

Study plan

Name of study plan: 17 156 NJEZ 2012 bez odoru základ

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch: prof. Ing. František Hrdlička, CSc.

Program of study: Nuclear Power Device

Type of study: Follow-up master

Required credits: 132

Elective courses credits: -14

Sum of credits in the plan: 118

Note on the plan:

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 94

The role of the block: P

Code of the group: 12NJ*1P-BOB

Name of the group: 2012 NJEZ 1.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
2151126	Nuclear Safety Václav Dostál, Pavel Zácha Václav Dostál Václav Dostál (Gar.)	ZK	5	4P+0C	*	P
2151190	Nuclear Systems I. Václav Dostál, Pavel Zácha, Jan Zdebor Václav Dostál Václav Dostál (Gar.)	ZK	5	4P+0C	*	P
2151093	Reactor Physics Václav Dostál, Pavel Zácha, Jan Prehradný Václav Dostál Václav Dostál (Gar.)	Z,ZK	6	3P+2C	*	P
2153023	Term Project I. Václav Dostál, Pavel Zácha, Václav Železný Václav Dostál (Gar.)	Z	4	0P+3C	*	P
2153011	Seminar in Nuclear Energy I. Václav Dostál, Pavel Zácha Václav Dostál Václav Dostál (Gar.)	Z	1	0P+1C	*	P
2151105	Thermal Hydraulics of Nuclear Reactors I. Jan Št pánek Jan Št pánek	Z,ZK	5	2P+2C	*	P

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

2151126	Nuclear Safety	ZK	5
2151190	Nuclear Systems I.	ZK	5
2151093	Reactor Physics	Z,ZK	6
2153023	Term Project I.	Z	4
2153011	Seminar in Nuclear Energy I.	Z	1
2151105	Thermal Hydraulics of Nuclear Reactors I.	Z,ZK	5

Code of the group: 12NJ*2P-BOB

Name of the group: 2012 NJEZ 2.sem povinné BEZ OBORU

Requirement credits in the group: In this group you have to gain 22 credits

Requirement courses in the group: In this group you have to complete 5 courses

Credits in the group: 22

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
2151110	Steam Generators and Piping Systems in NPP Václav Dostál, Pavel Zácha, Václav Železný Václav Dostál Václav Dostál (Gar.)	Z,ZK	5	2P+2C	*	P
2153024	Term Project II. Václav Dostál, Pavel Zácha, Jan Prehradný, Václav Železný, Jan Št pánek, Slavomír Entler Jan Št pánek	Z	4	0P+3C	*	P
2153012	Seminar in Nuclear Energy II. Pavel Zácha Jan Št pánek	Z	1	0P+1C	*	P
2151027	Thermal Cycles in Power Generation Michal Kolovratník, Ond ej Bartoš Václav Dostál Michal Kolovratník (Gar.)	Z,ZK	6	3P+2C	*	P
2151106	Thermal Hydraulics of Nuclear Reactors II. Václav Dostál, Jan Št pánek Jan Št pánek Václav Dostál (Gar.)	Z,ZK	6	2P+2C	*	P

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

2151110	Steam Generators and Piping Systems in NPP	Z,ZK	5
2153024	Term Project II.	Z	4
2153012	Seminar in Nuclear Energy II.	Z	1
2151027	Thermal Cycles in Power Generation	Z,ZK	6
2151106	Thermal Hydraulics of Nuclear Reactors II.	Z,ZK	6

Code of the group: 12NJ*3P-BOB

Name of the group: 2012 NJEZ 3.sem povinné BEZ OBORU

Requirement credits in the group: In this group you have to gain 20 credits

Requirement courses in the group: In this group you have to complete 5 courses

Credits in the group: 20

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
2151005	Steam and Gas Turbines Václav Dostál, Michal Kolovratník, Ond ej Bartoš, Guk Chol Jun, Václav Petr Václav Dostál Václav Dostál (Gar.)	Z,ZK	6	3P+2C	*	P
2151114	Design and Economy of Nuclear Power Systems I. Václav Dostál, Tomáš Dlouhý, Lukáš Píla Václav Dostál Václav Dostál (Gar.)	Z,ZK	6	3P+2C	*	P
2153025	Term Project III. Václav Dostál, Pavel Zácha Václav Dostál Václav Dostál (Gar.)	Z	4	0P+3C	*	P
2153013	Seminar in Nuclear Energy III. Václav Dostál, Pavel Zácha Václav Dostál Václav Dostál (Gar.)	Z	1	0P+1C	*	P
2151130	Nuclear System Operation Václav Dostál	ZK	3	2P+0C	*	P

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

2151005	Steam and Gas Turbines	Z,ZK	6
Condensing, backpressure and extraction steam turbines. Basic principals of energy transformations in a turbine stage. Turbine stage with a short (one-dimensional approach) and long (three-dimensional effects) blade. Energy losses, polytropic and isentropic turbine efficiency. Thermodynamic analysis and design of a multi-stage steam and gas turbines. Power control of a steam and gas turbines. Off-design operation conditions of a steam and gas turbines.			
2151114	Design and Economy of Nuclear Power Systems I.	Z,ZK	6
2153025	Term Project III.	Z	4
2153013	Seminar in Nuclear Energy III.	Z	1
2151130	Nuclear System Operation	ZK	3

Code of the group: 12NJ*4P-BOB

Name of the group: 2012 NJEZ 4.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
2121050	Pumps for Power Engineering Jan Melichar Jan Melichar Jan Melichar (Gar.)	Z,ZK	4	2P+1C	L	P
2153988	Diploma Thesis Václav Dostál Jan Št pánek Václav Dostál (Gar.)	Z	8	0P+7C	*	P
2151191	Nuclear Systems II. Jan Št pánek	Z,ZK	5	3P+1C	*	P
2151132	Operation of Nuclear Power Devices Václav Dostál, František Hezou ký Václav Dostál Václav Dostál (Gar.)	Z,ZK	4	2P+1C	*	P
2151116	Automation and Control in NPP Václav Dostál, Jan Št pánek Jan Št pánek Václav Dostál (Gar.)	Z,ZK	4	2P+1C	*	P
2153014	Seminar in Nuclear Energy IV. Pavel Zácha Jan Št pánek	Z	1	0P+1C	*	P

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

2121050	Pumps for Power Engineering	Z,ZK	4	The course is considered for students in the master study programme of Nuclear Power Facility Engineering. Students will gain knowledge on the fundamentals of operation of pumps in hydraulic systems and more complex overview in selecting type, construction and operation of hydrodynamic pumps that are used in the power facility hydraulic system.		
2153988	Diploma Thesis	Z	8			
2151191	Nuclear Systems II.	Z,ZK	5			
2151132	Operation of Nuclear Power Devices	Z,ZK	4			
2151116	Automation and Control in NPP	Z,ZK	4			
2153014	Seminar in Nuclear Energy IV.	Z	1			

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 38

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 Eliška Vítková, Ilona Šimice, Zuzana Kalinová, Michaela Schusová, Veronika Kratochvílová, Hana Volejníková, Nina Procházková Ayyub Nina Procházková Ayyub	Z	2	0P+2C	*	PV
2043086	Czech - Preparatory Course Eliška Vítková, Petr Laurich, Jaroslava Kommová Jaroslava Kommová	Z	2	0P+2C	*	PV
2043083	French - Preparatory Course / FME Eliška Vítková, Dušana Jirovská Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	*	PV
2043082	German - Preparatory Course / FME Eliška Vítková, Petr Laurich, Jaroslava Kommová Jaroslava Kommová	Z	2	0P+2C	*	PV
2043085	Russian - Preparatory Course / FME Eliška Vítková, Hana Volejníková, Dušana Jirovská Eliška Vítková	Z	2	0P+2C	*	PV
2043084	Spanish - Preparatory Course / FME Eliška Vítková, Jaime Andrés Villagómez Jaime Andrés Villagómez	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			
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 - 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.		

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 Eva Pavlincová, Eliška Vítková, Ilona Šimice, Eva Kon elíková, Zuzana Kalinová, Michaela Schusová, Veronika Kratochvílová, Hana Volejníková, Nina Procházková Ayyub Nina Procházková Ayyub	ZK	1	0P+0C	*	PV
2041086	Czech- Master Exam Eliška Vítková, Petr Laurich, Jaroslava Kommová Jaroslava Kommová	ZK	1	0P+0C	*	PV
2041083	French - Master Exam / FME Eliška Vítková, Dušana Jirovská Eliška Vítková Eliška Vítková (Gar.)	ZK	1	0P+0C	*	PV
2041082	German - Master Exam / FME Eliška Vítková, Petr Laurich, Jaroslava Kommová Jaroslava Kommová	ZK	1	0P+0C	*	PV
2041085	Russian - Master Exam / FME Eliška Vítková, Hana Volejníková, Dušana Jirovská, Petr Zitko Eliška Vítková	ZK	1	0P+0C	*	PV
2041084	Spanish - Master Exam / FME Eliška Vítková, Jaime Andrés Villagómez Jaime Andrés Villagómez	ZK	1	0P+0C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12N**3Q--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 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 comprehension 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 comprehension 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 comprehension of simple texts. Improvement of professional language.			

Code of the group: 12NJ*1Q-BOB

Name of the group: 2012 NJEZ 1.sem 1povvol BEZ OBORU

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

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

Credits in the group: 3

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2151107	Electrical Machinery Václav Dostál	Z,ZK	3	2P+1C	*	PV
2151103	Water Treatment	Z,ZK	3	2P+1C	*	PV

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

2151107	Electrical Machinery	Z,ZK	3
2151103	Water Treatment	Z,ZK	3

Code of the group: 12NJ*2Q-BOB

Name of the group: 2012 NJEZ 2.sem 2povvol BEZ OBORU

Requirement credits in the group: In this group you have to gain at least 8 credits (at most 9)

Requirement courses in the group: In this group you have to complete 2 courses

Credits in the group: 8

Note on the group:

17PSJR patří do jiného studijního programu

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
2151122	Nuclear Fuels Václav Dostál, Jan Prehradný Václav Dostál Václav Dostál (Gar.)	Z,ZK	4	3P+1C	*	PV
17PSJR	Operational States of Nuclear Reactors Ondřej Huml, ubomír Sklenka Ondřej Huml (Gar.)	KZ	4	2+1	L	PV
2151157	Principles of Refrigerating Technology and Heat Pumps Jiří Petrák	Z,ZK	5	2P+2C	*	PV

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

2151122	Nuclear Fuels	Z,ZK	4
17PSJR	Operational States of Nuclear Reactors	KZ	4
The first part of the course is focused on reactor kinetics and dynamics, namely reactor kinetics, delayed neutrons, prompt neutron lifetime, reactors period, kinetic equations and its simplified solution, transfer function of zero reactor, reactivity coefficients, temperature coefficients, reactor stability. The second part of the course is focused on reactor inner nuclear fuel cycle of the nuclear power plants, particularly PWR used and / or planned in the Czech Republic, namely fuel changes during the cycle, burn-up, changes of keff during the cycle, xenon poisonings and xenon oscillations, samarium, fuel handling, fuel management, reactor operation, burn-up, fuel loading, fuel reloading, loading pattern, legislative requirements for the core, core loading and fuel handling, fuel cycle of Dukovany & Temelín NPP and MOX. Note: Front-end & back-end of the nuclear fuel cycle of the nuclear power plants is the part of 17JPC - Nuclear fuel cycle course.			
2151157	Principles of Refrigerating Technology and Heat Pumps	Z,ZK	5

Code of the group: 12NJ*3Q-BOB

Name of the group: 2012 NJEZ 3.sem 3povvol BEZ OBORU

Requirement credits in the group: In this group you have to gain 20 credits

Requirement courses in the group: In this group you have to complete 5 courses

Credits in the group: 20

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
2321100	Materials for nuclear energy facilities Jiří Janovec, Jakub Horváth Jiří Janovec (Gar.)	Z,ZK	5	3P+1C	*	PV
2151138	Measurement in Nuclear Engineering	Z,ZK	3	1P+2L	*	PV
2151127	Lifetime Management of Materials and Construction Václav Dostál Václav Dostál Václav Dostál (Gar.)	Z,ZK	3	2P+1C	*	PV
2152085	Social Aspects of Power Engineering Václav Dostál, Michal Kolovratník, Jakub Mašuch, Václav Novotný Václav Dostál (Gar.)	KZ	3	2P+1C	*	PV

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

2321100	Materials for nuclear energy facilities	Z,ZK	5
2151138	Measurement in Nuclear Engineering	Z,ZK	3
2151127	Lifetime Management of Materials and Construction	Z,ZK	3
2152085	Social Aspects of Power Engineering	KZ	3

Code of the group: 12NJ*4Q-BOB

Name of the group: 2012 NJEZ 4.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
2151123	Radiation Protection Václav Dostál	Z,ZK	4	3P+1C	*	PV
2151151	Steam boilers	Z,ZK	4	2P+2C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12NJ*4Q-BOB Name=2012 NJEZ 4.sem 1povvol BEZ OBORU

2151123	Radiation Protection	Z,ZK	4
2151151	Steam boilers	Z,ZK	4

List of courses of this pass:

Code	Name of the course	Completion	Credits
17PSJR	Operational States of Nuclear Reactors The first part of the course is focused on reactor kinetics and dynamics, namely reactor kinetics, delayed neutrons, prompt neutron lifetime, reactors period, kinetic equations and its simplified solution, transfer function of zero reactor, reactivity coefficients, temperature coefficients, reactor stability. The second part of the course is focused on reactor inner nuclear fuel cycle of the nuclear power plants, particularly PWR used and / or planned in the Czech Republic, namely fuel changes during the cycle, burn-up, changes of keff during the cycle, xenon poisonings and xenon oscillations, samarium, fuel handling, fuel management, reactor operation, burn-up, fuel loading, fuel reloading, loading pattern, legislative requirements for the core, core loading and fuel handling, fuel cycle of Dukovany & Temelín NPP and MOX. Note: Front-end & back-end of the nuclear fuel cycle of the nuclear power plants is the part of 17JPC - Nuclear fuel cycle course.	KZ	4
2041081	English - Master Exam 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.	ZK	1
2041082	German - Master Exam / FME 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 comprehension of simple texts. Improvement of professional language.	ZK	1
2041083	French - Master Exam / FME 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 comprehension of simple texts. Improvement of professional language.	ZK	1
2041084	Spanish - Master Exam / FME 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 comprehension of simple texts. Improvement of professional language.	ZK	1
2041085	Russian - Master Exam / FME 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 comprehension of simple texts. Improvement of professional language.	ZK	1
2041086	Czech- Master Exam	ZK	1
2043081	English - Preparatory Course / FME 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.	Z	2
2043082	German - Preparatory Course / FME 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.	Z	2
2043083	French - Preparatory Course / FME 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.	Z	2
2043084	Spanish - Preparatory Course / FME 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.	Z	2
2043085	Russian - Preparatory Course / FME 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.	Z	2
2043086	Czech - Preparatory Course	Z	2
2121050	Pumps for Power Engineering The course is considered for students in the master study programme of Nuclear Power Facility Engineering. Students will gain knowledge on the fundamentals of operation of pumps in hydraulic systems and more complex overview in selecting type, construction and operation of hydrodynamic pumps that are used in the power facility hydraulic system.	Z,ZK	4
2151005	Steam and Gas Turbines Condensing, backpressure and extraction steam turbines. Basic principals of energy transformations in a turbine stage. Turbine stage with a short (one-dimensional approach) and long (three-dimensional effects) blade. Energy losses, polytropic and isentropic turbine efficiency. Thermodynamic analysis and design of a multi-stage steam and gas turbines. Power control of a steam and gas turbines. Off-design operation conditions of a steam and gas turbines.	Z,ZK	6
2151027	Thermal Cycles in Power Generation	Z,ZK	6
2151093	Reactor Physics	Z,ZK	6
2151103	Water Treatment	Z,ZK	3
2151105	Thermal Hydraulics of Nuclear Reactors I.	Z,ZK	5
2151106	Thermal Hydraulics of Nuclear Reactors II.	Z,ZK	6
2151107	Electrical Machinery	Z,ZK	3
2151110	Steam Generators and Piping Systems in NPP	Z,ZK	5
2151114	Design and Economy of Nuclear Power Systems I.	Z,ZK	6
2151116	Automation and Control in NPP	Z,ZK	4
2151122	Nuclear Fuels	Z,ZK	4
2151123	Radiation Protection	Z,ZK	4
2151126	Nuclear Safety	ZK	5

2151127	Lifetime Management of Materials and Construction	Z,ZK	3
2151130	Nuclear System Operation	ZK	3
2151132	Operation of Nuclear Power Devices	Z,ZK	4
2151138	Measurement in Nuclear Engineering	Z,ZK	3
2151151	Steam boilers	Z,ZK	4
2151157	Principles of Refrigerating Technology and Heat Pumps	Z,ZK	5
2151190	Nuclear Systems I.	ZK	5
2151191	Nuclear Systems II.	Z,ZK	5
2152085	Social Aspects of Power Engineering	KZ	3
2153011	Seminar in Nuclear Energy I.	Z	1
2153012	Seminar in Nuclear Energy II.	Z	1
2153013	Seminar in Nuclear Energy III.	Z	1
2153014	Seminar in Nuclear Energy IV.	Z	1
2153023	Term Project I.	Z	4
2153024	Term Project II.	Z	4
2153025	Term Project III.	Z	4
2153988	Diploma Thesis	Z	8
2321100	Materials for nuclear energy facilities	Z,ZK	5

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

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