

# 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:

Program of study: Welcome page

Type of study: unknown

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, <b>authors</b> and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2151126	<b>Nuclear Safety</b> Václav Dostál <b>Václav Dostál</b> Václav Dostál (Gar.)	ZK	5	4P+0C	*	P
2151190	<b>Nuclear Systems I.</b> Václav Dostál, Jan Zdebor <b>Václav Dostál</b> Václav Dostál (Gar.)	ZK	5	4P+0C	*	P
2151093	<b>Reactor Physics</b> Jan Prehradný <b>Jan Prehradný</b> Jan Prehradný (Gar.)	Z,ZK	6	3P+2C	*	P
2153023	<b>Term Project I.</b> Václav Dostál, Pavel Zácha, Jan Št pánek, Václav Železný <b>Jan Št pánek</b> Václav Dostál (Gar.)	Z	4	0P+3C	*	P
2153011	<b>Seminar in Nuclear Energy I.</b> Pavel Zácha, Michal Cihlá, Jan Syblík <b>Slavomír Entler</b> Václav Dostál (Gar.)	Z	1	0P+1C	*	P
2151105	<b>Thermal Hydraulics of Nuclear Reactors I.</b> <b>Jan Št pánek</b>	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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
2151110	<b>Steam Generators and Piping Systems in NPP</b> <i>Václav Železný Václav Železný Václav Dostál (Gar.)</i>	Z,ZK	5	2P+2C	*	P
2153024	<b>Term Project II.</b> <i>Václav Dostál Václav Dostál Václav Dostál (Gar.)</i>	Z	4	0P+3C	*	P
2153012	<b>Seminar in Nuclear Energy II.</b> <i>Pavel Zácha, Jan Št pánek, Michal Cihlá, Jan Syblík, Slavomír Entler Jan Št pánek Slavomír Entler (Gar.)</i>	Z	1	0P+1C	*	P
2151027	<b>Thermal Cycles in Power Generation</b> <i>Michal Kolovratník Guk Chol Jun Michal Kolovratník (Gar.)</i>	Z,ZK	6	3P+2C	*	P
2151106	<b>Thermal Hydraulics of Nuclear Reactors II.</b> <i>Václav Dostál, Jan Št pánek Jan Št pánek Václav Dostál (Gar.)</i>	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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
2151005	<b>Steam and Gas Turbines</b> <i>Michal Kolovratník, Guk Chol Jun Guk Chol Jun Michal Kolovratník (Gar.)</i>	Z,ZK	6	3P+2C	*	P
2151114	<b>Design and Economy of Nuclear Power Systems I.</b> <i>Václav Dostál</i>	Z,ZK	6	3P+2C	*	P
2153025	<b>Term Project III.</b> <i>Václav Dostál, Jan Prehradný, Pavel Zácha, Jan Št pánek, Václav Železný Jan Št pánek Václav Dostál (Gar.)</i>	Z	4	0P+3C	*	P
2153013	<b>Seminar in Nuclear Energy III.</b> <i>Pavel Zácha, Michal Cihlá, Jan Syblík Slavomír Entler Václav Dostál (Gar.)</i>	Z	1	0P+1C	*	P
2151130	<b>Nuclear System Operation</b> <i>Jana Novotná</i>	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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
2121050	<b>Pumps for Power Engineering</b>	Z,ZK	4	2P+1C	L	P

2153988	<b>Diploma Thesis</b> <i>Václav Dostál, Jan Prehradný, Pavel Zácha, Jan Št pánek, Slavomír Entler</i> <b>Jan Št pánek</b> <i>Václav Dostál (Gar.)</i>	Z	8	0P+7C	*	P
2151191	<b>Nuclear Systems II.</b> <i>Václav Dostál</i> <b>Václav Dostál</b> <i>Václav Dostál (Gar.)</i>	Z,ZK	5	3P+1C	*	P
2151132	<b>Operation of Nuclear Power Devices</b> <i>Václav Dostál</i> <b>Václav Dostál</b> <i>Václav Dostál (Gar.)</i>	Z,ZK	4	2P+1C	*	P
2151116	<b>Automation and Control in NPP</b> <i>Jan Št pánek</i> <b>Jan Št pánek</b> <i>Václav Dostál (Gar.)</i>	Z,ZK	4	2P+1C	*	P
2153014	<b>Seminar in Nuclear Energy IV.</b> <i>Pavel Zácha, Jan Št pánek, Michal Cihlá, Jan Syblík, Slavomír Entler</i> <b>Jan Št pánek</b> <i>Slavomír Entler (Gar.)</i>	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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
2043081	<b>English - Preparatory Course / FME</b> <i>Veronika Kratochvílová, Eliška Vítková, Ilona Šimice, Michaela Schusová, Hana Volejníková</i> <b>Nina Procházková Ayyub</b>	Z	2	0P+2C	*	PV
2043086	<b>Czech - Preparatory Course</b> <i>Michaela Schusová, Hana Volejníková, Petr Laurich</i>	Z	2	0P+2C	*	PV
2043083	<b>French - Preparatory Course / FME</b> <i>Michaela Schusová, Dušana Jirovská</i> <b>Michaela Schusová</b> <i>Dušana Jirovská (Gar.)</i>	Z	2	0P+2C	*	PV
2043082	<b>German - Lower Intermediate Course</b> <i>Eliška Vítková, Michaela Schusová, Petr Laurich, Jaroslava Kommová</i> <b>Jaroslava Kommová</b> <i>Jaroslava Kommová (Gar.)</i>	Z	2	0P+2C	*	PV
2043085	<b>Russian - Preparatory Course / FME</b> <i>Michaela Schusová, Hana Volejníková, Dušana Jirovská</i> <b>Eliška Vítková</b>	Z	2	0P+2C	*	PV
2043084	<b>Spanish - Preparatory Course / FME</b> <i>Michaela Schusová, Jaime Andrés Villagómez</i> <b>Eliška Vítková</b>	Z	2	0P+2C	*	PV

**Characteristics of the courses of this group of Study Plan: Code=12N\*\*3Q--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 in the company 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, <b>authors</b> and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2041081	<b>English - Master Exam</b> Veronika Kratochvílová, Eliška Vítková, Ilona Šimice, Michaela Schusová, Hana Volejníková, Michele Le Blanc, Nina Procházková Ayyub <b>Nina Procházková Ayyub</b> Ilona Šimice (Gar.)	ZK	1	0P+0C	*	PV
2041086	<b>Czech- Master Exam</b> Michaela Schusová, Hana Volejníková, Petr Laurich	ZK	1	0P+0C	*	PV
2041083	<b>French - Master Exam / FME</b> Michaela Schusová, Dušana Jirovská <b>Dušana Jirovská</b> Dušana Jirovská (Gar.)	ZK	1	0P+0C	*	PV
2041082	<b>German - Master Exam / FME</b> Eliška Vítková, Michaela Schusová, Petr Laurich, Jaroslava Kommová <b>Jaroslava Kommová</b> Jaroslava Kommová (Gar.)	ZK	1	0P+0C	*	PV
2041085	<b>Russian - Master Exam / FME</b> Michaela Schusová, Hana Volejníková, Dušana Jirovská <b>Eliška Vítková</b>	ZK	1	0P+0C	*	PV
2041084	<b>Spanish - Master Exam / FME</b> Michaela Schusová, Jaime Andrés Villagómez <b>Eliška Vítková</b> Jaime Andrés Villagómez (Gar.)	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, <b>authors</b> and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2151107	<b>Electrical Machinery</b> Václav Dostál	Z,ZK	3	2P+1C	*	PV
2151103	<b>Water Treatment</b> Jana Novotná	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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
2151122	<b>Nuclear Fuels</b> <i>Jan Prehradný, Michal Cihlá Jan Prehradný Václav Dostál (Gar.)</i>	Z,ZK	4	3P+1C	*	PV
17PSJR	<b>Operational States of Nuclear Reactors</b>	KZ	4	2+1	L	PV
2151157	<b>Principles of Refrigerating Technology and Heat Pumps</b>	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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
2321100	<b>Materials for nuclear energy facilities</b> <i>Jiří Janovec, Jakub Horváth Jakub Horváth Jiří Janovec (Gar.)</i>	Z,ZK	5	3P+1C	*	PV
2151138	<b>Measurement in Nuclear Engineering</b> <i>Jan Št pánek</i>	Z,ZK	3	1P+2L	*	PV
2151127	<b>Lifetime Management of Materials and Construction</b>	Z,ZK	3	2P+1C	*	PV
2152085	<b>Social Aspects of Power Engineering</b>	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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
2151123	<b>Radiation Protection</b> <i>Václav Dostál</i>	Z,ZK	4	3P+1C	*	PV
2151151	<b>Steam boilers</b>	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 - Lower Intermediate Course Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either in the company 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 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
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

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Generated: day 2025-07-25, time 03:40.