Study plan

Name of study plan: 18 159 NIBU 2012 bez odoru základ

Faculty/Institute/Others:
Department:
Branch of study guaranteed by the department: Welcome page
Garantor of the study branch:
Program of study: Welcome page
Type of study: unknown
Required credits: 117
Elective courses credits: 3
Sum of credits in the plan: 120
Note on the plan:

Name of the block: Compulsory courses in the program
Minimal number of credits of the block: 80
The role of the block: P

Code of the group: 12NI*1P-BOB
Name of the group: 2012 NIBU 1.sem povinné BEZ OBORU
Requirement credits in the group: In this group you have to gain 18 credits
Requirement courses in the group: In this group you have to complete 4 courses
Credits in the group: 18
Note on the group: ASM14RPI není sepsán

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
124KPKP	**Building Structures** *Ctislav Fiala* ***Ctislav Fiala*** *Ctislav Fiala (Gar.)*	ZK	4	3P	Z	P
2161108	**Transport Phenomena** *Martin Barták* ***Martin Barták*** *Martin Barták (Gar.)*	Z,ZK	4	2P+1C	*	P
A5M14RPI	**Distribution of Electric Energy and Drives** *Jiří Lettl, Pavel Mindl, Jan Bauer* ***Jiří Lettl*** *Jiří Lettl (Gar.)*	Z,ZK	5	2P+1L	Z	P
124ST1	**Thermal Engineering in Construction** *Jan Tywoniak* ***Jan Tywoniak*** *Jan Tywoniak (Gar.)*	ZK	5	2P	Z	P

Characteristics of the courses of this group of Study Plan: Code=12NI*1P-BOB Name=2012 NIBU 1.sem povinné BEZ OBORU

124KPKP	Building Structures	ZK	4
Basics of building structures. Functional requirements, structural systems, spatial effect of the structural system. Vertical load-bearing structures, floor structures, overhanging structures. Envelopes of buildings, windows, partitions, floors, suspended ceilings. Stairs, roof construction timber roof trusses, roof envelopes. Foundation structures, structural solution of the substructure, waterproofing of the substructure. Structural systems of single and multi-storey buildings, structural systems of long-span structures.			
2161108	Transport Phenomena	Z,ZK	4
Basics of transport phenomena for the study programme Intelligent Buildings. Momentum, heat and mass transport in built environment.			
A5M14RPI	Distribution of Electric Energy and Drives	Z,ZK	5
124ST1	Thermal Engineering in Construction	ZK	5
The subject discusses the basic chapters of building physics - part hygrothermal performance of buildings in an overview manner with the aim of providing basic information to students coming from non-construction bachelor's fields and at the same time supplementing knowledge and linking it with contexts for students coming from civil engineering.			

Code of the group: 12NI*2P-BOB
Name of the group: 2012 NIBU 2.sem povinné BEZ OBORU
Requirement credits in the group: In this group you have to gain 26 credits
Requirement courses in the group: In this group you have to complete 6 courses
Credits in the group: 26
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
125ESB	**Buildings Ecology Systems** *Stanislav Frolík* ***Stanislav Frolík*** *Stanislav Frolík (Gar.)*	KZ	4	2P	L	P
125EABI	**Energy Audit of Building** ***Hana Kabrhelová***	KZ	4	2P	L	P
A5M33IZS	**Information and Knowledge-Based Systems**	Z,ZK	4	2P+1C	L	P
2163033	**Design IB I.** *Martin Barták, Jiří Bašta, Petr Zelenský, Jindřich Boháč, Jiří Hemerka, Miroslav Kučera, Miloš Lain, Tomáš Matuška, Roman Vavřička, ...* ***Jiří Bašta*** *Jiří Bašta (Gar.)*	Z	6	0P+4C	*	P
2161109	**Automatic control in environmental engineering of building** *Jiří Bašta, Jindřich Boháč* ***Jiří Bašta*** *Jiří Bašta (Gar.)*	Z,ZK	4	2P+1C	*	P

Characteristics of the courses of this group of Study Plan: Code=12NI*2P-BOB Name=2012 NIBU 2.sem povinné BEZ OBORU

125ESB	Buildings Ecology Systems	KZ	4
Principles of environmentally friendly water management. Disposal of sewage water and use of rain water. Measurement of water consumption, system design, pumping devices, water saving and special installations.			
125EABI	Energy Audit of Building	KZ	4
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.			
A5M33IZS	Information and Knowledge-Based Systems	Z,ZK	4
The course provides the student with a necessary overview of information technologies with attention paid to reqiremnts of intelligent building information systems. Further on, the student learns the basic methods and techniques applicable to knowledge based systems aimed at automated solving of decision-making problems. The attention is paid namely to data and knowledge representation and its modeling so that the students are able to communicate effectively with IT and knowledge engineering experts. The students will also learn the basics of networking protocols used in intelligent buildings.			
2163033	Design IB I.	Z	6
Design of heating systems, heat distributors and systems for using recoverable source of energy. Design of ventilation and air conditioning systems, including gas cleaning and reduction of noise.			
2161109	Automatic control in environmental engineering of building	Z,ZK	4
Application of basic approaches to automatic control of HVAC systems and equipments. Automatic control sequences of air conditioning and sources of heat.			

Code of the group: 12NI*3P-BOB
Name of the group: 2012 NIBU 3.sem povinné BEZ OBORU
Requirement credits in the group: In this group you have to gain 18 credits
Requirement courses in the group: In this group you have to complete 4 courses
Credits in the group: 18
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
2162700	**Experimental Methods 1** *Miroslav Kučera* ***Miroslav Kučera*** *Miroslav Kučera (Gar.)*	KZ	4	0P+4L	*	P
2163034	**Project IB II.** ***Jiří Bašta*** *Jiří Bašta (Gar.)*	Z	6	0P+4C	*	P
2161102	**Radiant and Industrial Heating** *Jiří Bašta, Roman Vavřička* ***Jiří Bašta*** *Jiří Bašta (Gar.)*	Z,ZK	4	2P+1C	*	P
A5M38SZS	**Sensors and Networks** *Pavel Ripka, Antonín Platil* ***Antonín Platil*** *Pavel Ripka (Gar.)*	Z,ZK	4	2P+1L	L	P

Characteristics of the courses of this group of Study Plan: Code=12NI*3P-BOB Name=2012 NIBU 3.sem povinné BEZ OBORU

2162700	Experimental Methods 1	KZ	4
Introduction study of experimental technique in environmental engineering			
2163034	Project IB II.	Z	6
Project and experimental solution of environmental devices. Optimization investment and operating costs, economic appraisal of ecologic investment.			
2161102	Radiant and Industrial Heating	Z,ZK	4
Student will be informed about the basics of radiant and other industrial heating systems			
A5M38SZS	Sensors and Networks	Z,ZK	4
Applications of sensors in buildings			

Code of the group: 12NI*4P-BOB
Name of the group: 2012 NIBU 4.sem povinné BEZ OBORU
Requirement credits in the group: In this group you have to gain 18 credits

Requirement courses in the group: In this group you have to complete 4 courses
Credits in the group: 18
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
2163086	**Thesis** *Jiří Bašta, Vladimír Šulc* ***Jiří Bašta*** *Jiří Bašta (Gar.)*	Z	26	0P+20C	*	P
A5M16FIP	**Corporate finance** *Oldřich Starý, Jiří Vašíček, Blanka Kučerková* ***Jiří Vašíček*** *Oldřich Starý (Gar.)*	KZ	4	3P+1C	L	P

Characteristics of the courses of this group of Study Plan: Code=12NI*4P-BOB Name=2012 NIBU 4.sem povinné BEZ OBORU

2163086	Thesis	Z	26
Thesis is final individual work. This work checks ability of logical independent technical thinking and treatment with technical materials. There is applied acquired knowledge from previous study periods.			
A5M16FIP	Corporate finance	KZ	4
Principles of finance, present value and alternative cost of capital, financial calculus, long-term finance, valuation of bonds and stocks, investment decision and net present value, IRR, comparison time period, annual equivalent value, inflation and return, capital asset pricing model, portfolio, sensitivity analysis and risk, short term finance, cash flow management.Dividend policy.			

Name of the block: Compulsory elective courses
Minimal number of credits of the block: 37
The role of the block: PV

Code of the group: 12N**3Q--JV
Name of the group: 2012 N 3.sem povinná jazyková výuka
Requirement credits in the group: In this group you have to gain 2 credits
Requirement courses in the group: In this group you have to complete 1 course
Credits in the group: 2
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors,* ***authors*** *and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
2043081	**English - Preparatory Course / FME** *Veronika Kratochvílová, Eliška Vítková, Ilona Šimice, Michaela Schusová, Hana Volejníková* ***Nina Procházková Ayyub***	Z	2	0P+2C	*	PV
2043086	**Czech - Preparatory Course** *Michaela Schusová, Hana Volejníková, Petr Laurich*	Z	2	0P+2C	*	PV
2043083	**French - Preparatory Course / FME** *Michaela Schusová, Dušana Jirovská* ***Michaela Schusová*** *Dušana Jirovská (Gar.)*	Z	2	0P+2C	*	PV
2043082	**German - Lower Intermediate Course** *Eliška Vítková, Michaela Schusová, Petr Laurich, Jaroslava Kommová* ***Jaroslava Kommová*** *Jaroslava Kommová (Gar.)*	Z	2	0P+2C	*	PV
2043085	**Russian - Preparatory Course / FME** *Michaela Schusová, Hana Volejníková, Dušana Jirovská* ***Eliška Vítková***	Z	2	0P+2C	*	PV
2043084	**Spanish - Preparatory Course / FME** *Michaela Schusová, Jaime Andrés Villagómez* ***Eliška Vítková***	Z	2	0P+2C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12N3Q--JV Name=2012 N 3.sem povinná jazyková výuka**

2043081	English - Preparatory Course / FME	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. European level A1 - A2.			
2043086	Czech - Preparatory Course	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.			
2043083	French - Preparatory Course / FME	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.			
2043082	German - Lower Intermediate Course	Z	2
Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language.			
2043085	Russian - Preparatory Course / FME	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.			

2043084	Spanish - Preparatory Course / FME	Z	2

Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.

Code of the group: 12N**3Q--JZ
Name of the group: 2012 N 3.sem povinná jazyková zkouška
Requirement credits in the group: In this group you have to gain 1 credit
Requirement courses in the group: In this group you have to complete 1 course
Credits in the group: 1
Note on the group:

Code	Name of the course / Name of the group of courses *(in case of groups of courses the list of codes of their members)* *Tutors, **authors** and guarantors (gar.)*	Completion	Credits	Scope	Semester	Role
2041081	**English - Master Exam** *Veronika Kratochvílová, Eliška Vítková, Ilona Šimice, Michaela Schusová, Hana Volejníková, Michele Le Blanc, Nina Procházková Ayyub **Nina Procházková Ayyub** Ilona Šimice (Gar.)*	ZK	1	0P+0C	*	PV
2041086	**Czech- Master Exam** *Michaela Schusová, Hana Volejníková, Petr Laurich*	ZK	1	0P+0C	*	PV
2041083	**French - Master Exam / FME** *Michaela Schusová, Dušana Jirovská **Dušana Jirovská** Dušana Jirovská (Gar.)*	ZK	1	0P+0C	*	PV
2041082	**German - Master Exam / FME** *Eliška Vítková, Michaela Schusová, Petr Laurich, Jaroslava Kommová **Jaroslava Kommová** Jaroslava Kommová (Gar.)*	ZK	1	0P+0C	*	PV
2041085	**Russian - Master Exam / FME** *Michaela Schusová, Hana Volejníková, Dušana Jirovská **Eliška Vítková***	ZK	1	0P+0C	*	PV
2041084	**Spanish - Master Exam / FME** *Michaela Schusová, Jaime Andrés Villagómez **Eliška Vítková** Jaime Andrés Villagómez (Gar.)*	ZK	1	0P+0C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12N3Q--JZ Name=2012 N 3.sem povinná jazyková zkouška**

2041081	English - Master Exam	ZK	1

Mapped to the level of Common European Framework of Reference: A2. Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.

2041086	Czech- Master Exam	ZK	1
2041083	French - Master Exam / FME	ZK	1

Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language.

2041082	German - Master Exam / FME	ZK	1

Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language.

2041085	Russian - Master Exam / FME	ZK	1

Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language.

2041084	Spanish - Master Exam / FME	ZK	1

Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language.

Code of the group: 12NI*1Q-BOB
Name of the group: 2012 NIBU 1.sem 3povvol BEZ OBORU
Requirement credits in the group: In this group you have to gain 12 credits
Requirement courses in the group: In this group you have to complete 3 courses
Credits in the group: 12
Note on the group: A5M35MAS je pro jiný stud. program

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
124OSIB	**Acoustics and Lighting** *Jaroslav Vychytil, Lenka Maierová **Jaroslav Vychytil** Jaroslav Vychytil (Gar.)*	KZ	4	2P	Z	PV
A5M15ES1	**Electrical Light 1** *Petr Žák, Petr Žák **Petr Žák** Petr Žák (Gar.)*	KZ	4	2P+1S	Z	PV
125EIBB	**Electroengineering and intelligent buildings** *Hana Kabrhelová, Bohumír Garlík **Bohumír Garlík** Bohumír Garlík (Gar.)*	KZ	4	2P	Z	PV
124INBB	**Integrated Design of Buildings** *Jan Růžička, Petr Hájek, Antonín Lupíšek **Antonín Lupíšek** Petr Hájek (Gar.)*	Z,ZK	4	2P+1C	Z	PV

A5M38MEB	**Measurements in the Buildings** *Petr Kašpar* ***Petr Kašpar*** *Petr Kašpar (Gar.)*	KZ	4	2P+1L	Z	PV
A5M35MAS	**Modeling and simulation**	KZ	4	2P+2C	Z	PV
125MEC	**Simulation of Building Energy Performance** *Karel Kabele, Miroslav Urban* ***Karel Kabele*** *Karel Kabele (Gar.)*	KZ	4	1P+1C	Z	PV
2152038	**Energy Sources and Conversions**	KZ	4	3P+1C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12NI*1Q-BOB Name=2012 NIBU 1.sem 3povvol BEZ OBORU

124OSIB	Acoustics and Lighting	KZ	4
The course introduces students to the basics of building lighting technology and building acoustics and deepens further knowledge.			
A5M15ES1	Electrical Light 1	KZ	4
125EIBB	Electroengineering and intelligent buildings	KZ	4
The information society, intelligent systems, new technologies significantly influence various HVAC system applications. The fundamental idea is to save energy, materials and ensure optimal indoor and outdoor environmental parameters. The influence of electromagnetic environment, electromagnetic compatibility, application of intelligent devices in buildings requires a system approach to solve the whole complex of HVAC and intelligent wiring.			
124INBB	Integrated Design of Buildings	Z,ZK	4
The main objective of the subject Integrated Building Design is to get an complex overview of the principles of integrated buildings design, life cycle assessment of buildings, evaluation of building performance, green/sustainable certification systems and understand environmental, social and economic aspects of the built environment.			
A5M38MEB	Measurements in the Buildings	KZ	4
The students will learn about principles of measurement of basic physical quantities in the building. As the majority of the physical quantities are converted to the electrical signals, an overview of measurement of the electrical quantities is also presented. The subject is not intended for students who have already studied the subjects Electrical measurement and Sensors and transducers on CTU FEE.			
A5M35MAS	Modeling and simulation	KZ	4
125MEC	Simulation of Building Energy Performance	KZ	4
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, 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.			
2152038	Energy Sources and Conversions	KZ	4

Code of the group: 12NI*2Q-BOB
Name of the group: 2012 NIBU 2.sem 1povvol BEZ OBORU
Requirement credits in the group: In this group you have to gain 4 credits
Requirement courses in the group: In this group you have to complete 1 course
Credits in the group: 4
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**
A5M02AKA	**Acoustic Applications** *Ondřej Jiříček* ***Ondřej Jiříček*** *Ondřej Jiříček (Gar.)*	KZ	4	2P+2L	L	PV
2162035	**Alternative Energy Sources** *Tomáš Matuška* ***Tomáš Matuška*** *Tomáš Matuška (Gar.)*	KZ	4	2P+1C	*	PV
A5M34ELE	**Electronics** *Alexandr Laposa, Adam Bouša* ***Alexandr Laposa*** *Alexandr Laposa (Gar.)*	KZ	4	3P+1L	L	PV
125OZEB	**Renewable Energy Sources** *Michal Kabrhel* ***Michal Kabrhel*** *Michal Kabrhel (Gar.)*	ZK	4	2P	Z	PV
125PBZB	**Fire Services** *Bohumír Garlík, Ilona Koubková, Pavla Hofbauer Pechová, Daniel Adamovský* ***Ilona Koubková*** *Ilona Koubková (Gar.)*	KZ	4	2P	L	PV
A5M38SPD	**Collection and data transfer** ***Pavel Mlejnek***	KZ	4	3P+1L	L	PV
A5M14ZSE	**Fundamentals of Power Electrical Engineering**	KZ	4	2+1L	L	PV

Characteristics of the courses of this group of Study Plan: Code=12NI*2Q-BOB Name=2012 NIBU 2.sem 1povvol BEZ OBORU

A5M02AKA	Acoustic Applications	KZ	4
Lecture summarize applications in physical acoustics, room and building acoustics, environmental acoustics, noise and vibration control, physiological acoustics, diagnostics, and ultrasound.			
2162035	Alternative Energy Sources	KZ	4
Principles and basics of alternative energy sources use in buildings. Solar energy. Heat pumps. Biomass utilization.			
A5M34ELE	Electronics	KZ	4
125OZEB	Renewable Energy Sources	ZK	4
The course deals with renewable energy sources and building energy systems. The different types of energy-solar, wind, biomass, geothermal and hydro-are discussed in detail. The characteristics of the energies and the most appropriate methods of use are described. Attention is paid to understanding the correct way to design facilities and systems that use renewable energy sources.			
125PBZB	Fire Services	KZ	4
Fire water,hydrant systems,fire pipe,fire station.Fixed fire-fighting water with water mist, foam, and halon. Special fire-fighting equipment.Protecting buildings against fire spread from technological equipment.Electric fire alarm. Fire control equipment. Backup power source.			
A5M38SPD	Collection and data transfer	KZ	4

A5M14ZSE	Fundamentals of Power Electrical Engineering	KZ	4

Code of the group: 12NI*3Q-BOB
Name of the group: 2012 NIBU 3.sem 3povvol BEZ OBORU
Requirement credits in the group: In this group you have to gain 18 credits
Requirement courses in the group: In this group you have to complete 4 courses
Credits in the group: 18
Note on the group: A5M38EMC NENÍ SEPSÁN

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
2152060	**Refrigeration Technique and Heat Pumps for Intelligent Buildings**	KZ	4	3P+1C	*	PV
A5M16EUE	**Economics of Energy Use** *Jiří Beranovský, Július Bemš* ***Jiří Beranovský*** *Július Bemš (Gar.)*	KZ	4	3P+1C	Z	PV
A5M34EZS	**Electronic security systems** *Miroslav Husák, Jan Novák, Tomáš Teplý, Václav Prajzler* ***Václav Prajzler*** *Václav Prajzler (Gar.)*	KZ	4	3P+1L	Z	PV
A5M13FVS	**Photovoltaic Systems** *Pavel Hrzina, Ladislava Černá, Vítězslav Benda* ***Ladislava Černá*** *Pavel Hrzina (Gar.)*	KZ	4	2P+2L	L	PV
A5M13NZZ	**Independent sources** *Pavel Hrzina, Václav Papež* ***Pavel Hrzina*** *Pavel Hrzina (Gar.)*	KZ	4	3P+1L	Z	PV
2162064	**Noise and Vibration Control** *Miroslav Kučera, Richard Nový* ***Miroslav Kučera*** *Miroslav Kučera (Gar.)*	KZ	4	2P+1C	*	PV
125SYB	**Building Systems** *Jan Tywoniak, Karel Kabele* ***Karel Kabele*** *Karel Kabele (Gar.)*	ZK	4	4P	Z	PV
125TECE	**Technological Units** *Hana Kabrhelová, Ilona Koubková* ***Ilona Koubková*** *Ilona Koubková (Gar.)*	KZ	4	2P	Z	PV

Characteristics of the courses of this group of Study Plan: Code=12NI*3Q-BOB Name=2012 NIBU 3.sem 3povvol BEZ OBORU

2152060	Refrigeration Technique and Heat Pumps for Intelligent Buildings	KZ	4
A5M16EUE	Economics of Energy Use	KZ	4
Organization and energy management of company, buildings or energy systems. Energy need and consumption, energy balance. Energy characterization of aggregate, secondary energy sources. Energy audit and feasibility study, optimization of energy management of energy systems. Prices and tariffs, economy and financial analysis.			
A5M34EZS	Electronic security systems	KZ	4
A5M13FVS	Photovoltaic Systems	KZ	4
Solar energy and its exploitation using photovoltaic systems. Photovoltaic phenomena, solar cells and their characteristics, solar modules (construction, technology, parameters). Photovoltaic systems (including energy conservation). Photovoltaic system applications, optimisation of operating conditions. Basic economical and ecological aspects, present trends.			
A5M13NZZ	Independent sources	KZ	4
Electrochemical sources of the electric power - overview. Electrochemical sources (accumulators), applications. Uninteruptible power sources in IB. Other sources of the electrical energy. Perspective sources of electrical enegy, storage of energy.			
2162064	Noise and Vibration Control	KZ	4
Student will be informed about the basic acoustic dimensions, which are important for evaluation of noise.			
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 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.			
125TECE	Technological Units	KZ	4
Saunas, fireplaces, kitchen technology, elevators, heat pumps, technology, swimming pools, heat source and technological systems.			

List of courses of this pass:

Code	Name of the course	Completion	Credits
124INBB	Integrated Design of Buildings	Z,ZK	4
The main objective of the subject Integrated Building Design is to get an complex overview of the principles of integrated buildings design, life cycle assessment of buildings, evaluation of building performance, green/sustainable certification systems and understand environmental, social and economic aspects of the built environment.			
124KPKP	Building Structures	ZK	4
Basics of building structures. Functional requirements, structural systems, spatial effect of the structural system. Vertical load-bearing structures, floor structures, overhanging structures. Envelopes of buildings, windows, partitions, floors, suspended ceilings. Stairs, roof construction timber roof trusses, roof envelopes. Foundation structures, structural solution of the substructure, waterproofing of the substructure. Structural systems of single and multi-storey buildings, structural systems of long-span structures.			

124OSIB	Acoustics and Lighting	KZ	4
The course introduces students to the basics of building lighting technology and building acoustics and deepens further knowledge.			
124ST1	Thermal Engineering in Construction	ZK	5
The subject discusses the basic chapters of building physics - part hygrothermal performance of buildings in an overview manner with the aim of providing basic information to students coming from non-construction bachelor's fields and at the same time supplementing knowledge and linking it with contexts for students coming from civil engineering.			
125EABI	Energy Audit of Building	KZ	4
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.			
125EIBB	Electroengineering and intelligent buildings	KZ	4
The information society, intelligent systems, new technologies significantly influence various HVAC system applications. The fundamental idea is to save energy, materials and ensure optimal indoor and outdoor environmental parameters. The influence of electromagnetic environment, electromagnetic compatibility, application of intelligent devices in buildings requires a system approach to solve the whole complex of HVAC and intelligent wiring.			
125ESB	Buildings Ecology Systems	KZ	4
Principles of environmentally friendly water management. Disposal of sewage water and use of rain water. Measurement of water consumption, system design, pumping devices, water saving and special installations.			
125MEC	Simulation of Building Energy Performance	KZ	4
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, 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.			
125OZEB	Renewable Energy Sources	ZK	4
The course deals with renewable energy sources and building energy systems. The different types of energy-solar, wind, biomass, geothermal and hydro-are discussed in detail. The characteristics of the energies and the most appropriate methods of use are described. Attention is paid to understanding the correct way to design facilities and systems that use renewable energy sources.			
125PBZB	Fire Services	KZ	4
Fire water,hydrant systems,fire pipe,fire station.Fixed fire-fighting water with water mist, foam, and halon. Special fire-fighting equipment.Protecting buildings against fire spread from technological equipment.Electric fire alarm. Fire control equipment. Backup power source.			
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 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.			
125TECE	Technological Units	KZ	4
Saunas, fireplaces, kitchen technology, elevators, heat pumps, technology, swimming pools, heat source and technological systems.			
2041081	English - Master Exam	ZK	1
Mapped to the level of Common European Framework of Reference: A2. Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.			
2041082	German - Master Exam / FME	ZK	1
Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language.			
2041083	French - Master Exam / FME	ZK	1
Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language.			
2041084	Spanish - Master Exam / FME	ZK	1
Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language.			
2041085	Russian - Master Exam / FME	ZK	1
Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language.			
2041086	Czech- Master Exam	ZK	1
2043081	English - Preparatory Course / FME	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. European level A1 - A2.			
2043082	German - Lower Intermediate Course	Z	2
Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language.			
2043083	French - Preparatory Course / FME	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.			
2043084	Spanish - Preparatory Course / FME	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.			
2043085	Russian - Preparatory Course / FME	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.			

2043086	Czech - Preparatory Course	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.			
2152038	Energy Sources and Conversions	KZ	4
2152060	Refrigeration Technique and Heat Pumps for Intelligent Buildings	KZ	4
2161102	Radiant and Industrial Heating	Z,ZK	4
Student will be informed about the basics of radiant and other industrial heating systems			
2161108	Transport Phenomena	Z,ZK	4
Basics of transport phenomena for the study programme Intelligent Buildings. Momentum, heat and mass transport in built environment.			
2161109	Automatic control in environmental engineering of building	Z,ZK	4
Application of basic approaches to automatic control of HVAC systems and equipments. Automatic control sequences of air conditioning and sources of heat.			
2162035	Alternative Energy Sources	KZ	4
Principles and basics of alternative energy sources use in buildings. Solar energy. Heat pumps. Biomass utilization.			
2162064	Noise and Vibration Control	KZ	4
Student will be informed about the basic acoustic dimensions, which are important for evaluation of noise.			
2162700	Experimental Methods 1	KZ	4
Introduction study of experimental technique in environmental engineering			
2163033	Design IB I.	Z	6
Design of heating systems, heat distributors and systems for using recoverable source of energy. Design of ventilation and air conditioning systems, including gas cleaning and reduction of noise.			
2163034	Project IB II.	Z	6
Project and experimental solution of environmental devices. Optimization investment and operating costs, economic appraisal of ecologic investment.			
2163086	Thesis	Z	26
Thesis is final individual work. This work checks ability of logical independent technical thinking and treatment with technical materials. There is applied acquired knowledge from previous study periods.			
A5M02AKA	Acoustic Applications	KZ	4
Lecture summarize applications in physical acoustics, room and building acoustics, environmental acoustics, noise and vibration control, physiological acoustics, diagnostics, and ultrasound.			
A5M13FVS	Photovoltaic Systems	KZ	4
Solar energy and its exploitation using photovoltaic systems. Photovoltaic phenomena, solar cells and their characteristics, solar modules (construction, technology, parameters). Photovoltaic systems (including energy conservation). Photovoltaic system applications, optimisation of operating conditions. Basic economical and ecological aspects, present trends.			
A5M13NZZ	Independent sources	KZ	4
Electrochemical sources of the electric power - overview. Electrochemical sources (accumulators), applications. Uninteruptible power sources in IB. Other sources of the electrical energy. Perspective sources of electrical enegy, storage of energy.			
A5M14RPI	Distribution of Electric Energy and Drives	Z,ZK	5
A5M14ZSE	Fundamentals of Power Electrical Engineering	KZ	4
A5M15ES1	Electrical Light 1	KZ	4
A5M16EUE	Economics of Energy Use	KZ	4
Organization and energy management of company, buildings or energy systems. Energy need and consumption, energy balance. Energy characterization of aggregate, secondary energy sources. Energy audit and feasibility study, optimization of energy management of energy systems. Prices and tariffs, economy and financial analysis.			
A5M16FIP	Corporate finance	KZ	4
Principles of finance, present value and alternative cost of capital, financial calculus, long-term finance, valuation of bonds and stocks, investment decision and net present value, IRR, comparison time period, annual equivalent value, inflation and return, capital asset pricing model, portfolio, sensitivity analysis and risk, short term finance, cash flow management.Dividend policy.			
A5M33IZS	Information and Knowledge-Based Systems	Z,ZK	4
The course provides the student with a necessary overview of information technologies with attention paid to reqiremnts of intelligent building information systems. Further on, the student learns the basic methods and techniques applicable to knowledge based systems aimed at automated solving of decision-making problems. The attention is paid namely to data and knowledge representation and its modeling so that the students are able to communicate effectively with IT and knowledge engineering experts. The students will also learn the basics of networking protocols used in intelligent buildings.			
A5M34ELE	Electronics	KZ	4
A5M34EZS	Electronic security systems	KZ	4
A5M35MAS	Modeling and simulation	KZ	4
A5M38MEB	Measurements in the Buildings	KZ	4
The students will learn about principles of measurement of basic physical quantities in the building. As the majority of the physical quantities are converted to the electrical signals, an overview of measurement of the electrical quantities is also presented. The subject is not intended for students who have already studied the subjects Electrical measurement and Sensors and transducers on CTU FEE.			
A5M38SPD	Collection and data transfer	KZ	4
A5M38SZS	Sensors and Networks	Z,ZK	4
Applications of sensors in buildings			

For updated information see http://bilakniha.cvut.cz/en/FF.html
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