

PLAN OF STUDIES

FACULTY:	Electrical Engineering
MAIN FIELD OF STUDY:	Electrical Engineering
EDUCATION LEVEL:	1st level, 1st level studies
FORM OF STUDIES:	part-time
PROFILE:	general academic
SPECIALIZATION:	
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: 24

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	ELR051261W	Fundamentals of Materials Engineering 1	2					K1ETK_W10 K1ETK_K5	20	120	4	2,8	T	Z			K	OB
2	ELR053372W	Electrical Metrology 1	1					K1ETK_W21 K1ETK_K8	10	60	2	1,4	T	Z			K	OB
3	GFR053161W	Engineering Graphics	1					K1ETK_W12	10	60	2	1,4	T	Z			K	OB
4	GFR053161L	Engineering Graphics			2			K1ETK_U9 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
5	INR052561W	Computer technology	1					K1ETK_W14 K1ETK_K6	10	30	1	0,7	T	Z			KO	OB
6	INR052561L	Computer technology			1			K1ETK_U11 K1ETK_K6	10	30	1	0,7	T	Z		P	KO	OB
7	MAT001730W	Algebra and analytic geometry	2					K1ETK_W1 K1ETK_K5 K1ETK_K7	22	60	2	1,4	T	E	O		PD	OB
8	MAT001730C	Algebra and analytic geometry		1				K1ETK_U1 K1ETK_K5 K1ETK_K7	11	60	2	1,4	T	Z	O	P	PD	OB
9	MAT001731W	Mathematical Analysis 1	2					K1ETK_W2 K1ETK_K5 K1ETK_K7	22	150	5	3,5	T	E	O		PD	OB
10	MAT001731C	Mathematical Analysis 1		2				K1ETK_U2 K1ETK_K5 K1ETK_K7	22	90	3	2,1	T	Z	O	P	PD	OB
Total			9	3	3				157	720	24	16,8						

Optional courses			minimum					10	hours in semester,				1	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: Philosophy and Ethics								ECTS		1		hours		1				
1	FLR050812W	Engineering Ethics	1					K1ETK_W34 K1ETK_K1	10	30	1	0,7	T	Z	O		KO	W
2	FLR051512W	Philosophy of science and technology	1					K1ETK_W34 K1ETK_K1	10	30	1	0,7	T	Z	O		KO	W
3	FLR052012W	Philosophy	1					K1ETK_W34 K1ETK_K1	10	30	1	0,7	T	Z	O		KO	W
4	FLR052112W	Theory of knowledge	1					K1ETK_W34 K1ETK_K1	10	30	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				
10	3	3	0	0	167	750	25	17,5

Semester 2

Obligatory courses

number of ECTS points: 27

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	ELR051262L	Fundamentals of Materials Engineering 2			2			K1ETK_U6 K1ETK_U7 K1ETK_U8 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
2	ELR051361W	Circuits theory 1A	2					K1ETK_W16	20	30	1	0,7	T	Z			K	OB
3	ELR051361C	Circuits theory 1A		1				K1ETK_U14 K1ETK_K4 K1ETK_K6	10	30	1	0,7	T	Z		P	K	OB
4	ELR052565W	Programming in the C language	2					K1ETK_W15	20	60	2	1,4	T	Z			PD	OB
5	ELR052565L	Programming in the C language			2			K1ETK_U12 K1ETK_K6	20	60	2	1,4	T	Z		P	PD	OB
6	ELR053373W	Electrical Metrology 2	2					K1ETK_W22 K1ETK_K5	20	60	2	1,4	T	Z			K	OB
7	ELR053373L	Electrical Metrology 2			1			K1ETK_U19 K1ETK_K5	10	30	1	0,7	T	Z		P	K	OB
8	FZP003071W	Physics B5	2					K1ETK_W8 K1ETK_K6	22	120	4	2,8	T	E	O		PD	OB
9	FZP003071C	Physics B5		1				K1ETK_U6 K1ETK_K6	11	30	1	0,7	T	Z	O	P	PD	OB
10	MAT001732W	Mathematical Analysis 2	2					K1ETK_W3 K1ETK_K5 K1ETK_K7	22	120	4	2,8	T	E	O		PD	OB
11	MAT001732C	Mathematical Analysis 2		2				K1ETK_U3 K1ETK_K5 K1ETK_K7	22	90	3	2,1	T	Z	O	P	PD	OB
12	MAT001733W	Elements of Vector Analysis	1					K1ETK_W4 K1ETK_K4	11	60	2	1,4	T	Z	O		PD	OB
13	MAT001733C	Elements of Vector Analysis		1				K1ETK_U4 K1ETK_K4	11	60	2	1,4	T	Z	O	P	PD	OB
Total			11	5	5	0	0		219	810	27	18,9						

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				
11	5	5	0	0	219	810	27	18,9

Semester 3

Obligatory courses

number of ECTS points: 21

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	ELR051362W	Circuits theory 1B	2					K1ETK_W16	20	60	2	1,4	T	E			K	OB
2	ELR051362C	Circuits theory 1B		2				K1ETK_U14 K1ETK_K4 K1ETK_K6	20	30	1	0,7	T	Z		P	K	OB
3	ELR051363W	Numerical methods	1					K1ETK_W7 K1ETK_W15 K1ETK_K5 K1ETK_K6	10	30	1	0,7	T	Z			PD	OB
4	ELR051363P	Numerical methods				2		K1ETK_U5 K1ETK_U12 K1ETK_K5 K1ETK_K6	20	60	2	1,4	T	Z		P	PD	OB
5	ELR053363W	Basics of Electronics 1	2					K1ETK_W24 K1ETK_K4	20	60	2	1,4	T	Z			K	OB
6	ELR053364W	Fundamentals of microprocessors	1					K1ETK_W26 K1ETK_K5	10	30	1	0,7	T	Z			K	OB
7	ELR053364L	Fundamentals of microprocessors			2			K1ETK_U23 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
8	ELR053374L	Electrical Metrology 3			2			K1ETK_U19 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
9	FZP003072W	Physics D5	2					K1ETK_W9	22	120	4	2,8	T	E	O		PD	OB
10	FZP003072L	Physics D5			1			K1ETK_U6 K1ETK_U7 K1ETK_K9	11	30	1	0,7	T	Z	O	P	PD	OB
11	MAT001734W	Ordinary differential equations	2					K1ETK_W5 K1ETK_K4	20	90	3	2,1	T	Z	O		PD	OB
Total			10	2	5	2			193	630	21	14,7						

Optional courses

minimum 10

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: Computer Technology									ECTS	2	hours	1						
1	ELR051364L	Computer networks			1			K1ETK_U13 K1ETK_K5 K1ETK_K6	10	60	2	1,4	T	Z		P	PD	W
2	ELR051365L	Databases			1			K1ETK_U13 K1ETK_K5 K1ETK_K6	10	60	2	1,4	T	Z		P	PD	W
3	ELR052570L	Object programming			1			K1ETK_U13 K1ETK_K5 K1ETK_K6	10	60	2	1,4	T	Z		P	PD	W
4	ELR053275L	Programming in Delphi			1			K1ETK_U13 K1ETK_K5 K1ETK_K6	10	60	2	1,4	T	Z		P	PD	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				
10	2	6	2	0	203	690	23	16,1

Semester 4

Obligatory courses

number of ECTS points: 23

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	ELR051161W	High voltage technology 1	2					K1ETK_W10 K1ETK_W23 K1ETK_K9	20	90	3	2,1	T	E			K	OB
2	ELR051366W	Electromagnetic field theory	2					K1ETK_W4 K1ETK_W9 K1ETK_W18 K1ETK_K4	20	120	4	2,8	T	E			K	OB
3	ELR051366C	Electromagnetic field theory		2				K1ETK_U4 K1ETK_U6 K1ETK_U15 K1ETK_K4	20	60	2	1,4	T	Z		P	K	OB
4	ELR051367W	Mathematical methods in electrical engineering	1					K1ETK_W2 K1ETK_W19 K1ETK_K5	10	30	1	0,7	T	Z			PD	OB
5	ELR051367C	Mathematical methods in electrical engineering		1				K1ETK_U1 K1ETK_U2 K1ETK_U16 K1ETK_K5	10	30	1	0,7	T	Z		P	PD	OB
6	ELR052566W	Electric energy generation	2					K1ETK_W11 K1ETK_K4	20	60	2	1,4	T	Z			K	OB
7	ELR053162W	Electrical Machines 1	2					K1ETK_W30 K1ETK_K8	20	60	2	1,4	T	Z			K	OB
8	ELR053370L	Basics of Electronics 2			2			K1ETK_U21 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
9	MAT001735W	Applied Statistics	2					K1ETK_W6 K1ETK_K4	20	90	3	2,1	T	Z	O		PD	OB
10	MMM012006W	Technical Mechanics	2					K1ETK_W13 K1ETK_K9	20	60	2	1,4	T	Z			K	OB
11	MMM012006C	Technical Mechanics		1				K1ETK_U10 K1ETK_K9	10	30	1	0,7	T	Z		P	K	OB
Total			13	4	2				190	690	23	16,1						

Optional courses

minimum 20

hours in semester, 1

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		2				
1	JZL030003BKC	Foreign language B2 or C1		2				K1ETK_U31 K1ETK_K3 K1ETK_K4	20	30	1	0,7	T	Z	O	P	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	6	2	0	0	210	720	24	16,8

Semester 5

Obligatory courses

number of ECTS points: 23

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	ELR051162L	High voltage technology 2			2			K1ETK_U20 K1ETK_K9	20	60	2	1,4	T	Z		P	K	OB
2	ELR051368W	Circuits theory 2	2					K1ETK_W16 K1ETK_W17	20	90	3	2,1	T	E			K	OB
3	ELR051368C	Circuits theory 2		2				K1ETK_U14 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
4	ELR051368L	Circuits theory 2			2			K1ETK_U19 K1ETK_K5	20	30	1	0,7	T	Z		P	K	OB
5	ELR052163W	Computer engineering – digital modelling	1					K1ETK_W7 K1ETK_W20	10	30	1	0,7	T	Z			PD	OB
6	ELR052163P	Computer engineering – digital modelling				1		K1ETK_U17 K1ETK_K1 K1ETK_K5	10	30	1	0,7	T	Z		P	PD	OB
7	ELR052361W	Electrical Devices 1	2					K1ETK_W28 K1ETK_W29 K1ETK_K4	20	150	5	3,5	T	E			K	OB
8	ELR052362W ELR053375W	Power electronics 1	2					K1ETK_W25 K1ETK_K1	20	60	2	1,4	T	Z			K	OB
9	ELR052569W	Informatics in electrical engineering	1					K1ETK_W20 K1ETK_K5	10	30	1	0,7	T	Z			PD	OB
10	ELR052569P	Informatics in electrical engineering				1		K1ETK_U18 K1ETK_K5	10	30	1	0,7	T	Z		P	PD	OB
11	ELR053163W	Electrical Machines 2	1					K1ETK_W30	10	60	2	1,4	T	E			K	OB
12	ELR053163L	Electrical Machines 2			2			K1ETK_U27 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
Total			9	2	6	2			190	690	23	16,1						

Optional courses					minimum	40	hours in semester,				3	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		2				
1	JZL030004BKC	Foreign language B2 or C1		2				K1ETK_U31 K1ETK_K3 K1ETK_K4	20	30	1	0,7	T	Z	O	P	KO	W
Optional courses block: Law								ECTS		1		hours		1				
1	PRR051263W	Protection of intellectual property	1					K1ETK_W36 K1ETK_K2	10	30	1	0,7	T	Z	O		KO	W
2	PRR051264W	Protection of intellectual property in engineering activity	1					K1ETK_W36 K1ETK_K2	10	30	1	0,7	T	Z	O		KO	W
3	PRR051265W	Patent and copyright	1					K1ETK_W36 K1ETK_K2	10	30	1	0,7	T	Z	O		KO	W
4	PRR051312W	Legal and ethical aspects of the work of an engineer	1					K1ETK_W36 K1ETK_K2	10	30	1	0,7	T	Z	O		KO	W
5	PRR051912W	Intellectual Property Law	1					K1ETK_W36 K1ETK_K2	10	30	1	0,7	T	Z	O		KO	W
Optional courses block: Management								ECTS		1		hours		1				
1	ZMR052562W	Management bases	1					K1ETK_W35 K1ETK_K1 K1ETK_K6	10	30	1	0,7	T	Z	O		KO	W
2	ZMR052563W	Marketing management	1					K1ETK_W35 K1ETK_K1 K1ETK_K6	10	30	1	0,7	T	Z	O		KO	W
3	ZMR052564W	Management in the conditions of globalization and regionalization	1					K1ETK_W35 K1ETK_K1 K1ETK_K6	10	30	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				
11	4	6	2	0	230	780	26	18,2

Semester 6

Obligatory courses

number of ECTS points: 16

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	ELR052161W	Fundamentals of control engineering 1	2					K1ETK_W5 K1ETK_W27 K1ETK_K5	20	90	3	2,1	T	E			K	OB
2	ELR052161C	Fundamentals of control engineering 1		1				K1ETK_U14 K1ETK_U24 K1ETK_K5	10	30	1	0,7	T	Z		P	K	OB
3	ELR052363L ELR053376L	Power electronics 2			2			K1ETK_U30 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
4	ELR052364L	Electrical Devices 2			2			K1ETK_U25 K1ETK_K5 K1ETK_K9	20	60	2	1,4	T	Z		P	K	OB
5	ELR052364P	Electrical Devices 2				1		K1ETK_U26 K1ETK_K5 K1ETK_K9	10	30	1	0,7	T	Z		P	K	OB
6	ELR052461W	Systems of protection against electric shock 1	1					K1ETK_W32 K1ETK_K5 K1ETK_K6	10	30	1	0,7	T	Z			K	OB
7	ELR052567W	Electric Power Systems 1	2					K1ETK_W33 K1ETK_K5	20	90	3	2,1	T	E			K	OB
8	ELR053164L	Electrical Machines 3			1			K1ETK_U27 K1ETK_K5	10	30	1	0,7	T	Z		P	K	OB
9	ELR053261W	Electrical Drive 1	2					K1ETK_W31 K1ETK_K5	20	60	2	1,4	T	Z			K	OB
Total			7	1	5	1			140	480	16	11,2						

Optional courses			minimum					300	hours in semester,				13	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	ELR050095Q	Professional practice (6-week)				40		K1ETK_U32 K1ETK_K5	240	180	6	4,2	T	Z		P	K	W
Optional courses block: Foreign Language								ECTS		1		hours		2				
1	JZL030005BKC	Foreign language B2 or C1		2				K1ETK_U31 K1ETK_K3 K1ETK_K4	20	30	1	0,7	T	Z	O	P	KO	W
Optional courses block: Electrical Engineering								ECTS		6		hours		4				
1	ELR051369W	Renewable Energy Sources	2					K1ETK_EEN_W2 K1ETK_K4 K1ETK_K6	20	90	3	2,1	T	Z			K	W
2	ELR052261W	Optoelectronics in control systems	2					K1ETK_EEN_W1 K1ETK_K5	20	90	3	2,1	T	Z			K	W
Optional courses block: Industrial Electrical Engineering								ECTS		6		hours		4				
1	ELR051266W	Fundamentals of applied electrostatics	2					K1ETK_ETP_W1 K1ETK_K8	20	90	3	2,1	T	Z			K	W
2	ELR053371W	Power Quality	2					K1ETK_ETP_W2 K1ETK_K5	20	90	3	2,1	T	Z			K	W

Altogether in semester

Obligatory
Professional practice (6-week)
Foreign language
EEN
ETP

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				
7	1	5	1	0	140	480	16	11,2
0	0	0	40	0	240	180	6	4,2
0	2	0	0	0	20	30	1	0,7
4	0	0	0	0	40	180	6	4,2
4	0	0	0	0	40	180	6	4,2

Semester 7

Obligatory courses

number of ECTS points: 11

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	ELR052162W	Fundamentals of control engineering 2	2					K1ETK_W27	20	60	2	1,4	T	E			K	OB
2	ELR052162C	Fundamentals of control engineering 2		1				K1ETK_U24 K1ETK_K5	10	30	1	0,7	T	Z		P	K	OB
3	ELR052162L	Fundamentals of control engineering 2			2			K1ETK_U14 K1ETK_U24 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
4	ELR052465L	Systems of protection against electric shock 2			2			K1ETK_U29 K1ETK_K5 K1ETK_K6	20	60	2	1,4	T	Z		P	K	OB
5	ELR052568L	Electric Power Systems 2			2			K1ETK_U22 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
6	ELR053263L	Electrical Drive 2			1			K1ETK_U28 K1ETK_K5	10	60	2	1,4	T	Z		P	K	OB
Total			2	1	7				100	330	11	7,7						

Optional courses

minimum EEN **140**
minimum ETP **130**

hours in semester, **13** 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		2				
1	JZL030007BKC	Foreign language B2 or C1		2				K1ETK_U31 K1ETK_K3 K1ETK_K4	20	60	2	1,4	T	Z	O	P	KO	W
Optional courses block: Social Sciences and Ethics								ECTS		2		hours		1				
1	PSR050612S	The basis of negotiations					1	K1ETK_U33 K1ETK_K9	10	60	2	1,4	T	Z	O	P	KO	W
2	PSR050712S	Selfpresentation					1	K1ETK_U33 K1ETK_K9	10	60	2	1,4	T	Z	O	P	KO	W
3	PSR050912S	Self among others					1	K1ETK_U33 K1ETK_K9	10	60	2	1,4	T	Z	O	P	KO	W
Optional courses block: Electrical Engineering								ECTS		9		hours		11				
1	ELR052262W	Power system protection - fundamentals	2					K1ETK_EEN_W4 K1ETK_K9	20	30	1	0,7	T	Z			K	W
2	ELR052262L	Power system protection - fundamentals			1			K1ETK_EEN_U2 K1ETK_K9	10	30	1	0,7	T	Z		P	K	W
3	ELR052462W	Protection against electromagnetic fields	2					K1ETK_EEN_W5	20	30	1	0,7	T	Z			K	W
4	ELR052462L	Protection against electromagnetic fields			1			K1ETK_EEN_U3 K1ETK_K6	10	30	1	0,7	T	Z		P	K	W
5	ELR052463W	Electric power industries	2					K1ETK_EEN_W6 K1ETK_K6 K1ETK_K7	20	60	2	1,4	T	E			K	W
6	ELR053365W	Assessment of Power Quality	2					K1ETK_EEN_W3	20	60	2	1,4	T	Z			K	W
7	ELR053365L	Assessment of Power Quality			1			K1ETK_EEN_U1 K1ETK_K5	10	30	1	0,7	T	Z		P	K	W

Optional courses block: Industrial Electrical Engineering						ECTS		9	hours				10				
1	ELR051267W	Energy-saving technologies in industry	2				K1ETK_ETP_W4 K1ETK_K6	20	30	1	0,7	T	Z			K	W
2	ELR051267L	Energy-saving technologies in industry			1		K1ETK_ETP_U3 K1ETK_K6	10	30	1	0,7	T	Z		P	K	W
3	ELR051280W	Diagnostics of materials and insulation systems	1				K1ETK_ETP_W3 K1ETK_K4	10	30	1	0,7	T	Z			K	W
4	ELR051280L	Diagnostics of materials and insulation systems			2		K1ETK_ETP_U2 K1ETK_K5	20	60	2	1,4	T	Z			K	W
5	ELR052463W	Electric power industries	2				K1ETK_ETP_W5 K1ETK_K6 K1ETK_K7	20	60	2	1,4	T	E			K	W
6	ELR053264L	Automation of Production Processes			2		K1ETK_ETP_U1 K1ETK_K5	20	60	2	1,4	T	Z		P	K	W

Altogether in semester

Obligatory
Foreign language
Social
EEN
ETP

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				
2	1	7	0	0	100	330	11	7,7
0	2	0	0	0	20	60	2	1,4
0	0	0	0	1	10	60	2	1,4
8	0	3	0	0	110	270	9	6,3
5	0	5	0	0	100	270	9	6,3

Semester 8

Optional courses		minimum EEN					minimum ETP		hours in semester,				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: Electrical Engineering								ECTS		32		hours				20			
1	ELR051099DP ELR052099DP ELR053099DP	Engineering Thesis				9		K1ETK_EEN_U8 K1ETK_K8	90	450	15	10,5	T	Z			P	K	W
2	ELR052098S	Diploma seminar				2		K1ETK_EEN_U7 K1ETK_K9	20	90	3	2,1	T	Z			P	K	W
3	ELR052165L	Programmable Logic Controllers			2			K1ETK_U23 K1ETK_EEN_U6 K1ETK_K5	20	60	2	1,4	T	Z			P	K	W
4	ELR052263W	Power system operation and control	2					K1ETK_EEN_W7 K1ETK_K9	20	90	3	2,1	T	Z				K	W
5	ELR052263L	Power system operation and control			1			K1ETK_EEN_U4 K1ETK_K9	10	60	2	1,4	T	Z			P	K	W
6	ELR052365W	Intelligent installations	1					K1ETK_EEN_W8	10	30	1	0,7	T	Z				K	W
7	ELR052365L	Intelligent installations			1			K1ETK_EEN_U5 K1ETK_K5 K1ETK_K9	10	60	2	1,4	T	Z			P	K	W
8	ELR052366W	Power substations	2					K1ETK_EEN_W9 K1ETK_K9	20	120	4	2,8	T	E				K	W
Optional courses block: Industrial Electrical Engineering								ECTS		32		hours				21			
1	ELR051098S ELR053098S	Diploma seminar				2		K1ETK_ETP_U7 K1ETK_K9	20	90	3	2,1	T	Z			P	K	W
2	ELR051099DP ELR052099DP ELR053099DP	Engineering Thesis				9		K1ETK_ETP_U8 K1ETK_K8	90	450	15	10,5	T	Z			P	K	W
3	ELR051268W	Sensors and Transducers	1					K1ETK_ETP_W7 K1ETK_K9	10	30	1	0,7	T	Z				K	W
4	ELR051268L	Sensors and Transducers			1			K1ETK_ETP_U5 K1ETK_K9	10	30	1	0,7	T	Z			P	K	W
5	ELR052464W	Electrical receiver	2					K1ETK_ETP_W6	20	60	2	1,4	T	Z				K	W
6	ELR052464L	Electrical receiver			1			K1ETK_ETP_U4 K1ETK_K5 K1ETK_K9	10	30	1	0,7	T	Z			P	K	W
7	ELR053265W	Testing and diagnostic of electric machines	2					K1ETK_ETP_W8	20	90	3	2,1	T	Z				K	W
8	ELR053265L	Testing and diagnostic of electric machines			1			K1ETK_ETP_U6 K1ETK_K5	10	60	2	1,4	T	Z			P	K	W
9	ELR053266W	Controlled Electrical Drives - fundamentals	2					K1ETK_ETP_W9 K1ETK_K4	20	120	4	2,8	T	E				K	W

Altogether in semester

EEN
ETP

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				
5	0	4	9	2	200	960	32	22,4
7	0	3	9	2	210	960	32	22,4

2. Set of examinations in semestral arrangement

Course code	Names of courses ending with examination	Semester
MAT001730W	Algebra and analytic geometry	1
MAT001731W	Mathematical Analysis 1	1
FZP003071W	Physics B5	2
MAT001732W	Mathematical Analysis 2	2
ELR051362W	Circuits theory 1B	3
FZP003072W	Physics D5	3
ELR051161W	High voltage technology 1	4
ELR051366W	Electromagnetic field theory	4
ELR051368W	Circuits theory 2	5
ELR052361W	Electrical Devices 1	5
ELR053163W	Electrical Machines 2	5
ELR052161W	Fundamentals of control engineering 1	6
ELR052567W	Electric Power Systems 1	6
ELR052162W	Fundamentals of control engineering 2	7
ELR052463W	Electric power industries (EEN)	7
ELR052463W	Electric power industries (ETP)	7
ELR052366W	Power substations (EEN)	8
ELR053266W	Controlled Electrical Drives - fundamentals (ETP)	8

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

Semester	Allowable deficit of ECTS points after semester
1	12
2	15
3	12
4	10
5	9
6	6
7	0

Opinion of student government legislative body

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Date

.....
Name and surname, signature of student representative

.....
Date

.....
Dean's signature