Study plan

Name of study plan: Program Budovy a prost edí, obor B, zam ení Konstrukce budov

Name of the block: Compulsory courses Minimal number of credits of the block: 28 The role of the block: Z

Code of the group: NB20170100 Name of the group: obor Budovy a prost edí, 1. semestr Requirement credits in the group: In this group you have to gain at least 16 credits Requirement courses in the group: In this group you have to complete at least 5 courses Credits in the group: 16 doplněn 125SYB

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Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)	Completion	Credits	Scope	Semester	Role
101M04B	Tutors, authors and guarantors (gar.) Mathematics 4B Petr Ku era, Zden k Skalák, Michal Beneš, Iva Malechová, Ivana Pultarová	Z,ZK	4	1P+2C	z	Z
102FYZB	Petr Ku era Petr Ku era (Gar.) Thermomechanics Vít zslav Vydra Vít zslav Vydra (Gar.)	Z	2	2P	Z	Z
124DRS	Timber Constructions Milan Peukert, Kamil Stan k, Richard Hlavá , Jan Tywoniak, Jan R ži ka, Lukáš Velebil, Vladimír Mózer Jan Tywoniak Kamil Stan k (Gar.)	Z,ZK	3	2P+1C	L	Z
124INB1	Integrated Design of Buildings Antonín Lupíšek, Petr Hájek, Martin Volf, Tereza Pavl Tereza Pavl Petr Hájek (Gar.)	Z,ZK	3	2P+1C	L	Z
125SYB	Building Systems Jan Tywoniak, Karel Kabele Karel Kabele Karel Kabele (Gar.)	ZK	4	4P	Z	Z

Characteristics of the courses of this group of Study Plan: Code=NB20170100 Name=obor Budovy a prost edí, 1. semestr

101M04B	Mathematics 4B	Z,ZK	4				
https://mat.fsv.cvut.cz/k	ucera/						
102FYZB	Thermomechanics	Z	2				
This course will concentrate on basic principles of transport of heat and mass (conduction, convection, radiation, heat pumps; transport of moist in building materials) with practical							
examples such as heat	loss of a pipe, solar heating/cooling systems and heat loss thru a window (two plates of glass with a gas between). An excur	sion to a large sol	ar-cooling				
installation with a solar-	powered heat pump is a part of the course.						
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 b	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 system	stems 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 protec	tion. In the following	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 passive measures to reduce the risk of summer overheating of wooden buildings. In the last lecture, construction technology is discussed and a comprehensive							
approach to the design of modern wooden buildings is emphasised.							
124INB1	Integrated Design of Buildings	Z,ZK	3				
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 a	ssessment of build	dings, evaluation				
of building performance, green/sustainable certification systems and understand environmental, social and economic aspects of the built environment							

125SYB Building Systems

Multi-criteria analysis of the requirements for the indoor environment and the function of the systems in different types of buildings and plants and optimization criteria for the design of energy and ecological building systems. Relationships between building technical equipment and the building. Integrated view of conceptual solutions in different building types in terms of indoor systems and building design. E.g. office buildings, residential buildings, halls, shopping centres, cultural centres, industrial buildings, sports buildings, family houses, passive etc. The audience will be introduced to the requirements for the indoor environment, the characteristic elements of energy and environmental building systems in relation to the structural design for the building type.

ΖK

Code of the group: NB20160200

Name of the group: obor Budovy a prost edí, 2. semestr

Requirement credits in the group: In this group you have to gain at least 12 credits

Requirement courses in the group: In this group you have to complete at least 4 courses

Credits in the group: 12

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
124ST2B	Thermal Engineering in Construction 2 Zbyn k Svoboda, Pavel Kopecký Zbyn k Svoboda Zbyn k Svoboda (Gar.)	Z	2	1P+1C	L	Z
125EAB1	Energy audit 1 Karel Kabele, Michal Kabrhel, Miroslav Urban Karel Kabele Karel Kabele (Gar.)	КZ	3	2P+1C	L	Z
125MEBU	Building energy performance modelling Karel Kabele, Miroslav Urban Karel Kabele Karel Kabele (Gar.)	KZ	3	1P+2C	L	Z
125VKB	Ventilation and Air conditioning of Buildings Daniel Adamovský Daniel Adamovský Daniel Adamovský (Gar.)	Z,ZK	4	2P+1C	L	Z

Characteristics of the courses of this group of Study Plan: Code=NB20160200 Name=obor Budovy a prost edí, 2. semestr

124ST2B	Thermal Engineering in Construction 2	Z	2				
Improvement of knowled	lge from the basic building physics course. Detailed analysis of boundary conditions for calculations, governing equations of	heat and water va	apor transfer				
(diffusion, convection), t	hermal transmittance of windows and curtain walling, CFD, ventilated double-skin constructions, energy performance of build	dings in detail, the	rmal protection				
of historical buildings.							
125EAB1	Energy audit 1	KZ	3				
Advanced course for inti	oduction into energy auditing. Lectures topics: Energy audit and energy performance of buildings, legislation. EPDB - energy p	erformance direct	ive for buildings.				
Methodology of calculat	ing energy performance of buildings. Energy audit - procedure and parts. Sankey energy flow diagram. Analysis of initial condi	tion, description o	f initial condition				
object survey and surve	y of project documentation. Determining source efficiency, distribution and emission of heat. Steps towards reduction of energ	y consumption - b	uilding, heating,				
lighting, ventilating syste	erns, technologies. Application of measures on a specific object. Synergic impact of energy saving measures. Economical eval	uation, evaluation	from the aspect				
of environment protection	n. Evaluation - emission Individual object survey. Energy audit of industrial objects. Methods of buildings evaluation. Seminar i	s focused on the r	ealistic buildings				
resulting to presenting of	ase study report about energy audit of existing building.						
125MEBU	Building energy performance modelling	KZ	3				
The course is aimed at	explaining the issues of modelling and simulation of energy behaviour of buildings. Students will be introduced to an overview	v of tools and met	hodologies for				
solving these problems and learn how to use the simulation software DesignBuilder. In addition, they will be introduced to climate data, materials, construction and other factors affecting							
building behaviour. The aim of the course is to provide students with basic knowledge and practical experience in modelling and simulating building energy behaviour.							
125VKB	Ventilation and Air conditioning of Buildings	Z,ZK	4				
An advanced course in	ventilation and air conditioning focused on deepening the core topics in the field of ventilation of specific facilities, basics of fi	re and smoke ver	itilation,				
air-conditioning and coc	ling.						

Name of the block: Povinné p edm ty zam ení Minimal number of credits of the block: 26 The role of the block: PZ

Code of the group: NB20170202

Name of the group: obor B, zam ení Konstrukce budov, p edm ty zam ení Requirement credits in the group: In this group you have to gain at least 26 credits Requirement courses in the group: In this group you have to complete at least 6 courses Credits in the group: 26

Note on the group:

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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
124MTIB	Materials and Structures Pavel Kopecký, Jan Muka ovský Pavel Kopecký Pavel Kopecký (Gar.)	Z,ZK	5	2P+2C	L	ΡZ
124SPB1	Specialized Project Design 1 Jan Tywoniak, Jan R ži ka, Ctislav Fiala, Kate ina Mertenová Kate ina Mertenová Kate ina Mertenová (Gar.)	КZ	4	3C	Z	PZ

125VPV	Indoor environmental quality and space heating B Karel Kabele, Michal Kabrhel, Zuzana Veverková, Pavla Dvo áková, Hana Kabrhelová Karel Kabele Karel Kabele (Gar.)	ZK	5	4P	Z	PZ
124AKDO	Acoustics and daylighting - selected issues Jaroslav Vychytil, Ji í Nová ek Ji í Nová ek Jaroslav Vychytil (Gar.)	Z,ZK	5	2P+2C	L	ΡZ
124SPB2	Specialized Project Design 2 Jan Tywoniak, Jan R ži ka, Petr Hájek, Kate ina Mertenová, Milan erný, David Šulc Jan Tywoniak Jan Tywoniak (Gar.)	KZ	5	4C	L	PZ
143APE	Applied Ecology Tomáš Dostál Tomáš Dostál (Gar.)	Z	2	2P	L	ΡZ

Characteristics of the courses of this group of Study Plan: Code=NB20170202 Name=obor B, zam ení Konstrukce budov, p edm ty zam ení

124MTIB	Materials and Structures	Z,ZK	5
The aim is to present	1) the principles of heat and moisture transfer in materials, building elements and buildings, and 2) the effects of non-force loa	ds on building ele	ments. Students
study to apply basic p	hysical principles at simple examples. The subject introduces a theoretical basis for practically oriented subjects, such as Con-	struction Project o	r Timber
Constructions. The air	n of the course is to provide information for: 1) understanding of the effects of climatic loads on the building envelope, 2) unders	standing of the tran	sport processes
taking place in the bu	ilding envelope (transfer of heat, moisture and air), 3) understanding of the design principles and requirements we impose on t	building componer	nts.
124SPB1	Specialized Project Design 1	KZ	4
The purpose of the co	burse is to gain practical experience in particular tasks with the application of the basic principles of integrated design, the conc	ceptual solution of	the building and
its optimization from th	ne point of view of: - structural, technological and material (including environmental analysis) - thermal technical (system bounda	ary, design of the bu	uilding envelope
assessment of structu	ural components) - creating a high-quality indoor microclimate (air exchange, acoustics, lighting, sunlight, overheating, eliminat	tion of thermal brid	lges) - technical
systems (energy and	resource management). Increased emphasis is placed on the assessment of the structural and physical properties of structures a	and internal enviro	nment. Students
are motivated to acqu	ire basic engineering skills when solving topics dealing with the issue of environmentally and energy-optimized buildings and e	ecological archited	ture, such as: -
formulation of the pro	blem - proposal of its solution in variants - evaluation of particular variants and selection of the optimal solution. This is an inde	pendent work in the	ne studio:
Conceptual solution	of a building or a set of buildings". The assignment is based on a completed architectural study.		
125VPV	Indoor environmental quality and space heating B	ZK	5
A course on technical	building facilities focusing on a comprehensive view of the quality of the indoor environment in terms of its impact on health, wor	k productivity, ene	rgy performance
	building facilities focusing on a comprehensive view of the quality of the indoor environment in terms of its impact on health, wor An in-depth section focusing on the analysis and design of building energy systems that provide for the generation, transformation		
and the environment.			
and the environment.	An in-depth section focusing on the analysis and design of building energy systems that provide for the generation, transformation		
and the environment. buildings to ensure th 124AKDO	An in-depth section focusing on the analysis and design of building energy systems that provide for the generation, transformatermal comfort in winter and an optimal indoor environment with minimal environmental impact.	ation and distributi	on of energy in
and the environment. buildings to ensure th 124AKDO Sunlight and methods	An in-depth section focusing on the analysis and design of building energy systems that provide for the generation, transformatermal comfort in winter and an optimal indoor environment with minimal environmental impact. Acoustics and daylighting - selected issues	ation and distribution Z,ZK	on of energy in 5 of boundary
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and the environment. buildings to ensure the 124AKDO Sunlight and methods conditions on the level Determination of the v sound isolation, soun- acoustics, elastic mod 124SPB2	An in-depth section focusing on the analysis and design of building energy systems that provide for the generation, transformatermal comfort in winter and an optimal indoor environment with minimal environmental impact. Acoustics and daylighting - selected issues of its evaluation in different spaces. Daylighting, its definition and possibilities of its determination. Analysis of computational reland quality of daylight. Calculation of lighting in a room with transparent and translucent materials. Determining the daylight fraule of the brightness factor of the shading obstacle and the terrain by calculation. Daylighting of specific spaces. Combined lig d propagation in free and diffuse fields, sound propagation over an obstacle, sound absorption, room acoustics, wave acoustics unting of machines, urban acoustics (stationary sources, traffic).	ation and distribution Z,ZK methods. Influence actor when using I ghting. Noise limits s, geometrical aco	5 of boundary ight guides. , sound sources ustics, statistica
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and the environment. buildings to ensure the 124AKDO Sunlight and methods conditions on the leve Determination of the v sound isolation, sound acoustics, elastic mod 124SPB2 The purpose of the co its optimization from the assessment of structure	An in-depth section focusing on the analysis and design of building energy systems that provide for the generation, transformatermal comfort in winter and an optimal indoor environment with minimal environmental impact. Acoustics and daylighting - selected issues of its evaluation in different spaces. Daylighting, its definition and possibilities of its determination. Analysis of computational related quality of daylight. Calculation of lighting in a room with transparent and translucent materials. Determining the daylight for value of the brightness factor of the shading obstacle and the terrain by calculation. Daylighting of specific spaces. Combined light of propagation in free and diffuse fields, sound propagation over an obstacle, sound absorption, room acoustics, wave acoustics unting of machines, urban acoustics (stationary sources, traffic). Specialized Project Design 2 burse is to gain practical experience in particular tasks with the application of the basic principles of integrated design, the conclusion of view of: - structural, technological and material (including environmental analysis) - thermal technical (system boundaural components) - creating a high-quality indoor microclimate (air exchange, acoustics, lighting, sunlight, overheating, eliminat resource management). The tasks solved here are mainly in the area of demanding changes (renovations, reconstructions) of	ation and distribution Z,ZK methods. Influence actor when using I ghting. Noise limits s, geometrical aco KZ ceptual solution of rry, design of the bu- tion of thermal brick	5 of boundary ight guides. , sound sources ustics, statistica 5 the building and uilding envelope lges) - technical
and the environment. buildings to ensure the 124AKDO Sunlight and methods conditions on the leve Determination of the v sound isolation, sound acoustics, elastic mod 124SPB2 The purpose of the co its optimization from the assessment of structure systems (energy and	An in-depth section focusing on the analysis and design of building energy systems that provide for the generation, transformatermal comfort in winter and an optimal indoor environment with minimal environmental impact. Acoustics and daylighting - selected issues of its evaluation in different spaces. Daylighting, its definition and possibilities of its determination. Analysis of computational related quality of daylight. Calculation of lighting in a room with transparent and translucent materials. Determining the daylight for value of the brightness factor of the shading obstacle and the terrain by calculation. Daylighting of specific spaces. Combined light of propagation in free and diffuse fields, sound propagation over an obstacle, sound absorption, room acoustics, wave acoustics unting of machines, urban acoustics (stationary sources, traffic). Specialized Project Design 2 burse is to gain practical experience in particular tasks with the application of the basic principles of integrated design, the conclusion of view of: - structural, technological and material (including environmental analysis) - thermal technical (system boundaural components) - creating a high-quality indoor microclimate (air exchange, acoustics, lighting, sunlight, overheating, eliminat resource management). The tasks solved here are mainly in the area of demanding changes (renovations, reconstructions) of	ation and distribution Z,ZK methods. Influence actor when using I ghting. Noise limits s, geometrical aco KZ ceptual solution of rry, design of the bu- tion of thermal brick	5 of boundary ight guides. , sound sources ustics, statistica 5 the building and uilding envelope lges) - technical

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

Code of the group: NB20160202_1

Name of the group: obor B, zam ení Konstrukce budov, povinn volitelné p edm ty Requirement credits in the group: In this group you have to gain at least 6 credits Requirement courses in the group: In this group you have to complete at least 2 courses Credits in the group: 6 Note on the group:

Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their Code Completion Credits Scope Semester Role members) Tutors, authors and guarantors (gar.) **Building Information Modeling (BIM) for Building Structures** 124YBM1 1P+3C Ζ Ζ 4 Hana Kabrhelová, Pavel Chour, Renáta Ho ánková, Jakub Veselka, Petr S Mat jka, Petr Pánek, Stanislav Frolík, Kate ina Šenfeld Jan R ži ka Jan R ži ka (Gar.) **Complex Building Quality Evaluation** 124YHKB Ζ 2 2C L s Martin Vonka Martin Vonka Martin Vonka (Gar.) **Complex Structural Detail** 124YKSD Ζ 2 1P+1C Ζ s Ji í Pazderka, Radek Zigler **Ji í Pazderka** Ji í Pazderka (Gar.) Matematical Modelling in Building Physics Ζ 2 124YMMS 2C S Pavel Kopecký Pavel Kopecký Pavel Kopecký (Gar.)

124YMSD	Modelling of Building Physics Processes Vladimír Ž ára Vladimír Z ára Vladimír Ž ára (Gar.)	Z	2	2C	Z	S
124YNAS	Numerical Analysis of Building Physics Vladimír Ž ára Vladimír Ž ára Vladimír Ž ára (Gar.)	Z	2	2C	L	S
124YPZB	Fire Prevention and Healthy Buildings Vladimír Mózer, Marek Pokorný Marek Pokorný Vladimír Mózer (Gar.)	Z	2	2P		S
127YUSS	Urban structure of cities Ji í Kupka, Marek Janatka, Jan Mužík, Václav Jetel Marek Janatka Marek Janatka (Gar.)	Z	2	1P+1C	Z,L	S
129YPR	Industrial Heritage Tomáš Šenberger Tomáš Šenberger Tomáš Šenberger (Gar.)	Z	2	2P	L	S

Characteristics of the courses of this group of Study Plan: Code=NB20160202_1 Name=obor B, zam ení Konstrukce budov, povinn volitelné p edm ty

124YBM1	Building Information Modeling (BIM) for Building Structures 1	Z	4
Building information r	nodel (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling	The subject use	s the Autodesk
Revit software base.	Building information model in the life cycle of the building - information required during the design part, during construction and	during use of the	finished buildin
124YHKB	Complex Building Quality Evaluation	Z	2
The course aims to d	leepen the knowledge of sustainable construction and building certification.		1
124YKSD	Complex Structural Detail	Z	2
The aim of the course	e is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level	of knowledge abo	out structural
oroblems in buildings	. The content of the course is focused on the complex solution of construction details, following all legislative requirements and	taking into accou	unt the maximu
efficiency and durabil	lity of the chosen solution.		
124YMMS	Matematical Modelling in Building Physics	Z	2
Students learn how to	o establish computational models of dynamic systems in building physics (heat and moisture transfer in buildings and building	components). The	e emphasis is c
ntroducing the princi	ples of numerical solutions, their application and critical evaluation of the calculated results.		
124YMSD	Modelling of Building Physics Processes	Z	2
The subject is focuse	d on practical modeling of various technical problems, especially in the field of construction physics of buildings and optimizatio	n of structures. Th	ne goal is to lea
oute define a probl	em, create a mathematical and physical model, design a solution algorithm and write this algorithm in Excel or VBA. Learn how	v to use Excel eff	actively and wr
low to define a probl			
applications that you	can use years from now. I have been using Excel for work for 25 years and I would like to teach you how to use it effectively no		
applications that you Don't expect big scier	can use years from now. I have been using Excel for work for 25 years and I would like to teach you how to use it effectively no nee, but rather a practical approach to the problems you will encounter in practice.	ot only in building	analysis mode
applications that you Don't expect big scien 124YNAS	can use years from now. I have been using Excel for work for 25 years and I would like to teach you how to use it effectively no nce, but rather a practical approach to the problems you will encounter in practice. Numerical Analysis of Building Physics	ot only in building	analysis mode
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Name of the block: Povinn volitelné p edm ty, doporu ení S2 Minimal number of credits of the block: 30 The role of the block: S2

Code of the group: NB20160302

Name of the group: obor B, zam ení Konstrukce budov, diplomová práce Requirement credits in the group: In this group you have to gain 30 credits Requirement courses in the group: In this group you have to complete at least 1 course Credits in the group: 30

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
124DPM	Diploma Thesis Kate ina Mertenová, Ji í Pazderka, Marek Pokorný, Tomáš Vlach, Tomáš ejka, Martin Jiránek Ji í Pazderka Ji í Pazderka (Gar.)	Z	30	24C	Z	S2

Characteristics of the courses of this group of Study Plan: Code=NB20160302 Name=obor B, zam ení Konstrukce budov, diplomová práce

124DPM	Diploma Thesis	Z	30			
The topics of diploma theses are based on the needs of practice or the scientific research activity of the department, the scope and difficulty corresponds to the student's knowledge						
acquired during the mas	ster's studies. The supervisor of the thesis can designate additional consultants to the student.					

List of courses of this pass:

Code	Name of the course	Completion	Credits		
101M04B	Mathematics 4B https://mat.fsv.cvut.cz/kucera/	Z,ZK	4		
102FYZB	Thermomechanics	Z	2		
	procentrate on basic principles of transport of heat and mass (conduction, convection, radiation, heat pumps; transport of moist in buil	e ,	•		
examples such as heat loss of a pipe, solar heating/cooling systems and heat loss thru a window (two plates of glass with a gas between). An excursion to a large solar-cooling installation with a solar-powered heat pump is a part of the course.					
124AKDO	Acoustics and daylighting - selected issues	Z,ZK	5		
Sunlight and methods of its evaluation in different spaces. Daylighting, its definition and possibilities of its determination. Analysis of computational methods. Influence of boundary					
conditions on the level and quality of daylight. Calculation of lighting in a room with transparent and translucent materials. Determining the daylight factor when using light guides. Determination of the value of the brightness factor of the shading obstacle and the terrain by calculation. Daylighting of specific spaces. Combined lighting. Noise limits, sound sources,					
sound isolation, sound propagation in free and diffuse fields, sound propagation over an obstacle, sound absorption, room acoustics, wave acoustics, geometrical acoustics, statistical					
	acoustics, elastic mounting of machines, urban acoustics (stationary sources, traffic).				
124DPM	Diploma Thesis	Z	30		
The topics of diploma theses are based on the needs of practice or the scientific research activity of the department, the scope and difficulty corresponds to the student's knowledge acquired during the master's studies. The supervisor of the thesis can designate additional consultants to the student.					
124DRS	Timber Constructions	Z,ZK	3		
Students will learn about the complex issues of designing modern wooden buildings. The introductory block of lectures is dedicated to the material base, structural systems, and					
mechanical properties of wood and wood-based materials. The principles of ensuring spatial rigidity of the light frame and mass-timber structural systems are presented. It follows a lecture block focused on the design of envelope constructions of wooden buildings, moisture safety, biological threats, and principles of wood protection. In the following two lectures,					
the structure of wood and the interaction of the wood substance with air humidity, which has a significant effect on all technical properties of wood, are described in more detail. The					
next lecture is devoted to passive measures to reduce the risk of summer overheating of wooden buildings. In the last lecture, construction technology is discussed and a comprehensive approach to the design of modern wooden buildings is emphasised.					
124INB1	Integrated Design of Buildings	Z,ZK	3		
	of the subject Integrated Building Design is to get an complex overview of the principles of integrated buildings design, life cycle asses	-	s, evaluation		
	uilding performance, green/sustainable certification systems and understand environmental, social and economic aspects of the buil				
124MTIB	Materials and Structures nt 1) the principles of heat and moisture transfer in materials, building elements and buildings, and 2) the effects of non-force loads c		5		
	basic physical principles at simple examples. The subject introduces a theoretical basis for practically oriented subjects, such as Const	-			
	aim of the course is to provide information for: 1) understanding of the effects of climatic loads on the building envelope, 2) understand				
	in the building envelope (transfer of heat, moisture and air), 3) understanding of the design principles and requirements we impose o	n building compor	nents.		
124SPB1	Specialized Project Design 1	KZ	4		
	course is to gain practical experience in particular tasks with the application of the basic principles of integrated design, the conceptu		-		
	n the point of view of: - structural, technological and material (including environmental analysis) - thermal technical (system boundary, d ctural components) - creating a high-quality indoor microclimate (air exchange, acoustics, lighting, sunlight, overheating, elimination of	-			
	d resource management). Increased emphasis is placed on the assessment of the structural and physical properties of structures and i	-			
	equire basic engineering skills when solving topics dealing with the issue of environmentally and energy-optimized buildings and ecol	-			
formulation of th	ne problem - proposal of its solution in variants - evaluation of particular variants and selection of the optimal solution. This is an indep "Conceptual solution of a building or a set of buildings". The assignment is based on a completed architectural study.	pendent work in th	e studio:		
124SPB2	Specialized Project Design 2	KZ	5		
	course is to gain practical experience in particular tasks with the application of the basic principles of integrated design, the concept		-		
	the point of view of: - structural, technological and material (including environmental analysis) - thermal technical (system boundary, d		-		
	ctural components) - creating a high-quality indoor microclimate (air exchange, acoustics, lighting, sunlight, overheating, elimination				
	In different climatic and social conditions.	dings or solutions			
124ST2B	Thermal Engineering in Construction 2	Z	2		
1 .	nowledge from the basic building physics course. Detailed analysis of boundary conditions for calculations, governing equations of h on), thermal transmittance of windows and curtain walling, CFD, ventilated double-skin constructions, energy performance of building				
	of historical buildings.				
124YBM1	Building Information Modeling (BIM) for Building Structures 1	Z	4		
	n model (BIM) - basic principles of creating a building information model in the field of civil engineering, specifics of BIM modeling. The second	he subject uses th	e Autodesk		
	e. Building information model in the life cycle of the building - information required during the design part, during construction and durin	-			
124YHKB	Complex Building Quality Evaluation	Z	2		
4241///00	The course aims to deepen the knowledge of sustainable construction and building certification.	7	0		
	124YKSD Complex Structural Detail Z 2 The aim of the course is to extend the knowledge gained in previous courses - it is intended for students who have already reached advanced level of knowledge about structural				
problems in buildings. The content of the course is focused on the complex solution of construction details, following all legislative requirements and taking into account the maximum					
efficiency and durability of the chosen solution.					
124YMMS	Matematical Modelling in Building Physics	Z	2		
Students learn how to establish computational models of dynamic systems in building physics (heat and moisture transfer in buildings and building components). The emphasis is on introducing the principles of numerical solutions, their application and critical evaluation of the calculated results.					
124YMSD	Modelling of Building Physics Processes	Z	2		
-	sed on practical modeling of various technical problems, especially in the field of construction physics of buildings and optimization of	-			
now to define a pro	blem, create a mathematical and physical model, design a solution algorithm and write this algorithm in Excel or VBA. Learn how to	use Excel effective	ery and write		

applications that you can use years from now. I have been using Excel for work for 25 years and I would like to teach you how to use it effectively not only in building analysis models.					
Don't expect big science, but rather a practical approach to the problems you will encounter in practice.					
124YNAS Numerical Analysis of Building Physics	Z	2			
The subject is focused on practical modeling of various technical problems, especially in the field of construction physics of buildings and optimization of	f structures. The goa	I is to learn			
how to define a problem, create a mathematical and physical model, design a solution algorithm and write this algorithm in Excel or VBA. Learn how to use Excel effectively and write					
applications that you can use years from now. I have been using Excel for work for 25 years and I would like to teach you how to use it effectively not only in building analysis models.					
Don't expect big science, but rather a practical approach to the problems you will encounter in practice.					
124YPZB Fire Prevention and Healthy Buildings	Z	2			
The subject is focused on the presentation of the basic concepts and principles of fire safety of buildings and health safety of buildings. It is intended for students of non-fire disciplines					
and should enable them to consider aspects of fire safety and health safety from the initial stages of project preparation of bui					
125EAB1 Energy audit 1	KZ	3			
Advanced course for introduction into energy auditing. Lectures topics: Energy audit and energy performance of buildings, legislation. EPDB - energy per		-			
Methodology of calculating energy performance of buildings. Energy audit - procedure and parts. Sankey energy flow diagram. Analysis of initial condition, description of initial condition					
object survey and survey of project documentation. Determining source efficiency, distribution and emission of heat. Steps towards reduction of energy consumption - building, heating,					
lighting, ventilating systems, technologies. Application of measures on a specific object. Synergic impact of energy saving measures. Economical evaluation of the second state of the sec		•			
of environment protection. Evaluation - emission Individual object survey. Energy audit of industrial objects. Methods of buildings evaluation. Seminar is for	ocused on the realist	ic buildings			
resulting to presenting case study report about energy audit of existing building.					
125MEBU Building energy performance modelling	KZ	3			
The course is aimed at explaining the issues of modelling and simulation of energy behaviour of buildings. Students will be introduced to an overview of tools and methodologies for					
solving these problems and learn how to use the simulation software DesignBuilder. In addition, they will be introduced to climate data, materials, constru		•			
building behaviour. The aim of the course is to provide students with basic knowledge and practical experience in modelling and simulating bui					
125SYB Building Systems	ZK	4			
Multi-criteria analysis of the requirements for the indoor environment and the function of the systems in different types of buildings and plants and optim		°			
energy and ecological building systems. Relationships between building technical equipment and the building. Integrated view of conceptual solutions in	0,11				
	of indoor systems and building design. E.g. office buildings, residential buildings, halls, shopping centres, cultural centres, industrial buildings, sports buildings, family houses, passive				
etc. The audience will be introduced to the requirements for the indoor environment, the characteristic elements of energy and environmental building sys					
	tems in relation to th				
design for the building type.		e structural			
design for the building type. 125VKB Ventilation and Air conditioning of Buildings	Z,ZK	e structural			
design for the building type. 125VKB Ventilation and Air conditioning of Buildings An advanced course in ventilation and air conditioning focused on deepening the core topics in the field of ventilation of specific facilities, basics of	Z,ZK	e structural			
design for the building type. 125VKB Ventilation and Air conditioning of Buildings An advanced course in ventilation and air conditioning focused on deepening the core topics in the field of ventilation of specific facilities, basics of air-conditioning and cooling.	Z,ZK fire and smoke vent	e structural 4 tilation,			
design for the building type. 125VKB Ventilation and Air conditioning of Buildings An advanced course in ventilation and air conditioning focused on deepening the core topics in the field of ventilation of specific facilities, basics of air-conditioning and cooling. 125VPV Indoor environmental quality and space heating B	Z,ZK fire and smoke vent ZK	e structural 4 tilation, 5			
design for the building type. 125VKB Ventilation and Air conditioning of Buildings An advanced course in ventilation and air conditioning focused on deepening the core topics in the field of ventilation of specific facilities, basics of air-conditioning and cooling. 125VPV Indoor environmental quality and space heating B A course on technical building facilities focusing on a comprehensive view of the quality of the indoor environment in terms of its impact on health, work p	Z,ZK fire and smoke vent ZK roductivity, energy productivity, energy productivity	e structural 4 tilation, 5 erformance			
design for the building type. 125VKB Ventilation and Air conditioning of Buildings An advanced course in ventilation and air conditioning focused on deepening the core topics in the field of ventilation of specific facilities, basics of air-conditioning and cooling. 125VPV Indoor environmental quality and space heating B A course on technical building facilities focusing on a comprehensive view of the quality of the indoor environment in terms of its impact on health, work p and the environment. An in-depth section focusing on the analysis and design of building energy systems that provide for the generation, transformation	Z,ZK fire and smoke vent ZK roductivity, energy productivity, energy productivity	e structural 4 tilation, 5 erformance			
design for the building type. 125VKB Ventilation and Air conditioning of Buildings An advanced course in ventilation and air conditioning focused on deepening the core topics in the field of ventilation of specific facilities, basics of air-conditioning and cooling. 125VPV Indoor environmental quality and space heating B A course on technical building facilities focusing on a comprehensive view of the quality of the indoor environment in terms of its impact on health, work p and the environment. An in-depth section focusing on the analysis and design of building energy systems that provide for the generation, transformation buildings to ensure thermal comfort in winter and an optimal indoor environment with minimal environmental impact.	Z,ZK fire and smoke vent ZK roductivity, energy pron and distribution or	e structural 4 tilation, 5 erformance f energy in			
design for the building type. 125VKB Ventilation and Air conditioning of Buildings An advanced course in ventilation and air conditioning focused on deepening the core topics in the field of ventilation of specific facilities, basics of air-conditioning and cooling. 125VPV Indoor environmental quality and space heating B A course on technical building facilities focusing on a comprehensive view of the quality of the indoor environment in terms of its impact on health, work p and the environment. An in-depth section focusing on the analysis and design of building energy systems that provide for the generation, transformati buildings to ensure thermal comfort in winter and an optimal indoor environment with minimal environmental impact. 127YUSS Urban structure of cities	Z,ZK fire and smoke vent ZK roductivity, energy pron and distribution o Z	e structural 4 tilation, 5 erformance f energy in 2			
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For updated information see <u>http://bilakniha.cvut.cz/en/FF.html</u> Generated: day 2024-05-19, time 19:39.