PLAN OF STUDIES

FACULTY OF MECHANICAL AND POWER ENGINEERING

MAIN FIELD OF STUDY: POWER ENGINEERING

EDUCATION LEVEL: 1st level, Engineer

FORM OF STUDIES: full-time

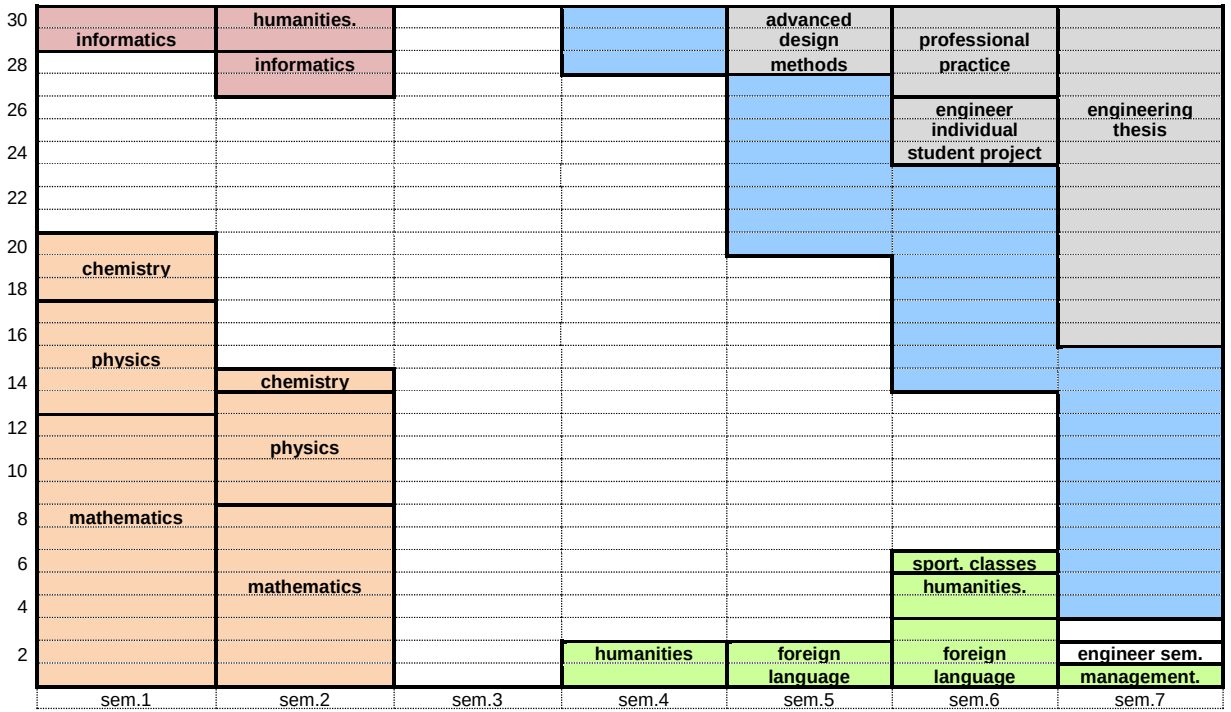
PROFILE: general academic

SPECIALIZATION: ELECTRIC POWER ENGINEERING

LANGUAGE OF STUDY: polish

Faculty Council Resolution of 30.09.2015
In effect since 01.10.2015

Plan of studies structure in point layout



Legend

Basic and obligatory courses
General and obligatory courses
General and optional courses
Obligatory main-field-of-study courses
Optional main-field-of-study courses
Optional/specialization courses

1. Set of obligatory and optional courses and groups of courses in semestral arrangement

Semester 1

Obligatory courses number of ECTS points 30

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes[1]			university-wide[4]	practical[5]	kind[6]	type[7]
1	MAP3075	Mathematical Analysis 1A	2					K1ENG_W02 K1ENG_K01	30	150	5	2,5	T	E	O		PD	Ob
2	MAP3075	Mathematical Analysis 1A		2				K1ENG_U08 K1ENG_K01	30	90	3	2,25	T	Z	O	P	PD	Ob
3	MAP3074	Algebra and Analytic Geometry	2					K1ENG_W01 K1ENG_K01	30	60	2	1	T	E	O		PD	Ob
4	MAP3074	Algebra and Analytic Geometry		1				K1ENG_U07 K1ENG_K01	15	60	2	1,5	T	Z	O	P	PD	Ob
5	FZP1065	Physics 1.6	2					K1ENG_W03 K1ENG_K01 K1ENG_K02 K1ENG_K03 K1ENG_K04	30	90	3	1,5	T	E	O		PD	Ob
6	FZP1065	Physics 1.6		2				K1ENG_W03 K1ENG_K01 K1ENG_K02 K1ENG_K03 K1ENG_K04	30	60	2	1,5	T	Z	O	P	PD	Ob
7	CHC1101	Chemistry	2					K1ENG_W04	30	90	3	1,5	T	Z	O		PD	Ob
8	ESN0371	Power Industry Machinery	2					K1ENG_W08	30	60	2	1	T	Z			K	Ob
9	ESN0220	Descriptive Geometry	2					K1ENG_W07	30	60	2	1	T	Z			K	Ob
10	ESN0220	Descriptive Geometry		1				K1ENG_U13	15	30	1	0,75	T	Z		P	K	Ob
11	ESN0780	Basics of Metrology and Experiment Techniques	2					K1ENG_W05	30	60	2	1	T	Z			K	Ob
12	ESN0780	Basics of Metrology and Experiment Techniques		1				K1ENG_U11	15	30	1	0,75	T	Z		P	K	Ob
13	INN1004	Information Technologies	2					K1ENG_W06	30	60	2	1	T	Z	O		KO	Ob
		Total	16	7					345	900	30	17,25						

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)
[4]University-wide course /group of courses – enter O
[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
[6] KO – general education, PD – basic sciences, K – field-of-studies, S – specialization
[7] Optional – enter W, obligatory – enter Ob

Altogether in semester 1

Total number of hours					Total numb erof ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes[1]
lec	cl	lab	pr	sem				
16	7				345	900	30	17,25

Semester 2

Obligatory courses number of ECTS points 30

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes[1]			university-wide[4]	practical[5]	kind[6]	type[7]
1	MAP3076	Mathematical Analysis 2.2A	3					K1ENG_W02 K1ENG_K01	45	150	5	2,5	T	E	O		PD	Ob
2	MAP3076	Mathematical Analysis 2.2A		2				K1ENG_U08 K1ENG_K01	30	90	3	2,25	T	Z	O	P	PD	Ob
3	FZP1066	Physics 2.11	2					K1ENG_W03 K1ENG_K01 K1ENG_K02 K1ENG_K03 K1ENG_K04	30	90	3	1,5	T	E	O		PD	Ob
4	FZP1066	Physics 2.11			2			K1ENG_W03 K1ENG_K01 K1ENG_K02 K1ENG_K03 K1ENG_K04	30	60	2	1,5	T	Z	O	P	PD	Ob
5	CHC1101	Chemistry			1			K1ENG_U10	15	30	1	0,75	T	Z	O	P	PD	Ob
6	ESN0710	Fundamentals of Materials Science	2					K1ENG_W09	30	90	3	1,5	T	E			K	Ob
7	ESN0760	Fundamentals of Fluid Mechanics	2					K1ENG_W10	30	60	2	1	T	Z			K	Ob
8	ESN0760	Fundamentals of Fluid Mechanics		1				K1ENG_U14 K1ENG_K04	15	30	1	0,75	T	Z		P	K	Ob
9	ESN0800	Basics of Thermodynamics	2					K1ENG_W11	30	60	2	1	T	Z			K	Ob
10	ESN0800	Basics of Thermodynamics		1				K1ENG_U16	15	30	1	0,75	T	Z		P	K	Ob
11	ESN0730	Fundamental Mechanics and Strength of Materials	1					K1ENG_W12	15	30	1	0,5	T	Z			K	Ob
12	ESN0730	Fundamental Mechanics and Strength of Materials		1				K1ENG_U18	15	30	1	0,75	T	Z		P	K	Ob

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[3]Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)
[4]University-wide course /group of courses – enter O
[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
[6] KO – general education, PD – basic sciences, K – field-of-studies, S – specialization
[7] Optional – enter W, obligatory – enter Ob

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes[1]			university-wide[4]	practical[5]	kind[6]	type[7]
13	ESN0780	Basics of Metrology and Experiment Techniques			1			K1ENG_U12	15	30	1	0,75	T	Z		P	K	Ob
14	INN1003	Application Packages			2			K1ENG_U02	30	60	2	1,5	T	Z	O	P	KO	Ob
15	PRZ1152	Intellectual and Industrial Property Protection	2					K1ENG_W13	30	60	2	1	T	Z	O		KO	Ob
		Total	14	5	6				375	900	30	18						

Obligatory courses (optionally in English) number of ECTS points 8

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes[1]			university-wide[4]	practical[5]	kind[6]	type[7]
1	ESN0731	Fundamental Mechanics and Strength of Materials	1					K1ENG_W12	15	30	1	0,5	T	Z			K	Ob
2	ESN0731	Fundamental Mechanics and Strength of Materials		1				K1ENG_U18	15	30	1	0,75	T	Z		P	K	Ob
3	ESN0801	Basics of Thermodynamics	2					K1ENG_W11	30	60	2	1	T	Z			K	Ob
4	ESN0801	Basics of Thermodynamics		1				K1ENG_U16	15	30	1	0,75	T	Z		P	K	Ob
5	ESN0761	Fundamentals of Fluid Mechanics	2					K1ENG_W10	30	60	2	1	T	Z			K	Ob
6	ESN0761	Fundamentals of Fluid Mechanics		1				K1ENG_U14	15	30	1	0,75	T	Z		P	K	Ob

Altogether in semester 2

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes[1]
lec	cl	lab	pr	sem				
14	5	6			375	900	30	18

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)
[4]University-wide course /group of courses – enter O
[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
[6] KO – general education, PD – basic sciences, K – field-of-studies, S – specialization
[7] Optional – enter W, obligatory – enter Ob

Semester 3

Obligatory courses number of ECTS points 30

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK[1] classes			university-wide[4]	practical[5]	kind[6]	type[7]
1	ESN0650	Fundamentals of Control Systems	2					K1ENG_W14	30	90	3	1,5	T	E			K	Ob
2	ESN0650	Fundamentals of Control Systems		1				K1ENG_U19	15	30	1	0,75	T	Z		P	K	Ob
3	ESN0660	Fundamentals of Electronics	1					K1ENG_W15	15	30	1	0,5	T	Z			K	Ob
4	ESN0660	Fundamentals of Electronics			1			K1ENG_U21	15	30	1	0,75	T	Z		P	K	Ob
5	ESN0680	Electrical Engineering Fundamentals	2					K1ENG_W16	30	60	2	1	T	Z			K	Ob
6	ESN0680	Electrical Engineering Fundamentals		1				K1ENG_U22	15	30	1	0,75	T	Z		P	K	Ob
7	ESN0940	Technical Drawing				2		K1ENG_U13	30	60	2	1,5	T	Z		P	K	Ob
8	ESN0420	Engineering Materials and Consumables	1					K1ENG_W09	15	30	1	0,5	T	Z			K	Ob
9	ESN0420	Engineering Materials and Consumables			1			K1ENG_U24	15	30	1	0,75	T	Z		P	K	Ob
10	ESN0470	Fluid Mechanics	1					K1ENG_W10	15	60	2	1	T	E			K	Ob
11	ESN0470	Fluid Mechanics		1				K1ENG_U14 K1ENG_K04	15	30	1	0,75	T	Z		P	K	Ob
12	ESN1190	Thermodynamics	1					K1ENG_W11	15	60	2	1	T	E			K	Ob
13	ESN1190	Thermodynamics		1				K1ENG_U16	15	30	1	0,75	T	Z		P	K	Ob
14	ESN1040	Combustion and Fuels	2					K1ENG_W18	30	90	3	1,5	T	E			K	Ob
15	ESN1040	Combustion and Fuels		1				K1ENG_U25 K1ENG_U26	15	30	1	0,75	T	Z		P	K	Ob
16	ESN1040	Combustion and Fuels			1			K1ENG_U25 K1ENG_U26	15	30	1	0,75	T	Z		P	K	Ob
17	ESN0460	Mechanics and Strength of Materials	2					K1ENG_W12	30	60	2	1	T	Z			K	Ob
18	ESN0460	Mechanics and Strength of Materials		2				K1ENG_U18	30	60	2	1,5	T	Z		P	K	Ob
19	ESN0111	Ecology	2					K1ENG_W19 K1ENG_K02	30	60	2	1	T	Z			K	Ob
		Total	14	7	3	2			390	900	30	18						

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
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[3]Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)
[4]University-wide course /group of courses – enter O
[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
[6] KO – general education, PD – basic sciences, K – field-of-studies, S – specialization
[7] Optional – enter W, obligatory – enter Ob

Obligatory courses (optionally in English) number of ECTS points 24

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes[1]			university-wide[4]	practical[5]	kind[6]	type[7]
1	ESN0461	Mechanics and Strength of Materials	2					K1ENG_W12	30	90	2	1	T	Z			K	Ob
2	ESN0461	Mechanics and Strength of Materials		2				K1ENG_U18	30	90	2	1,5	T	Z		P	K	Ob
3	ESN1043	Combustion and Fuels	2					K1ENG_W18	30	90	3	1,5	T	E			K	Ob
4	ESN1043	Combustion and Fuels		1				K1ENG_U25 K1ENG_U26	15	30	1	0,75	T	Z		P	K	Ob
5	ESN1043	Combustion and Fuels			1			K1ENG_U25 K1ENG_U26	15	30	1	0,75	T	Z		P	K	Ob
6	ESN1191	Thermodynamics	1					K1ENG_W11	15	60	2	1	T	E			K	Ob
7	ESN1191	Thermodynamics		1				K1ENG_U16	15	30	1	0,75	T	Z		P	K	Ob
8	ESN0471	Fluid Mechanics	1					K1ENG_W10	15	60	2	1	T	E			K	Ob
9	ESN0471	Fluid Mechanics		1				K1ENG_U14	15	30	1	0,75	T	Z		P	K	Ob
10	ESN0681	Fundamentals of Electrical Engineering	2					K1ENG_W16	30	60	2	1	T	Z			K	Ob
11	ESN0681	Fundamentals of Electrical Engineering		1				K1ENG_U22	15	30	1	0,75	T	Z		P	K	Ob
12	ESN0661	Fundamentals of Electronics	1					K1ENG_W15	15	30	1	0,5	T	Z			K	Ob
13	ESN0661	Fundamentals of Electronics			1			K1ENG_U21	15	30	1	0,75	T	Z		P	K	Ob
14	ESN0652	Fundamentals of Control Systems	2					K1ENG_W14	30	90	3	1,5	T	E			K	Ob
15	ESN0652	Fundamentals of Control Systems		1				K1ENG_U19	15	30	1	0,75	T	Z		P	K	Ob

Altogether in semester 3

Total number of hours					Total numberof ZZUhours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes[1]
lec	cl	lab	pr	sem				
14	7	3	2		390	900	30	18

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[4]University-wide course /group of courses – enter O
[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
[6] KO – general education, PD – basic sciences, K – field-of-studies, S – specialization,
[7] Optional – enter W, obligatory – enter Ob

Semester 4

Obligatory courses number of ECTS points 25

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK[1] classes			university-wide[4]	practical[5]	kind[6]	type[7]
1	ESN0650	Fundamentals of Control Systems			2			K1ENG_U20	30	60	2	1,5	T	Z		P	K	Ob
2	ESN0065	CAD			2			K1ENG_U13	30	60	2	1,5	T	Z		P	K	Ob
3	ESN0622	Basics of Machine Design I	2					K1ENG_W22	30	60	2	1	T	Z			K	Ob
4	ESN0622	Basics of Machine Design I				1		K1ENG_U30	15	60	2	1,5	T	Z		P	K	Ob
5	ESN0680	Electrical Engineering Fundamentals			1			K1ENG_U23	15	30	1	0,75	T	Z		P	K	Ob
6	ESN0480	Fluid Mechanics - lab			2			K1ENG_U15	30	60	2	1,5	T	Z		P	K	Ob
7	ESN1200	Thermodynamics - lab			2			K1ENG_U17 K1ENG_K04	30	60	2	1,5	T	Z		P	K	Ob
8	ESN0875	Heat Transfer	2					K1ENG_W21	30	60	2	1	T	Z			K	Ob
9	ESN0875	Heat Transfer		2				K1ENG_U28	30	60	2	1,5	T	Z		P	K	Ob
10	ESN0400	Electrical Machines and Devices	2					K1ENG_W20	30	90	3	1,5	T	E			K	Ob
11	ESN0400	Electrical Machines and Devices			1			K1ENG_U27 K1ENG_K01 K1ENG_K04	15	30	1	0,75	T	Z		P	K	Ob
12	ESN0412	Turbomachinery	2					K1ENG_W30	30	90	3	1,5	T	E			S	W
13	ESN0412	Turbomachinery				1		K1ENG_U37 K1ENG_U29	15	30	1	0,75	T	Z		P	S	W
		Total	8	2	10	2			330	750	25	16,25	16,25					

Obligatory courses (optionally in English) number of ECTS points 8

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK[1] classes			university-wide[4]	practical[5]	kind[6]	type[7]
1	ESN0876	Heat Transfer	2					K1ENG_W21	30	60	2	1	T	Z			K	Ob
2	ESN0876	Heat Transfer		2				K1ENG_U28	30	60	2	1,5	T	Z		P	K	Ob
3	ESN0623	Basics of Machine Design I	2					K1ENG_W22	30	60	2	1	T	Z			K	Ob
4	ESN0623	Basics of Machine Design I				1		K1ENG_U30	15	60	2	1,5	T	Z		P	K	Ob

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[3]Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)
[4]University-wide course /group of courses – enter O
[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
[6] KO – general education, PD – basic sciences, K – field-of-studies, S – specialization,
[7] Optional – enter W, obligatory – enter Ob

Optional courses (minimum 75 hours in semester) number of ECTS points 5

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes[1]			university-wide[4]	practical[5]	kind[6]	type[7]
1	ESN0840	Pumps and Pumping Systems	2					S1EEN_W03	30	60	2	1	T	Z			S	W
2	ESN0012	Electric Apparatuses	1					S1EEN_W05	15	30	1	0,5	T	Z			S	W
3	ESN0825	Electric Measurements	1					S1EEN_W01	15	30	1	0,5	T	Z			S	W
4	ESN0825	Electric Measurements			1			S1EEN_U01	15	30	1	0,75	T	Z		P	S	W
		Total	4		1				75	150	5	2,75						

Altogether in semester 4

Total number of hours					Total number of ZZUhours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes[1]
lec	cl	lab	pr	sem				
12	2	11	2		405	900	30	19

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)
[4]University-wide course /group of courses – enter O
[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
[6] KO – general education, PD – basic sciences, K – field-of-studies, S – specialization
[7] Optional – enter W, obligatory – enter Ob

Semester 5

Obligatory courses number of ECTS points 17

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes[1]			university-wide[4]	practical[5]	kind[6]	type[7]
1	ESN1190	Flue-gases Cleaning Techniques	2					K1ENG_W23	30	60	2	1	T	Z			K	Ob
2	ESN1190	Flue-gases Cleaning Techniques		1				K1ENG_U31	15	30	1	0,75	T	Z		P	K	Ob
3	ESN0642	Basics of Machine Design II	2					K1ENG_W22	30	90	3	1,5	T	E			K	Ob
4	ESN0642	Basics of Machine Design II				1		K1ENG_U30	15	60	2	1,5	T	Z		P	K	Ob
5	ESN0523	Power Engineering Metrology	2					K1ENG_W24	30	90	3	1,5	T	E			K	Ob
6	ESN0523	Power Engineering Metrology			2			K1ENG_U32	30	60	2	1,5	T	Z		P	K	Ob
7	ESN0331	Utility Boilers	2					K1ENG_W25	30	90	3	1,5	T	E			K	Ob
8	ESN0331	Utility Boilers				1		K1ENG_U33 K1ENG_U29	15	30	1	0,75	T	Z		P	K	Ob
		Total	8	1	2	2			195	510	17	10						

Obligatory courses (optionally in English) number of ECTS points 5

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes[1]			university-wide[4]	practical[5]	kind[6]	type[7]
1	ESN0643	Basics of Machine Design II	2					K1ENG_W22	30	90	3	1,5	T	E			K	Ob
2	ESN0643	Basics of Machine Design II				1		K1ENG_U30	15	60	2	1,5	T	Z		P	K	Ob

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)
[4]University-wide course /group of courses – enter O
[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
[6] KO – general education, PD – basic sciences, K – field-of-studies, S – specialization
[7] Optional – enter W, obligatory – enter Ob

Optional courses (minimum 210 hours in semester) number of ECTS points 13

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes[1]			university-wide[4]	practical[5]	kind[6]	type[7]
1		Advanced Design Methods:			2				30	90	3	2,25	T	Z		P	K	W
	ESN0064	CATIA						K1ENG_U13										
	ESN1022	Solid Edge						K1ENG_U13										
	ESN0246	3D Graphic						K1ENG_U13 K1ENG_U05 K1ENG_K06										
2	ESN0271	Process Engineering and Apparatus	2					S1EEN_W06	30	60	2	1	T	Z			S	W
3	ESN0271	Process Engineering and Apparatus		1				S1EEN_U04	15	30	1	0,75	T	Z		P	S	W
4	ESN1292	Electric Energy Generation	2					S1EEN_W04	30	60	2	1	T	Z			S	W
5	ESN1292	Electric Energy Generation				1		S1EEN_U03	15	30	1	0,75	T	Z		P	S	W
6	HSN100300BK	Humanities	2					K1ENG_W31 K1ENG_K02 K1ENG_K06	30	60	2	1	T	Z	O		KO	W
7	JZL100707	Foreign Language B2.1		4				K1ENG_U06	60	60	2	1,5	T	Z	O	P	KO	W
		Total	6	5	2	1			210	390	13	8,25						

Altogether in semester 5

Total number of hours					Total number of ZZUhours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes[1]
lec	cl	lab	pr	sem				
14	6	4	3		405	900	30	18,25

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)
[4]University-wide course /group of courses – enter O
[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
[6] KO – general education, PD – basic sciences, K – field-of-studies, S – specialization
[7] Optional – enter W, obligatory – enter Ob

Semester 6

Obligatory courses number of ECTS points 10

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK[1] classes			university-wide[4]	practical[5]	kind[6]	type[7]
1	ESN0136	Power and Heat Stations	2					K1ENG_W26	30	90	3	1,5	T	E			K	Ob
2	ESN0136	Power and Heat Stations			1			K1ENG_U34	15	30	1	0,75	T	Z		P	K	Ob
3	ESN0891	Power Distribution	2					K1ENG_W28	30	90	3	1,5	T	E			K	Ob
4	ESN0891	Power Distribution		1				K1ENG_U36	15	30	1	0,75	T	Z		P	K	Ob
5	ESN0041	Research and Testing of Machines and Devices	1					K1ENG_W27	15	30	1	0,5	T	Z			K	Ob
6	ESN0041	Research and Testing of Machines and Devices			1			K1ENG_U35	15	30	1	0,75	T	Z		P	K	Ob
		Razem	5	1	2				120	300	10	5,75						

Optional courses (minimum 270 hours in semester) number of ECTS points 20

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK[1] classes			university-wide[4]	practical[5]	kind[6]	type[7]
1	ESN0352	Cryogenics and Gas Technologies in Power Engineering	2					S1EEN_W09	30	60	3	1,5	T	E			S	W
2	ESN0352	Cryogenics and Gas Technologies in Power Engineering		1				S1EEN_U07	15	30	1	0,75	T	Z		P	S	W
3	ESN0352	Cryogenics and Gas Technologies in Power Engineering			1			S1EEN_U08	15	30	1	0,75	T	Z		P	S	W
4	ESN0025	Automatics of Power Systems	1					S1EEN_W08	15	15	1	0,5	T	Z			S	W
5	ESN0025	Automatics of Power Systems			1			S1EEN_U06	15	15	1	0,75	T	Z		P	S	W
6	ESN0555	Electrical Drives	1					S1EEN_W07 S1EEN_K01	15	30	1	0,5	T	Z			S	W
7	ESN0555	Electrical Drives			1			S1EEN_U05	15	30	1	0,75	T	Z		P	S	W
8	ESN1351	Engineer Individual Student Project				4		K1ENG_U01 K1ENG_U03 K1ENG_U04 K1ENG_K01	60	90	3	1	T	Z		P	K	W

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)
[4]University-wide course /group of courses – enter O
[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
[6] KO – general education, PD – basic sciences, K – field-of-studies, S – specialization
[7] Optional – enter W, obligatory – enter Ob

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes[1]			universit y-wide[4]	practical[5]	kind[6]	type[7]
9	JZL100708	Foreign Language B2.2		4				K1ENG_U06	60	90	3	2,25	T	Z	O	P	KO	W
10	WFW000000 BK	Sporting Classes		2				K1ENG_K03	30	30	1	1	T	Z	O	P	KO	W
11	ESN1410	Professional Practice						K1ENG_U03 K1ENG_K04 K1ENG_K05		120	4	0	T	Z		P	K	W
		Total	4	7	3	4			270	540	20	9,75						

Optional courses (optionally in English) number of ECTS points 5

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes[1]			universit y-wide[4]	practical[5]	kind[6]	type[7]
1	ESN0353	Cryogenics and Gas Technologies in Power Engineering	2					S1EEN_W09	30	60	3	1,5	T	E			S	W
2	ESN0353	Cryogenics and Gas Technologies in Power Engineering		1				S1EEN_U07	15	30	1	0,75	T	Z		P	S	W
3	ESN0353	Cryogenics and Gas Technologies in Power Engineering			1			S1EEN_U08	15	30	1	0,75	T	Z		P	S	W

Altogether in semester 6

Total number of hours					Total number of ZZUhours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes[1]
lec	cl	lab	pr	sem				
9	8	5	4		390	900	30	15,5

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)
[4]University-wide course /group of courses – enter O
[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
[6] KO – general education, PD – basic sciences, K – field-of-studies, S – specialization
[7] Optional – enter W, obligatory – enter Ob

Semester 7

Obligatory courses number of ECTS points 2

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes[1]			university-wide[4]	practical[5]	kind[6]	type[7]
1	ESN1370	Engineer Seminar					1	K1ENG_U01 K1ENG_U03 K1ENG_U05 K1ENG_K01 K1ENG_K04	15	30	1	0,75	T	Z		P	K	Ob
2	ESN0171	Power Engineering and Environmental	1					K1ENG_W29 K1ENG_K02	15	30	1	0,5	T	Z			K	Ob
		Total	1				1		30	60	2	1,25						

Optional courses (minimum 180 hours in semester) number of ECTS points 28

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes[1]			university-wide[4]	practical[5]	kind[6]	type[7]
1	ESN0168	Nuclear Power Engineering	2					S1EEN_W02	30	60	2	1	T	Z			S	W
2	ESN0168	Nuclear Power Engineering		1				S1EEN_U11	15	30	1	0,75	T	Z		P	S	W
3	ESN0168	Nuclear Power Engineering			1			S1EEN_U02	15	30	1	0,75	T	Z		P	S	W
4	ESN1007	Diagnostics and Electric Shock Protection	2					S1EEN_W11	30	60	2	1	T	Z			S	W
5	ESN1007	Diagnostics and Electric Shock Protection			1			S1EEN_U10	15	30	1	0,75	T	Z		P	S	W
6	ELR022405	Designing of Power Networks and Electrical Installation	2					S1EEN_W10	30	60	2	1	T	Z			S	W
7	ELR022405	Designing of Power Networks and Electrical Installation				1		S1EEN_U09 K1ENG_K06	15	30	1	0,75	T	Z		P	S	W
8	HSN100300BK	Humanities	1					K1ENG_W31 K1ENG_K02 K1ENG_K06	15	60	2	1	T	Z	O		KO	W
9	ZSN100300BK	Management Science	1					K1ENG_W31 K1ENG_K05	15	30	1	0,5	T	Z	O		KO	W

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)
[4]University-wide course /group of courses – enter O
[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
[6] KO – general education, PD – basic sciences, K – field-of-studies, S – specialization
[7] Optional – enter W, obligatory – enter Ob

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes[1]			universit y-wide[4]	practical[5]	kind[6]	type[7]
10	ESN1420	Engineer Thesis						K1ENG_U01 K1ENG_U03 K1ENG_U04 K1ENG_U05 K1ENG_K01 K1ENG_K04 K1ENG_K06		450	15	2	T	Z		P		W
		Total	8	1	2	1			180	840	28	9,5						

Optional courses (optionally in English) number of ECTS points 4

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form[2] of course/group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes[1]			universit y-wide[4]	practical[5]	kind[6]	type[7]
1	ESN0169	Nuclear Power Engineering	2					K1ENG_W40	30	60	2	1	T	Z			S	W
2	ESN0169	Nuclear Power Engineering		1				K1ENG_U48	15	30	1	0,75	T	Z		P	S	W
3	ESN0169	Nuclear Power Engineering			1			K1ENG_U49	15	30	1	0,75	T	Z		P	S	W

Altogether in semester

Total number of hours					Total number of ZZUhours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes[1]
lec	cl	lab	pr	sem				
9	1	2	1	1	210	900	30	10,75

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)
[4]University-wide course /group of courses – enter O
[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
[6] KO – general education, PD – basic sciences, K – field-of-studies, S – specialization
[7] Optional – enter W, obligatory – enter Ob

2. Set of examinations in semestral arrangement

Course code	Names of courses ending with examination	Semester
MAP3075 MAP3074 FZP1065	1. Mathematical Analysis 1.1A 2. Algebra and Analytic Geometry A 3. Physics 1.6	1
MAP3076 FZP1066 ESN0710	1. Mathematical Analysis 2.2A 2. Physics 2.11 3. Fundamentals of Materials Science	2
ESN0650 (ESN0652) ESN0470 (ESN0471) ESN1190 (ESN0191) ESN1040 (ESN1043)	1. Fundamentals of Control Systems 2. Fluid Mechanics 3. Thermodynamics 4. Combustion and Fuels	3
ESN0400 ESN0412	1. Electrical Machines and Devices 2. Turbomachinery	4
ESN0642 (ESN0643) ESN0523 ESN0331	1. Basics of Machine Design II 2. Power Engineering Metrology 3. Utility Boilers	5
ESN0136 ESN0891 ESN0352 (ESN0353)	1. Power and Heat Stations 2. Power Distribution 3. Cryogenics and Gas Technologies in Power Engineering	6

3. Numbers of allowable deficit of ECTS points after particular semesters

Semester	Allowable deficit of ECTS points after semester
1	15
2	17
3	14
4	12
5	12
6	0