Study plan

Name of study plan: Program Budovy a prostředí, obor B, zaměření Konstrukce budov

Faculty/Institute/Others:
Department:
Branch of study guaranteed by the department: Buildings and Environment
Garantor of the study branch: prof. Ing. Karel Kabele, CSc.
Program of study: Buildings and Environment
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: tento studijní plán platí od nástupu 2018

Name of the block: Compulsory courses
Minimal number of credits of the block: 58
The role of the block: Z

Code of the group: NB20170100
Name of the group: obor Budovy a prostředí, 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
Note on the group: doplněn 125SYB

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
101M04B	**Mathematics 4B** *Petr Kučera, Ivana Pultarová, Zdeněk Skalák, Michal Beneš, Iva Malechová* ***Petr Kučera*** *Petr Kučera (Gar.)*	Z,ZK	4	1P+2C	Z	z
102FYZB	**Thermomechanics** *Vítězslav Vydra*	Z	2	2P	Z	z
124DRS	**Timber Constructions** *Milan Peukert, Kamil Staněk, Richard Hlaváč* ***Richard Hlaváč*** *Kamil Staněk (Gar.)*	Z,ZK	3	2P+1C	Z	z
124INB1	**Integrated Design of Buildings** *Martin Volf, Antonín Lupíšek, Petr Hájek* ***Antonín Lupíšek*** *Petr Hájek (Gar.)*	Z,ZK	3	2P+1C		z
125SYB	**Building Systems** *Karel Kabele, Jan Tywoniak, Roman Musil, Stanislav Frolík, Hana Kabrhelová* ***Hana Kabrhelová*** *Karel Kabele (Gar.)*	ZK	4	4P	Z	z

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

101M04B	Mathematics 4B	Z,ZK	4
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 excursion to a large solar-cooling installation with a solar-powered heat pump is a part of the course.			
124DRS	Timber Constructions	Z,ZK	3
124INB1	Integrated Design of Buildings	Z,ZK	3
125SYB	Building Systems	ZK	4

Code of the group: NB20160200
Name of the group: obor Budovy a prostředí, 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** *Zbyněk Svoboda, Pavel Kopecký **Zbyněk Svoboda** Zbyněk Svoboda (Gar.)*	Z	2	1P+1C	L	Z
125EAB1	**Energy audit 1** *Karel Kabele, Stanislav Frolík, Hana Kabrhelová, Ilona Koubková, Michal Kabrhel, Miroslav Urban **Hana Kabrhelová** Karel Kabele (Gar.)*	KZ	3	2P+1C	L	Z
125MEBU	**Building energy performance modelling** *Karel Kabele, Stanislav Frolík, Hana Kabrhelová, Ilona Koubková, Ondřej Horák, Ondřej Horák **Hana Kabrhelová** Karel Kabele (Gar.)*	KZ	3	1P+2C	L	Z
125VKB	**Ventilation and Air conditioning of Buildings** *Karel Kabele, Stanislav Frolík, Hana Kabrhelová, Ilona Koubková, Daniel Adamovský, Pavla Dvořáková **Hana Kabrhelová** 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 prostředí, 2. semestr

124ST2B	Thermal Engineering in Construction 2	Z	2
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 performance directive for buildings. 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, evaluation from the aspect of environment protection. Evaluation - emission Individual object survey. Energy audit of industrial objects.Methods of buildings evaluation. Seminar is focused on the realistic buildings resulting to presenting case study report about energy audit of existing building.			
125MEBU	Building energy performance modelling	KZ	3
125VKB	Ventilation and Air conditioning of Buildings	Z,ZK	4

Code of the group: NB20160302
Name of the group: obor B, zaměření 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** *Tomáš Čejka, Martin Jiránek, Anna Lounková, Richard Wasserbauer, Marek Pokorný, Malila Noori*	Z	30	24C	Z	Z

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

124DPM	Diploma Thesis	Z	30

Name of the block: Povinné předměty zaměření
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, zaměření Konstrukce budov, předměty zaměření
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: [1:14][2:12]

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 Mukařovský **Pavel Kopecký** Pavel Kopecký (Gar.)*	Z,ZK	5	2P+2C	L	PZ
124SPB1	**Specialized Project Design 1** *Jan Tywoniak, Jan Růžička, Ctislav Fiala, Kateřina Mertenová*	KZ	4	3C	Z	PZ
125VPV	**Indoor environmental quality and space heating B** *Karel Kabele, Stanislav Frolík, Hana Kabrhelová, Ilona Koubková, Michal Kabrhel, Zuzana Veverková, Pavla Dvořáková **Hana Kabrhelová** Karel Kabele (Gar.)*	ZK	5	4P	Z	PZ

124AKDO	**Acoustics and daylighting - selected issues** *Jiří Nováček, Jaroslav Vychytil **Jiří Nováček** Jaroslav Vychytil (Gar.)*	Z,ZK	5	2P+2C	L	PZ
124SPB2	**Specialized Project Design 2** *Petr Hájek, Jan Tywoniak, Jan Růžička, Kateřina Mertenová, Milan Černý, David Šulc*	KZ	5	4C	L	PZ
143APE	**Applied Ecology** *Tomáš Dostál Tomáš Dostál (Gar.)*	Z	2	2P	Z,L	PZ

Characteristics of the courses of this group of Study Plan: Code=NB20170202 Name=obor B, zaměření Konstrukce budov, předměty zaměření

124MTIB	Materials and Structures	Z,ZK	5
124SPB1	Specialized Project Design 1	KZ	4
125VPV	Indoor environmental quality and space heating B	ZK	5
124AKDO	Acoustics and daylighting - selected issues	Z,ZK	5
124SPB2	Specialized Project Design 2	KZ	5
143APE	Applied Ecology	Z	2
Learning basic of ecological terminology, landscape ecology and ecological stability. Energy flow in the different ecosystems.			

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, zaměření Konstrukce budov, povinně volitelné předměty
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:

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
124YBM1	**Building Information Modeling (BIM) for Building Structures 1** *Stanislav Frolík, Kateřina Novotná, Pavel Chour, Renáta Hoďánková, Jakub Veselka, Petr Matějka, Petr Pánek, Kateřina Šilerová Křížová, Robert Bouška Jan Růžička (Gar.)*	Z	4	1P+3C	Z	S
124YHKB	**Complex Building Quality Evaluation** *Martin Vonka **Martin Vonka** Martin Vonka (Gar.)*	Z	2	2C	L	S
124YKSD	**Complex Structural Detail** *Jiří Pazderka, Radek Zigler **Jiří Pazderka** Jiří Pazderka (Gar.)*	Z	2	1P+1C	Z	S
124YMMS	**Matematical Modelling of Building Physics** *Pavel Kopecký **Pavel Kopecký***	Z	2	2C		S
124YMSD	**Modelling of Building Physics Processes** *Vladimír Žďára **Vladimír Žďára** Vladimír Žďára (Gar.)*	Z	2	2C	Z	S
124YNAS	**Numerical Analysis of Building Physics** *Vladimír Žďára **Vladimír Žďára** Vladimír Žďára (Gar.)*	Z	2	2C	L	S
124YPZB	**Fire Prevention and Healthy Buildings** *Václav Kupilík, Marek Pokorný **Marek Pokorný** Václav Kupilík (Gar.)*	Z	2	2P		S
127YUSS	**Urban structure of cities** *Jiří Kupka, Marek Janatka, Jan Mužík, Václav Jetel **Jiří Kupka** Marek Janatka (Gar.)*	Z	2	1P+1C	Z,L	S
129YPR	**Industrial Heritage** *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, zaměření Konstrukce budov, povinně volitelné předměty

124YBM1	Building Information Modeling (BIM) for Building Structures 1	Z	4
124YHKB	Complex Building Quality Evaluation	Z	2
124YKSD	Complex Structural Detail	Z	2
124YMMS	Matematical Modelling of Building Physics	Z	2
Students learn to make up computational models of dynamic systems (in particular heat and moisture transfer in buildings and building components). The emphasis is placed on the methods for numerical solution of governing equations, their subsequent application and critical evaluation of calculated results.			
124YMSD	Modelling of Building Physics Processes	Z	2
124YNAS	Numerical Analysis of Building Physics	Z	2
124YPZB	Fire Prevention and Healthy Buildings	Z	2
127YUSS	Urban structure of cities	Z	2
The main goal of this course is explaining the students steric and functional structures of cities and their meaning in settlement structure. It includes the relation between city and landscape, general view of the city, urbanism values and conception.			
129YPR	Industrial Heritage	Z	2

List of courses of this pass:

Code	Name of the course	Completion	Credits
101M04B	Mathematics 4B	Z,ZK	4
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 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
124DPM	Diploma Thesis	Z	30
124DRS	Timber Constructions	Z,ZK	3
124INB1	Integrated Design of Buildings	Z,ZK	3
124MTIB	Materials and Structures	Z,ZK	5
124SPB1	Specialized Project Design 1	KZ	4
124SPB2	Specialized Project Design 2	KZ	5
124ST2B	Thermal Engineering in Construction 2	Z	2
124YBM1	Building Information Modeling (BIM) for Building Structures 1	Z	4
124YHKB	Complex Building Quality Evaluation	Z	2
124YKSD	Complex Structural Detail	Z	2
124YMMS	Matematical Modelling of Building Physics	Z	2
Students learn to make up computational models of dynamic systems (in particular heat and moisture transfer in buildings and building components). The emphasis is placed on the methods for numerical solution of governing equations, their subsequent application and critical evaluation of calculated results.			
124YMSD	Modelling of Building Physics Processes	Z	2
124YNAS	Numerical Analysis of Building Physics	Z	2
124YPZB	Fire Prevention and Healthy Buildings	Z	2
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 performance directive for buildings. 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, evaluation from the aspect of environment protection. Evaluation - emission Individual object survey. Energy audit of industrial objects.Methods of buildings evaluation. Seminar is focused on the realistic buildings resulting to presenting case study report about energy audit of existing building.			
125MEBU	Building energy performance modelling	KZ	3
125SYB	Building Systems	ZK	4
125VKB	Ventilation and Air conditioning of Buildings	Z,ZK	4
125VPV	Indoor environmental quality and space heating B	ZK	5
127YUSS	Urban structure of cities	Z	2
The main goal of this course is explaining the students steric and functional structures of cities and their meaning in settlement structure. It includes the relation between city and landscape, general view of the city, urbanism values and conception.			
129YPR	Industrial Heritage	Z	2
143APE	Applied Ecology	Z	2
Learning basic of ecological terminology, landscape ecology and ecological stability. Energy flow in the different ecosystems.			

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