Castle. General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to contifivalls walls and three-dimensional bodies. Applied Theory of Structures heoretical approaches to the effects of creep and shrinkage on structures. Principles of time-dependent analysis. Methods for t ry.	i, fire safety equipp Z Z Cal load and buck f structures - evalu ms by means of a Z,ZK o nonlinear proble Z s. Dynamic analys dation conditions Z,ZK nonlinear statics nuous and discrete Z,ZK he analysis of thin	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of 4 -walled concrete
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ac load capacity, distribution finite element program. 132YNA2 Advanced course on fini- and material nonlinearitt 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failuu 132YUPM Tensors, differential oper duality. Principle of virtur beams, frames, plates, st 133YATK Detailed introduction to to structures, stability theo 133YMVB	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critit ccording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity problem Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction t y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structures Statics and Reconstruction of Historical Structures ical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four te of panel buildings. Visit to the historical part of Prague Castle. General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to conti walls and three-dimensional bodies. Applied Theory of Structures heoretical approaches to the effects of creep and shrinkage on structures. Principles of time-dependent analysis. Methods for try. Concrete and Masonry Structures 1	i, fire safety equipp Z Z Cal load and buck f structures - evalu ns by means of a Z,ZK o nonlinear proble Z s. Dynamic analys dation conditions Z,ZK d nonlinear statics nuous and discrete Z,ZK he analysis of thin	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of 4 -walled concrete 2
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ar load capacity, distribution finite element program. 132YNA2 Advanced course on fini- and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failur 132YUPM Tensors, differential oper duality. Principle of virtur beams, frames, plates, st 133YATK Detailed introduction to to structures, stability theo 133YMVB The content of the subjection States of the subjection Advanced course on fini- and material nonlinearit 132YDPM Tensors, differential oper duality. Principle of virtur beams, frames, plates, stability theo 133YMVB The content of the subjection 132YDPM The content of the subjection 132YDPM 13	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the criti- coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis o no finternal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction te y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structures Statics and Reconstruction of Historical Structures ical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four te of panel buildings. Visit to the historical part of Prague Castle. General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to contini walls and three-dimensional bodies. Applied Theory of Structures heoretical approaches to the effects of creep and shrinkage on structures. Principles of time-dependent analysis. Methods for try. Concrete and Masonry Structures 1 ct will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Intro- ter will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Intro-	i, fire safety equipp Z Z Cal load and buck f structures - evalu ns by means of a Z,ZK o nonlinear proble Z s. Dynamic analys dation conditions Z,ZK d nonlinear statics nuous and discrete Z,ZK he analysis of thin Z oduction to nonline	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of 4 -walled concrete 2 ear modeling of
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failuu 132YUPM Tensors, differential ope duality. Principle of virtu beams, frames, plates, st 133YATK Detailed introduction to to structures, stability theo 133YMVB The content of the subjer reinforced concrete structures	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the criti- coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of no finternal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction te y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structure statics and Reconstruction of Historical Structures ical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four re of panel buildings. Visit to the historical part of Prague Castle. General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to contin walls and three-dimensional bodies. Applied Theory of Structures heoretical approaches to the effects of creep and shrinkage on structures. Principles of time-dependent analysis. Methods for try. Concrete and Masonry Structures 1 et will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Intro ctures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program	i, fire safety equipp Z Z Cal load and buck f structures - evalu ms by means of a Z,ZK o nonlinear proble Z s. Dynamic analys dation conditions Z,ZK d nonlinear statics huous and discrete Z,ZK he analysis of thin Z coluction to nonline ns for the design of	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of 4 -walled concrete 2 ear modeling of of concrete
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failur 132YUPM Tensors, differential ope duality. Principle of virtu beams, frames, plates, 133YATK Detailed introduction to structures, stability theo 133YMVB The content of the subjer reinforced concrete structures.	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures inited with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the criti- scording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction te y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structures Statics and Reconstruction of Historical Structures ical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four te of panel buildings. Visit to the historical part of Prague Castle. General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to contini walls and three-dimensional bodies. Applied Theory of Structures 1 heoretical approaches to the effects of creep and shrinkage on structures. Principles of time-dependent analysis. Methods for try. Concrete and Masonry Structures 1 tet will be selected problems from the following areas:: Reinforcement of discontinuities of reinforced concrete structures. Intro ctures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program	i, fire safety equip Z Z Z cal load and buck f structures - evalu ms by means of a Z,ZK o nonlinear proble Z s. Dynamic analys dation conditions Z,ZK d nonlinear statics nuous and discrete Z,ZK he analysis of thin Z oduction to nonline ns for the design of	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of 4 -walled concrete 2 ear modeling of of concrete
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failur 132YUPM Tensors, differential ope duality. Principle of virtu beams, frames, plates, 133YATK Detailed introduction to structures, stability theo 133YMVB The content of the subjer reinforced concrete structures. 133YPNB	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critit becording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction te y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structures ical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four e of panel buildings. Visit to the historical part of Prague Castle. General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to contini walls and three-dimensional bodies. Applied Theory of Structures 1 heoretical approaches to the effects of creep and shrinkage on structures. Principles of time-dependent analysis. Methods for try. Concrete and Masonry Structures 1 her will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Intro ctures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program Fire desgn og concrete and mnsory structures	i, fire safety equip Z Z Z cal load and buck f structures - evalu ms by means of a Z,ZK o nonlinear proble Z s. Dynamic analys dation conditions Z,ZK d nonlinear statics nuous and discrete Z,ZK he analysis of thin Z oduction to nonline ns for the design of Z	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of 4 -walled concrete 2 ear modeling of of concrete 2
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failur 132YUPM Tensors, differential ope duality. Principle of virtu beams, frames, plates, 133YATK Detailed introduction to structures, stability theo 133YMVB The content of the subjer reinforced concrete structures. 133YPNB The course is focused of	en technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures inted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critit coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction t y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structures ical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four e of panel buildings. Visit to the historical part of Prague Castle. General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to contin walls and three-dimensional bodies. Applied Theory of Structures 1 ter will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Intro ctures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program Fire desgn og concrete and masonry structures: concrete and concrete structures exposed to fire, design rules, thermal	i, fire safety equip Z Z Z cal load and buck f structures - evalu ms by means of a Z,ZK o nonlinear proble Z s. Dynamic analys dation conditions Z,ZK d nonlinear statics nuous and discrete Z,ZK he analysis of thin Z oduction to nonline ns for the design of Z analysis, loads, d	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of 4 -walled concrete 2 ear modeling of of concrete 2 esign principles,
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failur 132YUPM Tensors, differential ope duality. Principle of virtu beams, frames, plates, 133YATK Detailed introduction to structures, stability theo 133YMVB The content of the subjer reinforced concrete structures. 133YPNB The course is focused of design methods, materi	an technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures inted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critit coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis o n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction ty, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures 2 statics and Reconstruction of Historical Structures ical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four e of panel buildings. Visit to the historical part of Prague Castle. General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to contir walls and three-dimensional bodies. Applied Theory of Structures 1 ex will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Intro ctures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program Fire design og concrete and mnsory structures: concrete and concrete structures exposed to fire, design rules, thermal al properties of concrete and mesony structures: concrete and concrete structures. Reinforcement and spins, thermal al properties of concrete and mesony structures: concrete and concr	i, fire safety equiping Z Z Z cal load and buck f structures - evalut ms by means of a g Z,ZK o nonlinear proble Z s. Dynamic analys dation conditions Z,ZK d nonlinear statics nuous and discrete Z,ZK he analysis of thin Z oduction to nonline ns for the design of Z analysis, loads, d	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of 4 -walled concrete 2 ear modeling of of concrete 2 esign principles,
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failur 132YUPM Tensors, differential ope duality. Principle of virtu beams, frames, plates, 133YATK Detailed introduction to structures, stability theo 133YMVB The content of the subjer reinforced concrete structures. 133YPNB The course is focused of design methods, materia 133YVHB	an technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critit coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis of n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction t y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures 2 ability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structures Statics and Reconstruction of Historical Structures ical values and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four e of panel buildings. Usit to the historical part of Prague Castle. General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to contif walls and three-dimensional bodies. Applied Theory of Structures 1 et will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Intro curse. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program Fire design og concrete and masonry structures n fire resistance of concrete and menory structures u properies of concrete and steel reinforcement	i, fire safety equiping Z Z Z cal load and buck f structures - evalu ms by means of a g Z,ZK o nonlinear proble Z s. Dynamic analys dation conditions Z,ZK d nonlinear statics nuous and discrete Z,ZK the analysis of thin Z oduction to nonline ns for the design of Z analysis, loads, d	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of 4 -walled concrete 2 ear modeling of of concrete 2 esign principles, 2
Sauna, fireplaces, kitcher 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ar load capacity, distribution finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failur 132YUPM Tensors, differential ope duality. Principle of virtu beams, frames, plates, 1 133YATK Detailed introduction to the structures, stability theo 133YMVB The content of the subjer reinforced concrete structures. 133YPNB The course is focused of design methods, materi 133YVHB The aim of the course is	an technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures inted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critit coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis o n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction t y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures . Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structure Statics and Reconstruction of Historical Structures cal vaults and root trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four e of panel buildings. Visit to the historical part of Prague Castle. General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to contif walls and three-dimensional bodies. Applied Theory of Structures 1 ter will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Intric tures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected prograr Fire desgn og concrete and masonry structures: concrete and concrete structures exposed to fire, design rules, thermal al properties of concrete and masonry structures: concrete and	i, fire safety equiping Z Z Z cal load and buck f structures - evalut ms by means of a g Z,ZK o nonlinear proble Z s. Dynamic analys dation conditions Z,ZK d nonlinear statics nuous and discrete Z,ZK the analysis of thin Z oduction to nonline ns for the design of analysis, loads, d Z hin structures. The	ment, sprinklers. 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of 4 -walled concrete 2 ear modeling of of concrete a ear modeling of of concrete ear modeling of of concrete ear modeling of
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ar load capacity, distributio finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failur 132YUPM Tensors, differential ope duality. Principle of virtu beams, frames, plates, 1 133YATK Detailed introduction to 1 structures, stability theo 133YMVB The content of the subjer reinforced concrete structures. 133YPNB The course is focused of design methods, materi 133YVHB The aim of the course is high performance concret	an technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures ainted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the critit coording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis o in of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity problem Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction t y, solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structure Statics and Reconstruction of Historical Structures ical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four e of panel buildings. Visit to the historical part of Prague Castle. General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles. (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to contin walls and three-dimensional bodies. Applied Theory of Structures 1 ter will be selected problems from the following areas: Reinforcement of discontinuities of reinforced concrete structures. Intro ctures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program Fire desgn og concrete and masonry structures: concrete and concrete structures exposed to fire, design rules, thermal a) properties of concrete and steel reinforcement at high te	i, fire safety equiping Z Z Z Cal load and buck f structures - evalut ms by means of a g Z,ZK o nonlinear problec Z s. Dynamic analys dation conditions Z,ZK d nonlinear statics nuous and discrete Z,ZK the analysis of thin Z oduction to nonline ns for the design of Z analysis, loads, d Z hin structures. The oted to the composition	ment, sprinklers. 2 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of 4 -walled concrete 2 ear modeling of of concrete 2 ear modeling of of concrete 2 esign principles, 2 e components of high
Sauna, fireplaces, kitche 126YBVE 126YPDV 132YNAK Students become acqua Analysis of structures ar load capacity, distribution finite element program. 132YNA2 Advanced course on fini and material nonlinearit 132YPM2 Limit state of frames. St Verification of results. 132YSHK Short overview of histor frequent causes of failur 132YUPM Tensors, differential ope duality. Principle of virtu beams, frames, plates, 1 133YATK Detailed introduction to to structures, stability theo 133YMVB The content of the subje reinforced concrete stru- structures. 133YPNB The course is focused of design methods, materi 133YVHB The aim of the course is high performance concrete, the structure is the subjection of the subjection the course is focused of the subjection figh performance concreted the subjection bigh performance concreted the subjection the course is focused of the subjection the subjection of the subjection of the subjection the subjection of the subjection of	an technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling BIM in Public Investments Development Project Nonlinear Analysis of Materials and Structures inted with the concepts of linear stability and calculation of elastoplastic load capacity. Linear stability - evaluation of the criti occording to the 2nd order theory - equilibrium conditions on a deformed structure, initial stress matrix. Elastoplastic analysis o n of internal forces at the limit state - static incremental method, kinematic method. Solving stability and elastoplasticity probler Numerical Analysis of Structures 2 te element method. Formulation of plate elements suitable for thin and thick plates, plates on elastic foundation. Introduction to y solution methods, implementation aspects. Computer Analysis of Structures 2 ability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structure statics and Reconstruction of Historical Structures ical vaults and root trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in four e of panel buildings. Visit to the historical part of Prague Castle. General Principles of Mechanics rators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to contin valls and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to contin valls and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and al work (power), variational principles (Lagrange, Castigliano, Hellinger-Reissner, Hu-Washizu) and their application to contin valls and there-dimensio	i, fire safety equiping Z Z Z cal load and buck f structures - evalu ms by means of a g Z,ZK o nonlinear problec Z s. Dynamic analys dation conditions Z,ZK d nonlinear statics nuous and discrete Z,ZK the analysis of thin Z calload and buck Z,ZK the analysis of thin C Z analysis, loads, d C C analysis, loads, d C C C C C C C C C C C C C C C C C C C	ment, sprinklers. 2 2 2 ling shape. Jation of the limit general-purpose 4 ems: geometrical 2 sis of structures. 2 included. Most 4 , energy and e models of 4 -walled concrete 2 ear modeling of of nents of high erience the

134YHNK	Stainless steel and aluminium structures	Z	2		
Subject YHNK covers tw	o parts: the first concerns design of structures from aluminium alloys, the second deals with stainless steel structures. Structure	s of aluminium al	loys: Introduction		
and practice in designin	g of aluminium structures. Structures of stainless steel: Evolution of stainless steel materials/structures and examples of real	ized structures. S	tainless 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 ultim	ate and serviceability limit states. In the end the possibilities concerning connections of stainless steel members, erection an	d installation of s	ainless steel		
members are described	L.				
134YNDK	Load-bearing timber roof constructions	Z	2		
System of roofs structur	es. Creation of numerical models for assessment of internal forces and deformations for main different roof systems and structu	ures. Analysis of t	he static function		
and behaviour of main i	ndividual elements and their design. Historic structures and their reconstruction. Designing typical structural details based on	carpentry joints.	We will discuss		
also using modern met	nods of joining elements of timber structures.				
134YNSK	Design of Glass Structures	Z,ZK	2		
The subject is intended	for students of the master's program Civil Engineering, deepens the knowledge acquired in the subject 134YNKS. Extension	of theoretical kn	owledge in the		
field of stability of glass	beams, columns and walls. Principles of designing structural elements made of glass according to normative documents, ex	perimental verific	ation of material		
properties of glass, safe	ety 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 introduce	ction 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 insig	ht and ability to apply the knowledge related to structural connections and its application by software.				
134YSOK	Special steel structures	Z	2		
Crane supporting struct	ures - actions, design, detailing. Silos - actions, behaviour, silos with rigid and non-rigid section. Masts - division, detiling, des	sign. Cable roofs	- procedure of		
calculation.					
135YVPZ	Computer analysis in underground structures	Z	2		
Numerical methods in C	AD/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:

0 1						
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, Ji í Pazderka, Kate ina Mertenová, Martin Jiránek, Tomáš Vlach, Marek Pokorný Ji í Pazderka Ji í Pazderka (Gar.)	Z	30	24C	Z	S1
132DPM	Diploma Thesis Michal Polák, Pavel Tesárek, Ji í Máca, Milan Jirásek, Petr Havlásek, Mat j Lepš, Jan Zeman, Petr Kabele, Bo ek Patzák, Aleš Jíra	Z	30	24C	z	S1
133DPM	Diploma Thesis Martin Tipka	Z	30	24C	Z	S1
134DPM	Diploma Thesis Jakub Dolejš Jakub Dolejš Jakub Dolejš (Gar.)	Z	30	24C	Z	S1
135DPM	Diploma Thesis Jan Masopust, Jan Pruška 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

prace			
124DPM	Diploma Thesis	Z	30
The topics of diploma	heses are based on the needs of practice or the scientific research activity of the department, the scope and difficulty corresp	onds to the stude	ent's knowledge
acquired during the ma	aster's studies. The supervisor of the thesis can designate additional consultants to the student.		
132DPM	Diploma Thesis	Z	30
In accordance with the	thesis proposal.		
133DPM	Diploma Thesis	Z	30
In accordance with a t	nesis proposal.	•	•
134DPM	Diploma Thesis	Z	30
Design of steel / timbe	Pload bearing building structure according to external requirements in relation to interaction of load bearing and final completi	on structural elen	nents. A study
focused on research o	f load bearing structures may be also the topic of the the project. The project is assigned by a final project superisor individual	lly.	
135DPM	Diploma Thesis	Z	30
In the diploma thesis,	he student deals with a topic chosen by the department from those regularly announced by the department. It addresses, for	example, problem	is related to the
design and construction	n of geotechnical structures, civil engineering structures, special foundations for industrial, transport, housing and water mana	gement structure	s, earth and rock
structures in complex	cases and waste disposal structures. The thesis builds on and develops the findings of the thesis project.		

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 Šastný Lenka Popelová Lenka Popelová (Gar.)	ZK	3	2P	z	S3

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	ZK	3			
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 failu	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 p	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 de	gradation processes, effects and influences of variables over time, which together with transportation processes affect the lif	etime, durability a	nd			
construction-technical c	ondition of historical objects, methods and processes applied in the restoration and reconstruction of historical buildings, cor	struction-technica	al 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

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		
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	s method represents a modern approach to modeling and solving engineering tasks. These problems, both linear and non-linear, moc	lel events in many	engineering		
	fields, such as heat conduction, oscillations, also in rheology and other parts.				

101YMST	Mathematical statistics for technicians	Z	2
	Inferential statistics. Theory of probability. Random variables and its characteristics. Basic methods of mathematical statistic	S.	
101YNUM	Numerical Methods	Z	2
	Solid State Physics in Civil Engineering	7	2
Solids, crystal stru	cture, atomic shell theory, valence laver chemical bonds, dislocation disturbances, critical crack energy vibration of masses, systems	natural frequency	∠ of vibration
and damped vibrati	on, basics concepts of fracture mechanics, types of fracture, electron microscopes, scanning tunneling microscope, atomic force mic	roscope, diffraction	n, diffraction
	methods, semiconductors, p-n junction, photovoltaic effect, solar cells, heat and moisture transport.		
122YTSD	Technology of Component Production	Z	2
123YMPU	Materials for Coatings	Z	2
Students will gair	an overview of how to protect building structures from corrosion and other harmful influences such as UV radiation, acid rain, etc. S alogies of surface treatment. The course consists of 6 lectures and 6 evercises. In the lectures, students will learn about both bistorical	tudents will also le	arn about
surface treatments	s for different types of structures. In the exercises, students will perform a surface treatment on a fragment of a structure and will be a	ble to check the qu	ality of the
	work done by themselves in the last exercise by means of a tear-off test.		,
124DPM	Diploma Thesis	Z	30
The topics of diplo	ma theses are based on the needs of practice or the scientific research activity of the department, the scope and difficulty correspondence of the scientific research activity of the department of the science of the	ds to the student's	knowledge
124000	acquired during the master's studies. The supervisor of the thesis can designate additional consultants to the student.	7 71/	2
124DR5 Students will lea	I IMDEL CONSTRUCTIONS to shout the complex issues of designing modern wooden buildings. The introductory block of lectures is dedicated to the material ba	∠,∠N	ۍ hns and
mechanical proper	ties of wood and wood-based materials. The principles of ensuring spatial rigidity of the light frame and mass-timber structural systemetric structural structural systemetric structural systemetric structural systemetric structural systemetric structural systemetric structural structural systemetric structural structural systemetric structural structural systemetric structural structural structural structural structural structural s	ms are presented.	It follows a
lecture block focus	ed on the design of envelope constructions of wooden buildings, moisture safety, biological threats, and principles of wood protection	. In the following tw	vo lectures,
the structure of wo	ood 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 devo	ted to passive measures to reduce the risk of summer overheating of wooden buildings. In the last lecture, construction technology is di	scussed and a con	nprehensive
	approach to the design of modern wooden buildings is emphasised.	7 71/	4
124IINBB	Integrated Design of Building Design is to get an complex overview of the principles of integrated buildings design. Life cycle asses	Z,ZK	4 evaluation
of b	building performance, green/sustainable certification systems and understand environmental, social and economic aspects of the building	t environment.	, evaluation
124KOSD	Complex Structural Detail	KZ	3
The aim of the co	purse is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of	knowledge about	structural
problems in buildin	gs. The content of the course is focused on the complex solution of construction details, following all legislative requirements and taki	ing into account th	e maximum
	efficiency and durability of the chosen solution.		
124P03C	Structural Design 3C	KZ	
The student proce	sses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the reful	rbishment of an old	ter building
current state of the	building and an analysis of broader relationships (R). It also optimizes variants of the construction solution (N) or evaluates the constru	ruction and technic	allon of the
of the specified obje	ect - 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	es - STP (R). It also	o processes
	selected parts of the project documentation of the building or its parts (N) or drafts selected rehabilitation measures (R)		
124P04C	Structural Design 4C	KZ	5
The student proce	sses selected parts of the project documentation of either the new construction of an advanced building (assignment "N") or the refu	rbishment of an old	ler 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 sir building and an applying of broader relationships (N). It also entirely a province of the construction collision	mplified documenta	ation of the
of the specified obj	building and an analysis of broader relationships (K). It also optimizes variants of the construction solution (N) of evaluates the construction details (N) or an analysis of faults and their cause	es - STP (R) It also	
	selected parts of the project documentation of the building or its parts (N) or drafts selected rehabilitation measures (R)		, processes
124PDR2	Failures, Deterioration, Renovations 2	Z,ZK	4
As part of the cours	e, students will become familiar with the structural statics and analytical problems of failures, rehabilitation and restoration of load-bea	ring and completio	n structures
of historical building	as, including the influence of fire resistance requirements, health safety and building physics. The lectures, structured into thematic are	as, will mainly cov	er the areas
of damage and re	pair of brick tenement houses, rural buildings, industrial buildings, objects realized with prefabricated technology, damage and repair	of opening fillings	(windows,
1240540	Building Structures 4	7 7K	1
124F 34C	Building Structures 5	7	3
124T000	Thermal Engineering in Construction 2	K7	3
Extension and con	npletion of knowledge from the basic short course on thermal protection of buildings. Thermal transmittance of windows and curtain v	valls, linear and po	int thermal
transmittance, venti	lated constructions, energy performance of buildings and building energy performance certificate, thermal stability of rooms and risk of c	overheating, therma	al protection
	of historic buildings.		
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 enco	unter in future des	gn practice.
	The Principles of Circular Economy in Building Construction	Ζ	2
124YDPH	Diagnosis and Surveying of Building Structures	Z and evotematic an	2 proach to
surveying (structure	al diagnosis, preliminary and comprehensive survey, visual inspection, site inspections, laboratory tests, investigation kits, types of defi	ects and damages	symptoms
	manifestation, significance, criticality, reason for failures case studies)		, .p. 5.110,
124YDSR	Demolitions of Buildings and Material Recycling	Z	2
The use of constru	ction waste from demolitions from the production of building materials and from other sectors in the construction industry with the air	n of: significantly re	educing the
volumes of landfille	d materials, reducing the consumption of primary raw materials, a new perspective on the design of buildings and structures in accor	dance with a close	ed life cycle.
Legislation, level	s of recycling in developed countries, recycling in CR, possibilities of recycling buildings and structures, design of structures from the	point of view of su	istainable
	development, minimization or landnins, examples and demonstrations of recycling technologies, low-waste technologies	7	•
I 24 I FIVK	LUIU SPAIL SUUCULES	on the solution of h	∠ nad-bearing
structures, we will a	also pay attention to the wider context of the design. Reading existing constructions is a natural way to learn the principles of their des	ign. And naturally	ve will learn
from the best. An ex	xtensive database of completed buildings, including more than 5,000 buildings, will enable us to take a trip into history and the preser	nt on all the world's	continents.

	Building Quality Complex Assessment	7	0
			Z
Students will gain a	an overview or design strategies in green architecture and sustainable building and learn now to conduct assessments to achieve hig	n quality buildings.	In addition,
	they will learn basic mormation on the cycle assessment of materials and buildings.		
124YMOB	Modelling of Buildings - BIM	Z	2
The course is des	signed to introduce the phenomenon of parametric design, which is becoming very widespread in today's world. It is the connection o	f 3D models and BI	M models
with visual program	mming. Instead of writing code in a classical programming language, Nodes are connected, and the resulting script can be created vi	sually and without I	knowledge
of the programmir	ng language. These scripts can be used primarily for: - creating parametric geometry, - working with data in a BIM model, - structural	and physical analys	sis, design
optimization. The	hematically, the course covers two main areas of parametric modeling, replicating two software platforms: Revit + Dynamo (JaVe) Rhi	ino + Grasshopper	(ZdMa)
124YPBS	Principles of Building Fire Safety	ZK	2
The course is focu	ised on the presentation and acquisition of the most important concepts and principles of fire safety in buildings. Attention is paid to a	II the main compon	ents of fire
safety design that	are important for the protection of life and health, property, the environment and other assets. The course is intended for students of r	non-fire disciplines	and should
	enable them to take into account aspects of fire safety from the initial stages of project preparation of buildings.		
	Propert concrete structures	7	2
IZ41FF3	Fields: Collected Structures		Z
Residential nous	ses made of precast contrete panels, of which approx. 62 thousand were built in the period 1960-1995 do not meet the required exten	it of the current dyn	amically
developing society	and in many cases require the implementation or regeneration and modernization interventions enabling their full use. The course is	tocused on the cur	rentissues
of renewal, reconst	rruction and modernization of precast nouses, modernization of apartments in precast nouses, on the issue of freeing parterres of preca	ast nouses for servi	ces, snops,
offices, fitness cen	iters, etc. Renovation, modernization, or regenerations require the removal of functionally inadequate completion structures, technica	i equipment, installa	ations and,
in some cases, eve	n demanding interventions in supporting structures. As part of the construction of communication networks, modernization of urban de	velopment, etc., it is	necessary
in some cases to c	arry out partial or complete demolition of a precast panel building. As part of the regeneration of precast panel housing estates, an e	xtension is also car	ried out, or
completion of prec	ast houses. The implementation of the mentioned plans requires a survey and diagnostics of supporting and peripheral structures, jo	ints of parts and an	evaluation
	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
As part of the co	urse, students will learn about the mechanisms of degradation processes and failures of buildings according to the building materials	used, structural st	atics and
analytical issues o	of failures, rehabilitation and restoration of other load-bearing structures of historical buildings. The lectures, structured into thematic a	reas, will include in	particular:
familiarization with	h the principles and building codes applied in the construction solution of historical buildings and their parts, basic structural static an	d material issues of	f historical
buildings, ar	nalysis of degradation processes, effects and influences of variables over time, which together with transportation processes affect th	e lifetime, durability	and
construction-tech	nical condition of historical objects, methods and processes applied in the restoration and reconstruction of historical buildings, const	ruction-technical co	ondition of
	historical buildings and knowledge of diagnostic methods and procedures applied in the survey and monitoring of historical buildings	dinas.	
1247005		7	2
	railules, Determination, Reinovations	∠	
degradation and ag	sed on the current issue on residuation, reconstruction and modernization of buildings (residential, industrial, etc.), on instonal situation is the second	the issue of structure	
degradation and ag	ing of structures and materials of instorical bullorings, their residual line and latities of instorical bullorings and their parts. An integral part is	the issue of structur	al-technical
	and historical surveys, diagnostics and assessment of the structural-technical condition and remaining service life.		
124YPS5	Prefabricated structures	Z	2
124YRHS	Reconstruction of Historical Building Structures	Z	2
In the period from t	he second half of the 19th century by 1960, more than 250 thousand of two- to five-story brick apartment (mainly rental) houses in tra	ditional brick techn	ology were
constructed in the (Czech Republic Brick buildings from this period were built according to regulations, building codes and laws from the turn of the 19th a	nd 20th conturios	Multi storov
	ezeen republier briek ballange nehr alle peried were balle deeerding te regulatione, ballang bedee and lane nehr alle tarre	ina zour centaries. I	viuili-slotey
brick tenement ho	buses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the	required extent, an	d in many
brick tenement ho	buses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions. including the replacement of non-compliant and out-of-date structures and equipment enabling	required extent, an ng their further use.	d in many
brick tenement ho cases require regent is focused on the cu	buses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enabling urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and madernization of brick multi-storey rental apartment buildings.	required extent, an ng their further use. terials, the issue of c	d in many The course
brick tenement ho cases require regen is focused on the cu and aging of struct	buses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and main ures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their their residual life.	required extent, an ng their further use. terials, the issue of coarts. Furthermore.	d in many The course degradation the course
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is	buses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enabling urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their passue of improving the well-being of the internal environment, the replacement of finishing structures opening fillings, etc. as an intern	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode	d in many The course degradation the course
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is	buses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials ures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their p ssue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integr these buildings	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode	d in many The course degradation the course rnization of
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is	buses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their passes of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integret these buildings.	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode	d in many The course degradation the course rnization of
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 1250ZE1	buses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their passe of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources	required extent, an ng their further use. terials, the issue of coarts. Furthermore, al part of the mode	d in many The course degradation the course rnization of 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources	buses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enabling urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their passue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources s are becoming increasingly important sources of energy for buildings. Understanding their characteristics is key to the proper design a	required extent, an ng their further use. terials, the issue of coarts. Furthermore, al part of the mode ZK nd operation of these	d in many The course degradation the course rnization of 3 se systems.
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources	buses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enabling urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their passue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources s 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.	required extent, an ng their further use. terials, the issue of c parts. Furthermore, al part of the mode ZK nd operation of thes	d in many The course degradation the course rnization of 3 se systems.
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH	buses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enabling ures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their passue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources s 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. Technological Equipment of Buildings	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK nd operation of thes Z	d in many The course degradation the course rnization of 3 se systems. 2
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 1250ZE1 Renewable sources 125YTCH Sauna, fireplaces, I	buses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enabling ures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their passue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources s 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. Rechological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, fire	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK nd operation of thes Z e safety equipment.	d in many The course degradation the course rnization of 3 se systems. 2 , sprinklers.
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE	buses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their passue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources s 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. Rechevable Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, fir BIM in Public Investments	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK nd operation of thes z e safety equipment, Z	d in many The course degradation the course rnization of 3 se systems. 2 , sprinklers. 2
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPDV	buses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their passue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources s 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. Rechevable Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, fire BIM in Public Investments Development Project	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK nd operation of thes c safety equipment, Z z	d in many The course degradation the course rnization of 3 se systems. 2 , sprinklers. 2 2
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPDV	buses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their pssue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources s 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. Rechevable Energy Sources structures, technology swimming pools, heat pumps, heat source and technological system, technology cooling, firm BIM in Public Investments Development Project	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK and operation of thes z e safety equipment, Z z	d in many The course degradation the course rnization of 3 se systems. 2 , sprinklers. 2 2 2
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPDV 129TYBC	bouses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their pssue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources s 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. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, firm BIM in Public Investments Development Project Building Typology	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK and operation of thes E safety equipment, Z Z Z	d in many The course degradation the course rnization of 3 se systems. 2 , sprinklers. 2 2 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPDV 129TYBC 129YPVA	bouses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their passue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources s 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. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, firm BIM in Public Investments Development Project Building Typology History of Architecture	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK nd operation of thes e safety equipment, Z Z Z Z ZK	d in many The course degradation the course rnization of 3 se systems. 2 , sprinklers. 2 2 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPDV 129TYBC 129YPVA 132DKBU	bouses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and main the residual life, failures and reconstruction of historical buildings and their passue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources s are becoming increasingly important sources of energy for buildings. Understanding their applications. The course therefore looks in detail at renewable sources and their applications. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, firmed and the properties of the structure of the properties of the structure of the structure of the structure of the properties of the structure of the properties of the properties of the properties of the structure of the properties of the structure of the structure of the properties of the structure of the structure of the properties of the structure of the structure of the properties of the structure	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK nd operation of thes e safety equipment, Z Z Z Z ZK KZ	d in many The course degradation the course rnization of 3 se systems. 2 , sprinklers. 2 2 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPDV 129TYBC 129YPVA 132DKBU 132DPM	bouses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their passe of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integrent these buildings. Renewable Energy Sources s 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. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, firmed the proper design a BIM in Public Investments Development Project Building Typology History of Architecture Diagnostics of Structures and Buildings Dinloma Thesis	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK nd operation of thes e safety equipment, Z Z Z Z Z K KZ Z	d in many The course degradation the course rnization of 3 se systems. 2 2 3 3 3 3 3 30
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPDV 129TYBC 129YPVA 132DKBU 132DPM	Development of Building Typology Bill in Public Investments Bill in Public Investments	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK nd operation of thes e safety equipment, Z Z Z Z Z K KZ Z Z	d in many The course degradation the course rnization of 3 se systems. 2 3 sprinklers. 2 2 3 3 3 3 30
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 1250ZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPDV 129TYBC 129YPVA 132DKBU 132DPM	Deuses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their p ssue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integr these buildings. Renewable Energy Sources s 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. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, fir BIM in Public Investments Development Project Building Typology History of Architecture Diagnostics of Structures and Buildings In accordance with the thesis proposal.	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK nd operation of thes e safety equipment. Z Z Z ZK KZ Z Z Z Z Z Z Z Z Z Z Z Z Z	d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 2 2 2 3 3 3 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 1250ZE1 Renewable sources 125YTCH Sauna, fireplaces, I 126YBVE 126YPDV 129TYBC 129YPVA 132DKBU 132DPM 132DYKC	objects of not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their placement of finishing structures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources s 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. The course therefore looks in detail at renewable source and technological system, technology cooling, firm BIM in Public Investments BilM in Public Investments Development Project Building Typology History of Architecture Diploma Thesis In accordance with the thesis proposal.	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK and operation of thes z e safety equipment. Z Z Z Z Z K KZ Z Z Z Z K	d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 1250ZE1 Renewable sources 125YTCH Sauna, fireplaces, I 126YBVE 126YPDV 129TYBC 129YPVA 132DKBU 132DPM 132DYKC Principles	Souses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent 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 p ssue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integr these buildings. Renewable Energy Sources s 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. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, fire BIM in Public Investments Development Project Building Typology History of Architecture Diagnostics of Structures and Buildings In accordance with the thesis proposal. Dynamics of Building Structures of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Damped vibration. Methods or	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK and operation of thes e safety equipment. Z Z Z Z Z K KZ Z Z K KZ d dynamic analysis	d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 0 5
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, I 126YBVE 126YPDV 129TYBC 129YPVA 132DKBU 132DKBU 132DPM	Douses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical buildings and their present of finishing structures, opening fillings, etc. as an integrative these buildings. Renewable Energy Sources s are becoming increasingly important sources of energy for buildings. Luderstanding their characteristics is key to the proper design a The course therefore looks in detail at renewable sources and their applications. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, fir BIM in Public Investments Development Project Building Typology History of Architecture Diagnostics of Structures and Buildings In accordance with the thesis proposal. Dynamics of Building Structures of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems.	required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK and operation of the safety equipment. Z Z Z Z Z K KZ Z Z K KZ Z d dynamic analysis	d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 0 5
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 1250ZE1 Renewable sources 125YTCH Sauna, fireplaces, I 126YBVE 126YPDV 129TYBC 129YPVA 132DKBU 132DPM 132DPKC Principles 132PRPM	ouses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent 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 prevate and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their prevate of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integrate buildings. Renewable Energy Sources s 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. Renewable Energy Sources s 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. Renewable Energy Sources s 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. Renewable Energy Sources s are becoming increasingly important sources of energy for buildings. Renewable Energy Sources buildings Renewable Energy Sources buildings Renewable Energy Sources buildings BIM in Public Investments Development Project Building Typology History of Architecture Diagnostics of Structures and Buildings Dynamics of Building Structures of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom s	required extent, an neg their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK and operation of the e safety equipment. Z Z Z Z Z K KZ Z Z K dynamic analysis Z,ZK	d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 1250ZE1 Renewable sources 125YTCH Sauna, fireplaces, I 126YBVE 126YPDV 129TYBC 129YPVA 132DKBU 132DPM 132DPKC Principles 132PRPM	Duese do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their prese of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources s 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. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, fire BIM in Public Investments Development Project Building Typology History of Architecture Diagnostics of Structures and Buildings In accordance with the thesis proposal. Dynamics of Building Structures of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Damped vibration. Methods o muti-degree-of-freedom systems. Deformation and Failure of Materials iscoelasticity, models for concrete creep. Theory of plasticity, principles of limit and incremental analysis. Fracture mechanics. Damage	required extent, an required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK nd operation of the e safety equipment. Z Z Z Z Z K KZ Z Z K dynamic analysis e mechanics.	d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, I 126YBVE 126YPDV 129TYBC 129TYBC 129YPVA 132DKBU 132DPM 132DPKC Principles 132PRPM Vi 132YKPA	Duese do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and matures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their preserve the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integret buildings. Renewable Energy Sources s 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. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, fire BIM in Public Investments Development Project Building Typology History of Architecture Diagnostics of Structures and Buildings In accordance with the thesis proposal. Dynamics of Building Structures Of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Damped vibration. Methods of muti-degreee-of-freedom systems. Deformation and Failure of Materials iscoelasticity, models for concrete creep. Th	required extent, an ang their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK nd operation of the e safety equipment. Z Z Z Z Z K KZ Z Z K dynamic analysis Z,ZK e mechanics. Z	d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YBVE 126YPDV 129TYBC 129TYBC 129YPVA 132DKBU 132DKBU 132DPM 132DPKC Principles 132YKPA 132YKPA 132YKPA	Dueses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their preserve of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources s 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. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, fire BIM in Public Investments Development Project Building Typology History of Architecture Diagnostics of Structures and Buildings In accordance with the thesis proposal. Dynamics of Building Structures Otheory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Deformation and Failure of Materials iscoelasticity, models for concrete creep. Theory of plasticity, principles of limit and incremental analysis. Fracture mechanics. Damag	required extent, an required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK and operation of the z e safety equipment. Z Z Z Z Z Z K KZ Z Z Z Z Z Z Z Z Z Z Z	d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPVV 129TYBC 129YPVA 132DKBU 132DKBU 132DPM 132DPM 132PRPM Vi 132YKPA 132YKPA	Dueses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent 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 passue of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integrent these buildings. Renewable Energy Sources s 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. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, firmed the theorements Development Project Blild ing Typology History of Architecture Diagnostics of Structures and Buildings In accordance with the thesis proposal. Dynamics of Building Structures of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Damped vibration. Methods of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Deformation and Failure of Materials iscoelasticity,	required extent, an required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK and operation of the Z z z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPDV 129TYBC 129YPVA 132DKBU 132DPM 132DPM 132DPKC Principles 132PRPM Vi 132YKPA 132YKPA	Dueses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablia urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical buildings and their residual life, failures and reconstruction of historical buildings and their results of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their results of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their results of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their results of historic brick residential environment, the replacement of finishing structures, opening fillings, etc. as an integr these buildings. Renewable Energy Sources s 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. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, fir BIM in Public Investments Development Project Building Typology History of Architecture Diagnostics of Structures and Buildings In accordance with the thesis proposal. Dynamics of Building Structures of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Damped vibration. Methods of multi-degree-of-freedom systems. Deformation and Failure of Materials iscoelasticity, models for concrete creep. Theory of plasticity, principles of limit and incremental analysis. Fracture mechanics. Damag Statics for Architecture Modern Methods of	required extent, an required extent, an ng their further use. terials, the issue of o parts. Furthermore, al part of the mode ZK and operation of the Z z z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPDV 129TYBC 129YPVA 132DKBU 132DKBU 132DPM 132DPKC Principles 132PRPM Vi 132YKPA 132YKPA	Duses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablis urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical buildings and their residual life, failures and reconstruction of historical buildings and their residual life, failures and reconstruction of historical buildings and their residual life, failures and reconstructions, including the replacement of finishing structures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources s 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. Technological Equipment of Buildings Kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, firre BIM in Public Investments Development Project Building Typology History of Architecture Diagnostics of Structures and Buildings In accordance with the thesis proposal. Dynamics of Building Structures of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Damped vibration. Methods of multi-degree-of-freedom systems. Deformation and Failure of Materials iscoelasticity, models for concrete creep. Theory of plasticity, principles	Ind 2 unit centuries. In required extent, an equired extent, an egitie further use. terials, the issue of coarts. Furthermore, al part of the mode ZK Ind operation of the mode Z e safety equipment, Z	d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPDV 129TYBC 129YPVA 132DKBU 132DKBU 132DPM 132DPM 132PRPM Vi 132YKPA 132YKPA 132YMMO The course is aimed	Duses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical structures and materials of historic brick residential buildings, their residual life, failures and reconstructures, opening fillings, etc. as an integret these buildings. Renewable Energy Sources s 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. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, fire BlM in Public Investments Development Project Building Typology Listory of Architecture Diagnostics of Structures and Buildings In accordance with the thesis proposal. properties of vibration, dynamic loading. Free and forced vibration and Failure of Materials iscoelasticity, models for concrete creep. Theory of plasticity, principles of limit and incremental analysis. Fracture mechanics. Damage Statics for Architecture Modern Methods of Optimization <td< td=""><td>Ind 2 unit centures. In required extent, an required extent, an reg their further use. terials, the issue of coarts. Furthermore, al part of the mode ZK Ind operation of the mode ZK Ind operation of the mode ZK Ind operation of the mode Z Z Z Z ZK KZ Z ZK KZ Z ZK KZ Z ZK KZ Z</td><td>d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3</td></td<>	Ind 2 unit centures. In required extent, an required extent, an reg their further use. terials, the issue of coarts. Furthermore, al part of the mode ZK Ind operation of the mode ZK Ind operation of the mode ZK Ind operation of the mode Z Z Z Z ZK KZ Z ZK KZ Z ZK KZ Z ZK KZ Z	d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPDV 129TYBC 129YPVA 132DKBU 132DKBU 132DPM 132DPKC Principles 132PRPM Vi 132YKPA 132YKPA 132YMMO The course is aimee 132YNA2 Advanced course of	Duses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablin urren tissue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and matures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their rese buildings. Image: the second structure of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integr these buildings. Image: the second structure of the internal environment, the replacement of Buildings. Image: the second structure of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integr these buildings. Image: the second structure of the internal environment, the replacement of Buildings Image: the second structure of the internal environment, the replacement of Buildings Image: the second structure of the internal environment, the replacement of Buildings Image: the second structure of the internal environment of the second structure of the second	Ind your certaines. In required extent, an required extent, an ong their further use. terials, the issue of coarts. Furthermore, al part of the mode ZK Ind operation of the mode ZK Ind operation of the mode ZK Ind operation of the mode Z Z Z Z ZK KZ Z ZK KZ Z ZK KZ Z <t< td=""><td>d in many The course degradation the course rnization of 3 se systems. 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3</td></t<>	d in many The course degradation the course rnization of 3 se systems. 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YBVE 126YPDV 129TYBC 129TYBC 129YPVA 132DKBU 132DKBU 132DPM 132DPM 132PRPM Vi 132YKPA 132YKPA 132YMMO The course is aimen 132YNA2 Advanced course of	Development Project Bilding Typology Bilding Typology Bilding Typology Bilding Structures and Buildings Bilding Structures Bild	Ind 2 unit centures. In required extent, an required extent, an reg their further use. terials, the issue of coarts. Furthermore, al part of the mode ZK Ind operation of the mode ZK Z ZK Z ZK KZ ZK KZ Z ZK KZ Z ZK KZ Z	d in many The course degradation the course rnization of 3 se systems. 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPDV 129TYBC 129YPVA 132DYKC Principles 132PRPM Vi 132YKPA 132YKPA 132YKPA 132YMMO The course is aimed 132YNA2 Advanced course of 132YNAK	Development Project BilM in Public Investments BilM in accordance with the thesis proposal. BilM in accordance with the thesis proposal. BilM in accordance with the thesis proposal. BilM in Public Investments BilM in Public Investments BilM in accordance with the thesis proposal. BilM in Acc	Ind zon centures in required extent, an required extent, an reg their further use. terials, the issue of coarts. Furthermore, al part of the mode ZK Ind operation of the mode ZK Z ZK Z ZK KZ Z Z,ZK of dynamic analysis Z,ZK z Z Z,ZK grading Z,ZK of dynamic analysis Z,ZK z Z	d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPDV 129TYBC 129YPVA 132DYKC Principles 132PRPM Vi 132YKPA 132YKPA 132YKPA 132YMMO The course is aimed 132YNA2 Advanced course of 132YNAK Students becom	Duese do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablik urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical buildings and their seuse and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their seuse of improving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integr these buildings. Renewable Energy Sources s 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. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, fir BIM in Public Investments Development Project Building Typology History of Architecture Diagnostics of Structures and Buildings of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Deformation and Failure of Materials iscoelasticity, models for concrete creep. Theory of plasticity, principles of limit and incremental analysis. Fracture mechanics. Damag of theory of vibration, dynamic loading. Free and forced vibration on single-degree-of-freedom systems.	Ind zon centures is required extent, an ng their further use. terials, the issue of coarts. Furthermore, al part of the mode ZK nd operation of the mode Z <td>d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3</td>	d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, 126YBVE 126YPDV 129TYBC 129YPVA 132DKBU 132DFM 132DPM 132DPM 132PRPM Vi 132YKPA 132YKPA 132YKPA 132YMMO The course is aimed 132YNA2 Advanced course of 132YNAK Students becom	Dueses do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablic urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical buildings and their sures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their sures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their sures and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their sures and materials of historical buildings. Understanding their characteristics is key to the proper design a The course therefore looks in detail at renewable sources and their applications. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, fire BIM in Public Investments Development Project Building Typology History of Architecture Diagnostics of Structures and Buildings In accordance with the thesis proposal. Dynamics of Building Structures of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Damped vibration. Methods or muti-degreee-of-freedom systems. Deformation and Failure of Materials isocelasticity, models for concrete creep. Theory of plasticity, principles of limit and incremental analysis. Fracture mechanics. Damag Statics for Architecture Modern Methods of Optimization d 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. Nonlinear Analysi	Ind zon centures is required extent, an required extent, an reg their further use. terials, the issue of coarts. Furthermore, al part of the mode ZK Ind operation of the mode ZK Z Z ZK KZ Z ZK KZ Z Z,ZK of dynamic analysis Z,ZK Z Z,ZK of dynamic analysis Z,ZK z Z Z Z,ZK c Z Z Z Z,ZK pointinear problems: g cal load and bucklin uctures - evaluatior	d in many The course degradation the course rnization of 3 se systems. 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
brick tenement ho cases require reger is focused on the cu and aging of struct is focused on the is 125OZE1 Renewable sources 125YTCH Sauna, fireplaces, I 126YBVE 126YPVA 129TYBC 129TYBC 129YPVA 132DKBU 132DKBU 132DPM 132DYKC Principles 132YRPA 132YKPA 132YKPA 132YMMO The course is aimer 132YNA2 Advanced course of 132YNAK Students becom	sues do not meet the current thermal, acoustic and other requirements, the requirements of a dynamically developing society to the neration and modernization interventions, including the replacement of non-compliant and out-of-date structures and equipment enablil urrent issue of renewal, reconstruction and modernization of brick multi-storey rental apartment buildings, on historical structures and mai urse and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical structures and mai urse and materials of historic brick residential buildings, their residual life, failures and reconstruction of historical buildings and their proving the well-being of the internal environment, the replacement of finishing structures, opening fillings, etc. as an integr these buildings. Renewable Energy Sources s 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. Technological Equipment of Buildings kitchen technology, elevators, technology swimming pools, heat pumps, heat source and technological system, technology cooling, fir BIM in Public Investments Development Project Building Typology History of Architecture Dynamics of Structures and Buildings In accordance with the thesis proposal. Dynamics of Building Structures of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Deformation and Failure of Materials isocelasticity, mo	Ind your certaines in required extent, an required extent, an reg their further use. terials, the issue of coarts. Furthermore, al part of the mode ZK Ind operation of the mode ZK Z	d in many The course degradation the course rnization of 3 se systems. 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3

132YPM2	Computer Analysis of Structures 2	Z	2
Limit state of frame	s. Stability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structures. I	Dynamic analysis of	f structures.
	Verification of results.		
132YSEI	Seismic Engineeering	Z	2
Basic p	principles of design of earthquake resistant structures. Methods of calculating the response of structures to earthquake loads according	ing to Eurocode 8.	
132YSHK	Statics and Reconstruction of Historical Structures	Z	2
Short overview of	historical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in foundation of the state of the st	ition conditions incl	uded. Most
	frequent causes of failure of panel buildings. Visit to the historical part of Prague Castle.		
132YSSK	Reliability of Structures	Z	2
The course is dev	oted to the reliability of elements and systems. Element reliability is time dependent while the reliability of systems is of type strength	-load. Complicated	cases are
4000//11004	solved by the FORM method. Iwo simulation methods are introduced: Monte Carlo and LHS.	774	
132YUPM	General Principles of Mechanics	Z,ZK	4
lensors, different	al operators and their application in mechanics, Gauss and Green theorems. General structure of the basic equations of linear and r	nonlinear statics, er	hergy and
duality. Principle	or virtual work (power), variational principles (Lagrange, Castigliano, Heilinger-Reissner, Hu-wasnizu) and their application to contini	Jous and discrete r	nodels of
4000000	Deanis, names, plates, wais and three-dimensional bodies.	774	4
133BOKO		Z,ZK	4
133DPM	Diploma Thesis	Z	30
	In accordance with a thesis proposal.		
133YATK	Applied Theory of Structures	Z,ZK	4
Detailed introductio	n to theoretical approaches to the effects of creep and shrinkage on structures. Principles of time-dependent analysis. Methods for the a	analysis of thin-wall	ed concrete
	structures, stability theory.		
133YBEX	Concrete under Extreme Conditions	Z	2
	The course is focused on concrete and concrete structures under extreme conditions.	, 	
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	uction to nonlinear r	nodeling of
reinforced concr	ete structures. Preparation of input data for numerical models. Design of structures using MATLAB. Presentation of selected program	is for the design of	concrete
	structures.	,	
133YPNB	Fire desgn og concrete and mnsory structures	Z	2
The course is focus	ed on fire resistance of concrete and masonry structures: concrete and concrete structures exposed to fire, design rules, thermal and	alysis, loads, desigr	n principles,
	design methods, material properties of concrete and steel reinforcement at high temperatures, fire design of masonry structu	res.	
133YPRK	Failures and Rehabilitation of Concrete Structures	Z	2
The course focuse	es on the description of failures of concrete structures, explanation of the causes of these failures and the design of remedial measur	es. Methods of stre	engthening
existing concrete	structures are also discussed. Surface repairs, strengthening of contactors, strengthening of structural elements to the effects of ben	iding moment and s	shear, and
	foundation structures are discussed. The course appropriately combines theoretical approaches with common practice.		
133YVHB	Ultrahigh Performance Concretes	Z	2
The aim of the cou	rse is to present a special type of concrete that achieves great strength and high durability, which enables the realization of very thin	structures. The con	nponents of
high performance	e concrete are presented and the main differences in composition of ordinary concrete and HPC. A large part of the lectures is devote	ed to the componer	nts of high
performance col	the actional the method of manufacturing, which are subsequently accompanied by laboratory exercises, where the s	students can experi	ence the
4040004		7	20
I 34DPIVI Design of steel / t	DIPIOINA THESIS		JU to A study
for	used on research of load bearing structures may be also the topic of the the project. The project is assigned by a final project superior	sor individually	is. A sludy
	Timber etructures and bridges		2
Timbor structures f	Initibel Structures and Direct and Directory and Directory and Directory and Directory and Directory of Directory of Directory and Directory a	∠	Z Itoping Eiro
	design. Production, protection, erection and maintenance. Design and evaluation of bridges, roofs structures in normal temperature	and in fire	itering. I ire
	Stojalogo stojal ord aluminium atructures		2
Subject VHNK cove	Statilies steel and attribution from allower the second deals with statilies steel structures. Structures of	∠ faluminium allove:	
and practice in de	to two parts, the first concerns design of structures form administrations, the second deals with administs steel structures. On others, of realize	ed structures. Stain	
suitable for struc	big important in the second	spect to low-carbor	steels is
described for bot	h ultimate and serviceability limit states. In the end the possibilities concerning connections of stainless steel members, erection and	installation of stain	less steel
	members are described.		
134YNDK	Load-bearing timber roof constructions	Z	2
System of roofs stru	cutures. Creation of numerical models for assessment of internal forces and deformations for main different roof systems and structures	s. Analysis of the st	atic function
and behaviour of n	nain individual elements and their design. Historic structures and their reconstruction. Designing typical structural details based on ca	arpentry joints. We	will discuss
	also using modern methods of joining elements of timber structures.		
134YNSK	Design of Glass Structures	Z,ZK	2
The subject is inte	nded for students of the master's program Civil Engineering, deepens the knowledge acquired in the subject 134YNKS. Extension o	f theoretical knowle	edge in the
field of stability of g	plass beams, columns and walls. Principles of designing structural elements made of glass according to normative documents, exper	rimental 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 introduction to fire modeling, fire safety and fire resistance of steel, steel-concrete composite and timber structural	elements.	
134YROK	Extending the Life of Steel and Timber Structures	Z	2
Materials used for b	earing structures. Developments in the area of regulations and standardization. Causes of defects, malfunctions, survey of objects, static	assumptions of rec	onstruction.
Possibilities of st	rengthening, strengthening of steel and timber structures and strengthening of connections. Using of computers in reconstructions ar	nd development of	numerical
	models.		
134YSMK	Stability and modelling of steel structures	Z	2
Subject YSMK cov	ers two parts. The first one deals with stability and strength of steel plates, the second one with stability and strengths of steel frame	structures. In the fi	rst part the
historic collapses c	f steel structures are analysed including the importance of imperfections for a design of thin plated structures. Presented are principl	les of theory of buc	kling, linear
and nonlinear the	eory of buckling of thin plates. The results are applied to the 4th class cross sections in harmony with Eurocode. Buckling due to norn	nal, shear and loca	l loadings
Lincluding their com	pination is analysed in a detail. In the end the application of the results is shown together with design of necessary stiffeners. The seco	and part is focused	on member

and structure stab	ility. Possible global analysis methods are presented together with methods for compression and bending interaction for slender mem of lateral torsional buckling are explained including also tapered members.	ıbers. In detail, spe	cific cases
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	е.	
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 calculation.	n. Cable roofs - pr	ocedure of
135DPM	Diploma Thesis	Z	30
In the diploma the	sis, the student deals with a topic chosen by the department from those regularly announced by the department. It addresses, for exa	ample, problems re	lated to the
design and constru	ction of geotechnical structures, civil engineering structures, special foundations for industrial, transport, housing and water managen	nent structures, ea	rth and rock
	structures in complex cases and waste disposal structures. The thesis builds on and develops the findings of the thesis projection	ect.	
135YGSM	Geotechnical Software for Numerical modelling	Z	2
Students get acqua	inted with the Finite Element Method, the currently dominant tool for numerical modeling in Geotechnics. Emphasis is placed on intro	oducing the basic p	principles of
the Finite Element	Method and their subsequent application to selected problems of Geotechnical Engineering. The course summarises the types of finite	elements used in g	eotechnical
applications, mater	al models suitable for the description of soil deformation, and selected specifics associated with numerical modeling in geotechnics. Th	is knowledge is fur	ther applied
	in the modeling of foundation, embedded walls, and stability problems.		
135YVPZ	Computer analysis in underground structures	Z	2
Numerical meth	ods in CAD/CAM in geomechanics. Basic types of constitutive models of soil and rock mass behavior. Summary of PC geotechnical	software both in th	e field of
	conventional methods and in numerical modelling domain. Practical solutions of selected geotechnical problems.		
135ZS02	Foundations 2	Z,ZK	4
The course deep	ens the knowledge from the previous course ZS1. It covers design principles, risks associated with the foundation of structures, deep	er design of flat for	undations,
deeper de	sign of deep foundations, negative casing friction of drilled piles, grouting (calculations and execution), construction pits, improvemen	nt of foundation so	íls.
210YDSM	Diagnostics of Building Materials Properties	Z	2
Failures of build	ng materials, mechanical, thermal, chemical and other influences on the development of failures of building materials. Diagnostics of	their occurrence.	Basics of
experimental meas	surement and instrumentation of tested elements and structures. Theory of experiment, measurement and processing of results. Test	ing machines and	equipment.
Deformation mea	suring instruments. Destructive testing of mechanical properties. Non-destructive test methods. Test methodology for various materia	Is (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 acc	quaint students wit	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 <u>http://bilakniha.cvut.cz/en/FF.html</u> Generated: day 2024-05-19, time 21:21.