

PLAN OF STUDIES

FACULTY:	Electrical Engineering
MAIN FIELD OF STUDY:	Electrical Engineering
EDUCATION LEVEL:	2nd level, 2nd level studies
FORM OF STUDIES:	full-time
PROFILE:	general academic
SPECIALIZATION:	Electrical Power Engineering
LANGUAGE OF STUDY:	polish

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

Semester 1

Obligatory courses

number of ECTS points: 26

No.	Course code	Name of course	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points		Form of course	Way of crediting	Course			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes			university-wide	practical	kind	type
1	ELR051107W	Lightning and overvoltage protection	1					S2EEN_W9 K2ETK_K3	15	60	2	1,4	T	Z			S	OB
2	ELR051107L	Lightning and overvoltage protection			1			S2EEN_U9 K2ETK_K3	15	30	1	0,7	T	Z		P	S	OB
3	ELR051310W	Selected problems of circuit theory	2					K2ETK_W1	30	90	3	2,1	T	E			K	OB
4	ELR051310C	Selected problems of circuit theory		1				K2ETK_U1 K2ETK_K1	15	30	1	0,7	T	Z		P	K	OB
5	ELR051311W ELR052111W ELR052511W	Numerical methods in engineering	1					K2ETK_W2 K2ETK_K2	15	30	1	0,7	T	Z			PD	OB
6	ELR051311P ELR052111P ELR052511P	Numerical methods in engineering				1		K2ETK_U2 K2ETK_K2	15	30	1	0,7	T	Z		P	PD	OB
7	ELR052211W	Short-circuits in power systems	2					K2ETK_W3 K2ETK_K3	30	60	2	1,4	T	Z			K	OB
8	ELR052212W	Power System Protection	1					S2EEN_W2 K2ETK_K7	15	30	1	0,7	T	Z			S	OB
9	ELR052212L	Power System Protection			2			S2EEN_U1 S2EEN_U2 K2ETK_K7	30	90	3	2,1	T	Z		P	S	OB
10	ELR052417W	Modern electrical devices 1	1					S2EEN_W11	15	30	1	0,7	T	Z			S	OB
11	ELR052512W	Power Systems Operation and Control 1	2					S2EEN_W1 K2ETK_K6	30	90	3	2,1	T	E			S	OB
12	ELR053209W	Electromechanical drive systems	2					K2ETK_W4	30	90	3	2,1	T	E			K	OB
13	ELR053209L	Electromechanical drive systems			1			K2ETK_U3 K2ETK_K1	15	30	1	0,7	T	Z		P	K	OB
14	ELR053307W	Electrical Measurement Nonelectrical Values	1					K2ETK_W5 K2ETK_K2	15	60	2	1,4	T	Z			PD	OB
15	ELR053307L	Electrical Measurement Nonelectrical Values			1			K2ETK_U4 K2ETK_K2	15	30	1	0,7	T	Z		P	PD	OB
Total			13	1	5	1	0		300	780	26	18,2						

Optional courses			minimum					60	hours in semester,				4	ECTS points				
No.	Course code	Name of course	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form of course	Way of crediting	Course			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes			university-wide	practical	kind	type
Optional courses block: Foreign Language								ECTS		2		hours		3				
1	JZL100710BKC	Foreign language A1 or A2		3				K2ETK_U6 K2ETK_K1	45	60	2	1,4	T	Z	O	P	KO	W
Optional courses block: Management								ECTS		2		hours		1				
1	ZMR052513W	Management of a Company	1					K2ETK_W6 K2ETK_K3 K2ETK_K6	15	50	2	1,4	T	Z	O		KO	W
2	ZMR052521W	Management in the power industry	1					K2ETK_W6 K2ETK_K3 K2ETK_K6	15	50	2	1,4	T	Z	O		KO	W

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points
lec	cl	lab	pr	sem				
14	4	5	1	0	360	890	30	21

Semester 2

Obligatory courses

number of ECTS points: 28

No.	Course code	Name of course	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points		Form of course	Way of crediting	Course			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes			university-wide	practical	kind	type
1	ELR052112W	Fundamentals of digital power system protection and control	1					S2EEN_W4	15	90	3	2,1	T	E			S	OB
2	ELR052112L	Fundamentals of digital power system protection and control			1			S2EEN_U4 K2ETK_K2 K2ETK_K6	15	30	1	0,7	T	Z		P	S	OB
3	ELR052113W	Digital Modelling in Power Systems	1					K2ETK_W3 S2EEN_W5	15	30	1	0,7	T	Z			S	OB
4	ELR052113L	Digital Modelling in Power Systems			1			K2ETK_U1 S2EEN_U5 K2ETK_K2	15	30	1	0,7	T	Z		P	S	OB
5	ELR052213L	MV Network security			2			S2EEN_U10 K2ETK_K2	30	60	2	1,4	T	Z		P	S	OB
6	ELR052215W	Fiber optics	1					S2EEN_W7 K2ETK_K6	15	30	1	0,7	T	Z			S	OB
7	ELR052215L	Fiber optics			1			S2EEN_U7 K2ETK_K6	15	30	1	0,7	T	Z		P	S	OB
8	ELR052311W	Computer Aided Design (CAD) in Energetic	2					S2EEN_W8 K2ETK_K1	30	60	2	1,4	T	Z			S	OB
9	ELR052311L	Computer Aided Design (CAD) in Energetic			1			S2EEN_U8 K2ETK_K1	15	60	2	1,4	T	Z		P	S	OB
10	ELR052418L	Modern electrical devices 2			1			S2EEN_U12 K2ETK_K6	15	30	1	0,7	T	Z		P	S	OB
11	ELR052514L	Power Systems Operation and Control 2			2			S2EEN_U6 K2ETK_K6	30	60	2	1,4	T	Z		P	S	OB
12	ELR052515W	Modern technologies in electric power transmission and distribution	2					S2EEN_W1 S2EEN_W6	30	90	3	2,1	T	E			S	OB
13	ELR052516W	Load management	1					S2EEN_W1 S2EEN_W10 K2ETK_K3	15	30	1	0,7	T	Z			S	OB
14	ELR052517W	Energy management in energy systems	2					S2EEN_W10 K2ETK_K6	30	60	2	1,4	T	Z			S	OB
15	ELR052521P	Control and monitoring systems in the power industry				2		S2EEN_U6 K2ETK_K6	30	60	2	1,4	T	Z		P	S	OB
16	ELR053107W	Electromechanical Systems in Renewable Energy	2					S2EEN_W3	30	60	2	1,4	T	Z			S	OB
17	ELR053107L	Electromechanical Systems in Renewable Energy			1			S2EEN_U3 K2ETK_K7	15	30	1	0,7	T	Z		P	S	OB
Total			12		10	2			360	840	28	19,6						

Optional courses			minimum					30	hours in semester,				2	ECTS points				
No.	Course code	Name of course	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form of course	Way of crediting	Course			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes			university-wide	practical	kind	type
Optional courses block: Foreign Language								ECTS		1		hours		1				
1	JZL100709BKC	Foreign language B2+ or C1+		1				K2ETK_U5 K2ETK_K1	15	30	1	0,7	T	Z	O	P	KO	W
Optional courses block: Law								ECTS		1		hours		1				
1	PRR051216W	Standardization and engineering law	1					K2ETK_W7 K2ETK_K3 K2ETK_K5	15	25	1	0,7	T	Z	O		KO	W
2	PRR051217W	Engineering law	1					K2ETK_W7 K2ETK_K3 K2ETK_K5	15	25	1	0,7	T	Z	O		KO	W
3	PRR051218W	Technical Standardization	1					K2ETK_W7 K2ETK_K3 K2ETK_K5	15	25	1	0,7	T	Z	O		KO	W

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points
lec	cl	lab	pr	sem				
13	1	10	2	0	390	895	30	21

Semester 3

Optional courses			minimum					330	hours in semester,				30	ECTS points				
No.	Course code	Name of course	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form of course	Way of crediting	Course			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes			university-wide	practical	kind	type
1	ELR051159DP ELR052159DP ELR053159DP	Master's thesis				12		S2EEN_U14 K2ETK_K4 K2ETK_K6	180	540	18	12,6	T	Z		P	S	W
2	ELR052158S	Diploma seminar				2	S2EEN_U13 K2ETK_K6	30	90	3	2,1	T	Z		P	S	W	
Optional courses block: Social Sciences and Ethics								ECTS		2		hours						
1	FLH051621S	Ethics in bussiness				1	K2ETK_U7 K2ETK_K6	15	50	2	1,4	T	Z	O	P	KO	W	
2	PKH050421S	Social communication				1	K2ETK_U7 K2ETK_K6	15	50	2	1,4	T	Z	O	P	KO	W	
3	PKH050521S	The art of public speaking				1	K2ETK_U7 K2ETK_K6	15	50	2	1,4	T	Z	O	P	KO	W	
Optional courses block: A								ECTS		3		hours						
1	ELR052114W	Logic design	2				S2EEN_W12	30	60	2	1,4	T	E			S	W	
2	ELR052114L	Logic design			1		S2EEN_U11 K2ETK_K2 K2ETK_K6 K2ETK_K7	15	30	1	0,7	T	Z		P	S	W	
3	ELR052115W	Artificial intelligence methods in power system protection and control	2				S2EEN_W12	30	60	2	1,4	T	E			S	W	
4	ELR052115L	Artificial intelligence methods in power system protection and control			1		S2EEN_U11 K2ETK_K2 K2ETK_K6	15	30	1	0,7	T	Z		P	S	W	
5	ELR052214W	PLC and Wireless Communication for Monitoring and Metering	2				S2EEN_W12 K2ETK_K6	30	60	2	1,4	T	E			S	W	
6	ELR052214S	PLC and Wireless Communication for Monitoring and Metering				1	S2EEN_U11 K2ETK_K6	15	30	1	0,7	T	Z		P	S	W	
7	ELR052518W	Automation of Electric Power Systems	2				S2EEN_W12	30	60	2	1,4	T	E			S	W	
8	ELR052518L	Automation of Electric Power Systems			1		S2EEN_U11 K2ETK_K6	15	30	1	0,7	T	Z		P	S	W	
9	ELR053218W	Power electronics converters in energetics	2				S2EEN_W12	30	60	2	1,4	T	E			S	W	
10	ELR053218L	Power electronics converters in energetics			1		S2EEN_U11 K2ETK_K7	15	30	1	0,7	T	Z		P	S	W	

Optional courses block: B							ECTS		2	hours					2		
1	ELR052116W	Peripheral devices of Programmable Logic Controllers	1				S2EEN_W13	15	30	1	0,7	T	Z			S	W
2	ELR052116L	Peripheral devices of Programmable Logic Controllers			1		S2EEN_U12 K2ETK_K2 K2ETK_K7	15	30	1	0,7	T	Z		P	S	W
3	ELR052312W	Intelligent electrical installations – computer planning and applications	1				S2EEN_W13	15	30	1	0,7	T	Z			S	W
4	ELR052312P	Intelligent electrical installations – computer planning and applications				1	S2EEN_U12 K2ETK_K6	15	30	1	0,7	T	Z		P	S	W
Optional courses block: C							ECTS		2	hours					2		
1	ELR051109W	High Voltage Measurement and diagnostics of insulation	2				S2EEN_W14 K2ETK_K3 K2ETK_K6	30	60	2	1,4	T	Z			S	W
2	ELR052411W	Electric shock protection systems in high-voltage installations	2				S2EEN_W14 K2ETK_K1	30	60	2	1,4	T	Z			S	W
3	ELR052413W	Environmental aspects of the development of the electric power system	2				S2EEN_W14 K2ETK_K3	30	60	2	1,4	T	Z			S	W
4	ELR052414W	Operation and maintenance of electrical equipment	2				S2EEN_W14 K2ETK_K6	30	60	2	1,4	T	Z			S	W

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points
lec	cl	lab	pr	sem	hours	hours	points	points
5	0	2	12	3	330	890	30	21

2. Set of examinations in semestral arrangement

Course code	Names of courses ending with examination	Semester
ELR051310W	Selected problems of circuit theory	1
ELR052512W	Power Systems Operation and Control 1	1
ELR053209W	Electromechanical drive systems	1
ELR052112W	Fundamentals of digital power system protection and control	2
ELR052515W	Modern technologies in electric power transmission and distribution	2
one exam from optional courses block A		3

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

Semester	Allowable deficit of ECTS points after semester
1	5
2	5

Opinion of student government legislative body

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Date

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Name and surname, signature of student representative

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Date

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Dean's signature