PLAN OF STUDIES

FACULTY: Electrical Engineering

MAIN FIELD OF STUDY: Electrical Engineering

EDUCATION LEVEL: 1st level, 1st level studies

FORM OF STUDIES: full-time

PROFILE: general academic

SPECIALIZATION:

LANGUAGE OF STUDY: polish

Resolution no.745/32/2016-2020 of the Senate of Wroclaw University of Science and Technology
In effect since 01.10.2019 r.

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

Semester 1

Obligatory courses **number of ECTS points: 29**

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	ELR051201W	Fundamentals of Materials Engineering 1	2					K1ETK_W10 K1ETK_K5	30	120	4	2,8	T	Z			K	OB
2	ELR053314W	Electrical Metrology 1	1					K1ETK_W21 K1ETK_K8	15	60	2	1,4	T	Z			K	OB
3	FZP003069W	Physics A5	2					K1ETK_W8 K1ETK_K6	30	120	4	2,8	T	E	O		PD	OB
4	FZP003069C	Physics A5		1				K1ETK_U6 K1ETK_K6	15	30	1	0,7	T	Z	O	P	PD	OB
5	GFR053101W	Egineering graphics	1					K1ETK_W12	15	60	2	1,4	T	Z			K	OB
6	GFR053101L	Egineering graphics			2			K1ETK_U9 K1ETK_K5	30	60	2	1,4	T	Z		P	K	OB
7	INR052501W	Computer Technology	1					K1ETK_W14 K1ETK_K6	15	30	1	0,7	T	Z			KO	OB
8	INR052501L	Computer Technology			1			K1ETK_U11 K1ETK_K6	15	30	1	0,7	T	Z		P	KO	OB
9	MAT001736W	Algebra and analytic geometry	2					K1ETK_W1 K1ETK_K5 K1ETK_K7	30	60	2	1,4	T	E	O		PD	OB
10	MAT001736C	Algebra and analytic geometry		1				K1ETK_U1 K1ETK_K5 K1ETK_K7	15	60	2	1,4	T	Z	O	P	PD	OB
11	MAT001737W	Mathematical Analysis 1	2					K1ETK_W2 K1ETK_K5 K1ETK_K7	30	150	5	3,5	T	E	O		PD	OB
12	MAT001737C	Mathematical Analysis 1		2				K1ETK_U2 K1ETK_K5 K1ETK_K7	30	90	3	2,1	T	Z	O	P	PD	OB
		Total	11	4	3				270	870	29	20,3						

Optional courses **minimum** **15** **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	FLH050811W	Engineering Ethics	1					K1ETK_W34 K1ETK_K1	15	30	1	0,7	T	Z	O		KO	W
2	FLH051511W	Philosophy of science and technology	1					K1ETK_W34 K1ETK_K1	15	30	1	0,7	T	Z	O		KO	W
3	FLH052011W	Philosophy	1					K1ETK_W34 K1ETK_K1	15	30	1	0,7	T	Z	O		KO	W
4	FLH052111W	Theory of knowledge	1					K1ETK_W34 K1ETK_K1	15	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				
12	4	3	0	0	285	900	30	21

Semester 2

Obligatory courses **number of ECTS points: 30**

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	ELR051202L	Fundamentals of Materials Engineering 2			2			K1ETK_U6 K1ETK_U7 K1ETK_U8 K1ETK_K5	30	60	2	1,4	T	Z		P	K	OB
2	ELR051301W	Circuits Theory 1	2					K1ETK_W16	30	90	3	2,1	T	E			K	OB
3	ELR051301C	Circuits Theory 1		2				K1ETK_U14 K1ETK_K4 K1ETK_K6	30	60	2	1,4	T	Z		P	K	OB
4	ELR052502W	Programming in the C language	2					K1ETK_W15	30	60	2	1,4	T	Z			PD	OB
5	ELR052502L	Programming in the C language			2			K1ETK_U12 K1ETK_K6	30	60	2	1,4	T	Z		P	PD	OB
6	ELR053315W	Electrical Metrology 2	2					K1ETK_W22 K1ETK_K5	30	60	2	1,4	T	Z			K	OB
7	ELR053315L	Electrical Metrology 2			1			K1ETK_U19 K1ETK_K5	15	30	1	0,7	T	Z		P	K	OB
8	FZP003070W	Physics C5	2					K1ETK_W9	30	120	4	2,8	T	E	O		PD	OB
9	FZP003070L	Physics C5			1			K1ETK_U6 K1ETK_U7 K1ETK_K9	15	30	1	0,7	T	Z	O	P	PD	OB
10	MAT001434W	Elements of Vector Analysis	1					K1ETK_W4 K1ETK_K4	15	60	2	1,4	T	Z	O		PD	OB
11	MAT001434C	Elements of Vector Analysis		1				K1ETK_U4 K1ETK_K4	15	60	2	1,4	T	Z	O	P	PD	OB
12	MAT001738W	Mathematical Analysis 2	2					K1ETK_W3 K1ETK_K5 K1ETK_K7	30	120	4	2,8	T	E	O		PD	OB
13	MAT001738C	Mathematical Analysis 2		2				K1ETK_U3 K1ETK_K5 K1ETK_K7	30	90	3	2,1	T	Z	O	P	PD	OB
		Total	11	5	6				330	900	30	21						

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	6	0	0	330	900	30	21

Semester 3

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	ELR051101W	High voltage technology 1	2					K1ETK_W10 K1ETK_W23 K1ETK_K9	30	90	3	2,1	T	E			K	OB
2	ELR051302W	Electromagnetic field theory	2					K1ETK_W4 K1ETK_W9 K1ETK_W18 K1ETK_K4	30	120	4	2,8	T	E			K	OB
3	ELR051302C	Electromagnetic field theory		2				K1ETK_U4 K1ETK_U6 K1ETK_U15 K1ETK_K4	30	60	2	1,4	T	Z		P	K	OB
4	ELR052503W	Electric energy generation	2					K1ETK_W11 K1ETK_K4	30	60	2	1,4	T	Z			K	OB
5	ELR053102W	Electrical Machines 1	2					K1ETK_W30 K1ETK_K8	30	60	2	1,4	T	Z			K	OB
6	ELR053201W	Fundamentals of microprocessors	1					K1ETK_W26 K1ETK_K5	15	30	1	0,7	T	Z			K	OB
7	ELR053201L	Fundamentals of microprocessors			2			K1ETK_U23 K1ETK_K5	30	60	2	1,4	T	Z		P	K	OB
8	ELR053303W	Basics of Electronics 1	2					K1ETK_W24 K1ETK_K4	30	60	2	1,4	T	Z			K	OB
9	ELR053316L	Electrical Metrology 3			2			K1ETK_U19 K1ETK_K5	30	60	2	1,4	T	Z		P	K	OB
10	MAT001500W	Ordinary Differential Equations A	2					K1ETK_W5 K1ETK_K4	30	90	3	2,1	T	Z	O		PD	OB
11	MMM012013W	Technical Mechanics	2					K1ETK_W13 K1ETK_K9	30	60	2	1,4	T	Z			K	OB
12	MMM012013C	Technical Mechanics		1				K1ETK_U10 K1ETK_K9	15	30	1	0,7	T	Z		P	K	OB
		Total	15	3	4				330	780	26	18,2						

Optional courses **minimum** **75** **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**		**4**			
1	JZL100707BKC	Foreign language B2 or C1		4				K1ETK_U31 K1ETK_K3 K1ETK_K4	60	60	2	1,4	T	Z	O	P	KO	W
Optional courses block: Computer Technology										**ECTS**		**2**	**hours**		**1**			
1	ELR051308L	Computer networks			1			K1ETK_U13 K1ETK_K5 K1ETK_K6	15	60	2	1,4	T	Z		P	PD	W
2	ELR051309L	Databases			1			K1ETK_U13 K1ETK_K5 K1ETK_K6	15	60	2	1,4	T	Z		P	PD	W
3	ELR052510L	Object programming			1			K1ETK_U13 K1ETK_K5 K1ETK_K6	15	60	2	1,4	T	Z		P	PD	W
4	ELR053208L	Programming in Delphi			1			K1ETK_U13 K1ETK_K5 K1ETK_K6	15	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				
15	7	5	0	0	405	900	30	21

Semester 4

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	ELR051102L	High voltage technology 2			2			K1ETK_U20 K1ETK_K9	30	60	2	1,4	T	Z		P	K	OB
2	ELR051303W	Circuits Theory 2	2					K1ETK_W16 K1ETK_W17	30	90	3	2,1	T	E			K	OB
3	ELR051303C	Circuits Theory 2		2				K1ETK_U14 K1ETK_K5	30	60	2	1,4	T	Z		P	K	OB
4	ELR051303L	Circuits Theory 2			2			K1ETK_U19 K1ETK_K5	30	30	1	0,7	T	Z		P	K	OB
5	ELR051304W	Mathematical methods in electrical engineering	1					K1ETK_W2 K1ETK_W19 K1ETK_K5	15	30	1	0,7	T	Z			PD	OB
6	ELR051304C	Mathematical methods in electrical engineering		1				K1ETK_U1 K1ETK_U2 K1ETK_U16 K1ETK_K5	15	30	1	0,7	T	Z		P	PD	OB
7	ELR051305W	Numerical methods	1					K1ETK_W7 K1ETK_W15 K1ETK_K5 K1ETK_K6	15	30	1	0,7	T	Z			PD	OB
8	ELR051305P	Numerical methods				2		K1ETK_U5 K1ETK_U12 K1ETK_K5 K1ETK_K6	30	60	2	1,4	T	Z		P	PD	OB
9	ELR052301W	Electrical Devices 1	2					K1ETK_W28 K1ETK_W29 K1ETK_K4	30	90	3	2,1	T	E			K	OB
10	ELR052505W	Informatics in electrical engineering.	1					K1ETK_W20 K1ETK_K5	15	30	1	0,7	T	Z			PD	OB
11	ELR052505P	Informatics in electrical engineering.				1		K1ETK_U18 K1ETK_K5	15	30	1	0,7	T	Z		P	PD	OB
12	ELR053103W	Electrical Machines 2	1					K1ETK_W30	15	60	2	1,4	T	E			K	OB
13	ELR053103L	Electrical Machines 2			2			K1ETK_U27 K1ETK_K5	30	60	2	1,4	T	Z		P	K	OB
14	ELR053304L	Basics of Electronics 2			2			K1ETK_U21 K1ETK_K5	30	60	2	1,4	T	Z		P	K	OB
15	MAT001501W	Applied Statistics	2					K1ETK_W6 K1ETK_K4	30	90	3	2,1	T	Z	O		PD	OB
		Total	10	3	8	3			360	810	27	18,9						

Optional courses **minimum** **60** **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**		**3**	**hours**		**4**			
1	JZL100708BKC	Foreign language B2 or C1		4				K1ETK_U31 K1ETK_K3 K1ETK_K4	60	90	3	2,1	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				
10	7	8	3	0	420	900	30	21

Semester 5

Obligatory courses **number of ECTS points: 22**

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	ELR052101W	Fundamentals of control engineering 1	2					K1ETK_W5 K1ETK_W27 K1ETK_K5	30	90	3	2,1	T	E			K	OB
2	ELR052101C	Fundamentals of control engineering 1		1				K1ETK_U14 K1ETK_U24 K1ETK_K5	15	30	1	0,7	T	Z		P	K	OB
3	ELR052102W	Computer engineering – digital modelling	1					K1ETK_W7 K1ETK_W20	15	30	1	0,7	T	Z			PD	OB
4	ELR052102P	Computer engineering – digital modelling				1		K1ETK_U17 K1ETK_K1 K1ETK_K5	15	30	1	0,7	T	Z		P	PD	OB
5	ELR052302W	Electrical Devices 2	1					K1ETK_W28 K1ETK_W29	15	60	2	1,4	T	E			K	OB
6	ELR052302L	Electrical Devices 2			2			K1ETK_U25 K1ETK_K5 K1ETK_K9	30	60	2	1,4	T	Z		P	K	OB
7	ELR052303W ELR053202W	Power electronics 1	2					K1ETK_W25 K1ETK_K1	30	60	2	1,4	T	Z			K	OB
8	ELR052401W	Systems of protection against electric shock	1					K1ETK_W32 K1ETK_K5 K1ETK_K6	15	30	1	0,7	T	Z			K	OB
9	ELR052401L	Systems of protection against electric shock			2			K1ETK_U29 K1ETK_K5 K1ETK_K6	30	60	2	1,4	T	Z		P	K	OB
10	ELR052504W	Electric Power Systems 1	2					K1ETK_W33 K1ETK_K5	30	60	2	1,4	T	Z			K	OB
11	ELR053104L	Electrical Machines 3			1			K1ETK_U27 K1ETK_K5	15	30	1	0,7	T	Z		P	K	OB
12	ELR053203W	Electrical Drive	2					K1ETK_W31 K1ETK_K5	30	60	2	1,4	T	Z			K	OB
13	ELR053203L	Electrical Drive			1			K1ETK_U28 K1ETK_K5	15	60	2	1,4	T	Z		P	K	OB
		Total	11	1	6	1			285	660	22	15,4						

Optional courses **minimum** **120** **hours in semester,** **8** **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:		**Law**								**ECTS**		**1**	**hours**		**1**			
1	PRH051311W	Legal and ethical aspects of the work of an engineer	1					K1ETK_W36 K1ETK_K2	15	30	1	0,7	T	Z	O		KO	W
2	PRH051911W	Intellectual Property Law	1					K1ETK_W36 K1ETK_K2	15	30	1	0,7	T	Z	O		KO	W
3	PRR051206W	Protection of intellectual property	1					K1ETK_W36 K1ETK_K2	15	30	1	0,7	T	Z	O		KO	W
4	PRR051207W	Protection of intellectual property in engineering activity	1					K1ETK_W36 K1ETK_K2	15	30	1	0,7	T	Z	O		KO	W
5	PRR051208W	Patent and copyright	1					K1ETK_W36 K1ETK_K2	15	30	1	0,7	T	Z	O		KO	W
Optional courses block:		**Sports**								**ECTS**		**0**	**hours**		**2**			
1	WFW000000BKC	Sporting classes		2				K1ETK_K3	30	30	0	0	T	Z	O	P	KO	W
Optional courses block:		**Management**								**ECTS**		**1**	**hours**		**1**			
1	ZMR052507W	Bases management	1					K1ETK_W35 K1ETK_K1 K1ETK_K6	15	30	1	0,7	T	Z	O		KO	W
2	ZMR052508W	Marketing management	1					K1ETK_W35 K1ETK_K1 K1ETK_K6	15	30	1	0,7	T	Z	O		KO	W
3	ZMR052509W	Management in the conditions of globalization and regionalization	1					K1ETK_W35 K1ETK_K1 K1ETK_K6	15	30	1	0,7	T	Z	O		KO	W
Optional courses block:		**Electrical Engineering**								**ECTS**		**6**	**hours**		**4**			
1	ELR051306W	Renewable Energy Sources	2					K1ETK_EEN_W2 K1ETK_K4 K1ETK_K6	30	90	3	2,1	T	Z			K	W
2	ELR052201W	Optoelectronics in control systems	2					K1ETK_EEN_W1 K1ETK_K5	30	90	3	2,1	T	Z			K	W
Optional courses block:		**Industrial Electrical Engineering**								**ECTS**		**6**	**hours**		**4**			
1	ELR051203W	Fundamentals of applied electrostatics	2					K1ETK_ETP_W1 K1ETK_K8	30	90	3	2,1	T	Z			K	W
2	ELR053305W	Power Quality	2					K1ETK_ETP_W2 K1ETK_K5	30	90	3	2,1	T	Z			K	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				
EEN	17	3	6	1	0	405	930	30	21
ETP	17	3	6	1	0	405	930	30	21

Semester 6

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	ELR052103W	Fundamentals of control engineering 2	2					K1ETK_W27	30	60	2	1,4	T	E			K	OB
2	ELR052103C	Fundamentals of control engineering 2		1				K1ETK_U24 K1ETK_K5	15	30	1	0,7	T	Z		P	K	OB
3	ELR052103L	Fundamentals of control engineering 2			2			K1ETK_U14 K1ETK_U24 K1ETK_K5	30	60	2	1,4	T	Z		P	K	OB
4	ELR052304L ELR053204L	Power electronics 2			2			K1ETK_U30 K1ETK_K5	30	60	2	1,4	T	Z		P	K	OB
5	ELR052305P	Electrical Devices 3				1		K1ETK_U26 K1ETK_K5 K1ETK_K9	15	30	1	0,7	T	Z		P	K	OB
6	ELR052506W	Electric Power Systems 2	1					K1ETK_W33	15	30	1	0,7	T	E			K	OB
7	ELR052506L	Electric Power Systems 2			2			K1ETK_U22 K1ETK_K5	30	60	2	1,4	T	Z		P	K	OB
		Total	3	1	6	1			165	330	11	7,7						

minimum EEN **480**

minimum ETP **465** **hours in semester,** **19** **ECTS points**

Optional courses

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	ELR050055Q	Professional practice (6-week)				40		K1ETK_U32 K1ETK_K5	240	180	6	4,2	T	Z		P	K	W
Optional courses block: Sports										**ECTS**		**0**	**hours**		**2**			
1	WFW000000BKC	Sporting classes		2				K1ETK_K3	30	30	0	0	T	Z	O	P	KO	W
Optional courses block: Social Sciences and Ethics										**ECTS**		**2**	**hours**		**1**			
1	PSH050611S	The basis of negotiations					1	K1ETK_U33 K1ETK_K9	15	60	2	1,4	T	Z	O	P	KO	W
2	PSH050711S	Selfpresentation					1	K1ETK_U33 K1ETK_K9	15	60	2	1,4	T	Z	O	P	KO	W
3	PSH050911S	Self among others					1	K1ETK_U33 K1ETK_K9	15	60	2	1,4	T	Z	O	P	KO	W

Optional courses block: Electrical Engineering										ECTS	11	hours	13						
1	ELR052105L	Programmable Logic Controllers			2			K1ETK_U23 K1ETK_EEN_U6 K1ETK_K5	30	60	2	1,4	T	Z		P	K	W
2	ELR052202W	Power system protection - fundamentals	2					K1ETK_EEN_W4 K1ETK_K9	30	30	1	0,7	T	Z			K	W
3	ELR052202L	Power system protection - fundamentals			1			K1ETK_EEN_U2 K1ETK_K9	15	30	1	0,7	T	Z		P	K	W
4	ELR052402W	Protection against electromagnetic fields	2					K1ETK_EEN_W5	30	30	1	0,7	T	Z			K	W
5	ELR052402L	Protection against electromagnetic fields			1			K1ETK_EEN_U3 K1ETK_K6	15	30	1	0,7	T	Z		P	K	W
6	ELR052403W	Electric power industries	2					K1ETK_EEN_W6 K1ETK_K6 K1ETK_K7	30	60	2	1,4	T	Z			K	W
7	ELR053306W	Assessment of Power Quality	2					K1ETK_EEN_W3	30	60	2	1,4	T	Z			K	W
8	ELR053306L	Assessment of Power Quality			1			K1ETK_EEN_U1 K1ETK_K5	15	30	1	0,7	T	Z		P	K	W
Optional courses block: Industrial Electrical Engineering										**ECTS**	**11**	**hours**	**12**						
1	ELR051204W	Energy-saving technologies in industry	2					K1ETK_ETP_W4 K1ETK_K6	30	30	1	0,7	T	Z			K	W
2	ELR051204L	Energy-saving technologies in industry			1			K1ETK_ETP_U3 K1ETK_K6	15	30	1	0,7	T	Z		P	K	W
3	ELR051205W	Sensors and Transducers	1					K1ETK_ETP_W7 K1ETK_K9	15	30	1	0,7	T	Z			K	W
4	ELR051205L	Sensors and Transducers			1			K1ETK_ETP_U5 K1ETK_K9	15	30	1	0,7	T	Z		P	K	W
5	ELR052403W	Electric power industries	2					K1ETK_ETP_W5 K1ETK_K6 K1ETK_K7	30	60	2	1,4	T	Z			K	W
6	ELR052404W	Electrical receiver	2					K1ETK_ETP_W6	30	60	2	1,4	T	Z			K	W
7	ELR052404L	Electrical receiver			1			K1ETK_ETP_U4 K1ETK_K5 K1ETK_K9	15	30	1	0,7	T	Z		P	K	W
8	ELR053205L	Automation of Production Processes			2			K1ETK_ETP_U1 K1ETK_K5	30	60	2	1,4	T	Z		P	K	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				
Obligatory	3	1	6	1	0	165	330	11	7,7
Professional practice (6-week)	0	0	0	40	0	240	180	6	4,2
Sporting classes	0	2	0	0	0	30	30	0	0
Social	0	0	0	0	1	15	60	2	1,4
EEN	8	0	5	0	0	195	330	11	7,7
ETP	7	0	5	0	0	180	330	11	7,7

Semester 7

Optional courses — **minimum EEN** 270 — **minimum ETP** 285 — **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
Optional courses block: Electrical Engineering										**ECTS**		**30**	**hours**		**18**			
1	ELR051059DP ELR052059DP ELR053059DP	Engineering Thesis				9		K1ETK_EEN_U8 K1ETK_K8	135	450	15	10,5	T	Z		P	K	W
2	ELR052058S	Diploma seminar					2	K1ETK_EEN_U7 K1ETK_K9	30	90	3	2,1	T	Z		P	K	W
3	ELR052203W	Power system operation and control	2					K1ETK_EEN_W7 K1ETK_K9	30	90	3	2,1	T	Z			K	W
4	ELR052203L	Power system operation and control			1			K1ETK_EEN_U4 K1ETK_K9	15	60	2	1,4	T	Z		P	K	W
5	ELR052306W	Intelligent installations	1					K1ETK_EEN_W8	15	30	1	0,7	T	Z			K	W
6	ELR052306L	Intelligent installations			1			K1ETK_EEN_U5 K1ETK_K5 K1ETK_K9	15	60	2	1,4	T	Z		P	K	W
7	ELR052307W	Power substations	2					K1ETK_EEN_W9 K1ETK_K9	30	120	4	2,8	T	E			K	W
Optional courses block: Industrial Electrical Engineering										**ECTS**		**30**	**hours**		**19**			
1	ELR051058S ELR053058S	Diploma seminar					2	K1ETK_ETP_U7 K1ETK_K9	30	90	3	2,1	T	Z		P	K	W
2	ELR051059DP ELR052059DP ELR053059DP	Engineering Thesis				9		K1ETK_ETP_U8 K1ETK_K8	135	450	15	10,5	T	Z		P	K	W
3	ELR051321W	Diagnostics of materials and insulation systems	1					K1ETK_ETP_W3 K1ETK_K4	15	30	1	0,7	T	Z			K	W
4	ELR051321L	Diagnostics of materials and insulation systems			2			K1ETK_ETP_U2 K1ETK_K5	30	60	2	1,4	T	Z		P	K	W
5	ELR053206W	Testing and diagnostics of electrical machines	2					K1ETK_ETP_W8	30	90	3	2,1	T	Z			K	W
6	ELR053206L	Testing and diagnostics of electrical machines			1			K1ETK_ETP_U6 K1ETK_K5	15	60	2	1,4	T	Z		P	K	W
7	ELR053207W	Controlled Electrical Drives - fundamentals	2					K1ETK_ETP_W9 K1ETK_K4	30	120	4	2,8	T	E			K	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				
EEN	5	0	2	9	2	270	900	30	21
EP	5	0	3	9	2	285	900	30	21

2. Set of examinations in semestral arrangement

Course code	Names of courses ending with examination	Semester
FZP003069W	Physics A5	1
MAT001736W	Algebra and analytic geometry	1
MAT001737W	Mathematical Analysis 1	1
ELR051301W	Circuits Theory 1	2
FZP003070W	Physics C5	2
MAT001738W	Mathematical Analysis 2	2
ELR051101W	High voltage technology 1	3
ELR051302W	Electromagnetic field theory	3
ELR051303W	Circuits Theory 2	4
ELR052301W	Electrical Devices 1	4
ELR053103W	Electrical Machines 2	4
ELR052101W	Fundamentals of control engineering 1	5
ELR052302W	Electrical Devices 2	5
ELR052103W	Fundamentals of control engineering 2	6
ELR052506W	Electric Power Systems 2	6
ELR052307W	Power substations (EEN)	7
ELR053207W	Controlled Electrical Drives - fundamentals (ETP)	7

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

Semester	Allowable deficit of ECTS points after semester
1	11
2	13
3	12
4	9
5	6
6	0

Opinion of student government legislative body

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

.....	.....
Date	Dean’s signature