DESCRIPTION OF THE PROGRAM OF STUDIES

1. Description

1.1 Number of semesters: 8	*1.2 Total number of ECTS points necessary to complete studies at a given level: 210*
1.3 Total number of hours: *1909*	*1.4 Prerequisites (particularly for second-level studies):* *The basis of the enrollment decision is an RECRUITING FACTOR. It is value depends on second level education certificate. RECRUITING FACTOR is a total of points for qualifying subjects (Mathematics, Physics, Polish, foreign language), calculated in accordance with rules adopted by the Senate.* *RECRUITING FACTOR threshold value depends on the number of candidates.*
1.5 Upon completion of studies graduate obtains professional degree of: *bachelor (engineer)*	*1.6 Graduate profile, employability:* *A Graduate in the field Electrical Engineering has the skills: to use of the acquired knowledge in practice, to communicate within workplace environment, to actively participate in group work, management and leading a team , business ownership, and dealing with the legal and economic issues. It has skills in using computer-aided design methods in the field of electrical installations and grids, protection of electrical equipment, and the operation of technological equipment, switching devices, protective devices, control and measurement units. He is prepared to work in factories and planning and design departments. He is prepared to start second level studies.*
1.7 Possibility of continuing studies: *2nd level studies*	*1.8 Indicate connection with University's mission and its development strategy:* *The knowledge gained during their studies not only lead to success in future careers of the graduate, but also shapes the human being with a sense of entrepreneurship, creativeness and openness to new challenges.*

2. Detailed description:

2.1 Total number of learning outcomes in the program of study:

W (knowledge) = 45

U (skills) = 41

K (competences) = 9

W + U + K = 95

2.2 For the main field of study assigned to more than one discipline - the number of learning outcomes assigned to the discipline:

D1 (major): 95

2.3 For the field of study assigned to more than one discipline - percentage share of the number of ECTS points for each discipline:

D1 100 % ECTS points

2.4a. For the general academic profile field of study – the number of ECTS points assigned to the classes related to the University's academic activity in the discipline or disciplines to which the faculty is assigned:

147 ECTS

2.5. Concise analysis of compliance of the assumed learning outcomes with the needs of the labor market:

Learning outcomes refer not only to the broadly understood electrical engineering, i.e. the generation, transmission, distribution, transforming, and utilization of electrical energy, but due to the demands of modern techniques and technologies currently used in electrical power engineering and industry - include electronic and microprocessor technology , computer science, management, and marketing. Obtaining the intended learning outcomes will enable graduates to find attractive and interesting work in all industries, especially in the electrical power engineering sector. The graduate is also prepared to start business in electrical engineering field. Proceedings on the learning outcomes were refereed and discussed at meetings of the Faculty of Electrical Engineering Convent, including representatives of industrial enterprises in the Polish territory, with particular emphasis on the Lower Silesia and the neighboring provinces. During meetings the needs of labor market were explained and discussed.

2.6. The total number of ECTS points that a student must obtain in classes requiring direct participation of academic teachers or other persons conducting classes and students (enter the sum of ECTS points for courses / groups of courses marked with the BK1 code)

168 ECTS

2.7. Total number of ECTS points, which student has to obtain from basic sciences classes

Number of ECTS points for obligatory subjects	52
Number of ECTS points for optional subjects	2
Total number of ECTS points	54

2.8. Total number of ECTS points, which student has to obtain from practical classes, including laboratory classes

Number of ECTS points for obligatory subjects	59
Number of ECTS points for optional subjects	42
Total number of ECTS points	101

2.9. Minimum number of ECTS points, which student has to obtain doing education blocks offered as part of university-wide classes or other main field of study

49 ECTS points

2.10. Total number of ECTS points, which student may obtain doing optional blocks (min. 30% of total number of ECTS points)

65 ECTS points

3. Description of the process leading to learning outcomes acquisition:

Teachers delivering the individual courses during the first lecture present the aim and program of the respective course as well as explain the assumed teaching outcomes. Indicate a need of the self-work of student and explain how to use basic and supplementary literature for a given course. Motivate to attend regularly the classes and to use consultations.

4. List of education blocks:

4.1. List of obligatory blocks

4.1.1. List of general education blocks

4.1.1.1. Liberal-managerial subjects block

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

4.1.1.2. Foreign languages block

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

4.1.1.3. Sporting classes block

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

4.1.1.4. Information technologies block

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	INR052561W	Computer technology	1					K1ETK_W14 K1ETK_K6	10	30	1	0,7	T	Z			KO	OB
2	INR052561L	Computer technology			1			K1ETK_U11 K1ETK_K6	10	30	1	0,7	T	Z		P	KO	OB
		Total	1	0	1	0	0		20	60	2	1,4						

Altogether for general education blocks

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				
1	0	1	0	0	20	60	2	1,4

4.1.2. List of basic sciences blocks

4.1.2.1. Mathematics block

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	ELR051363W	Numerical methods	1					K1ETK_W7 K1ETK_W15 K1ETK_K5 K1ETK_K6	10	30	1	0,7	T	Z			PD	OB
2	ELR051363P	Numerical methods				2		K1ETK_U5 K1ETK_U12 K1ETK_K5 K1ETK_K6	20	60	2	1,4	T	Z		P	PD	OB
3	ELR051367W	Mathematical methods in electrical engineering	1					K1ETK_W2 K1ETK_W19 K1ETK_K5	10	30	1	0,7	T	Z			PD	OB
4	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
5	MAT001730W	Algebra and analytic geometry	2					K1ETK_W1 K1ETK_K5 K1ETK_K7	22	60	2	1,4	T	E	O		PD	OB
6	MAT001730C	Algebra and analytic geometry		1				K1ETK_U1 K1ETK_K5 K1ETK_K7	11	60	2	1,4	T	Z	O	P	PD	OB
7	MAT001731W	Mathematical Analysis 1	2					K1ETK_W2 K1ETK_K5 K1ETK_K7	22	150	5	3,5	T	E	O		PD	OB
8	MAT001731C	Mathematical Analysis 1		2				K1ETK_U2 K1ETK_K5 K1ETK_K7	22	90	3	2,1	T	Z	O	P	PD	OB
9	MAT001732W	Mathematical Analysis 2	2					K1ETK_W3 K1ETK_K5 K1ETK_K7	22	120	4	2,8	T	E	O		PD	OB
10	MAT001732C	Mathematical Analysis 2		2				K1ETK_U3 K1ETK_K5 K1ETK_K7	22	90	3	2,1	T	Z	O	P	PD	OB
11	MAT001733W	Elements of Vector Analysis	1					K1ETK_W4 K1ETK_K4	11	60	2	1,4	T	Z	O		PD	OB
12	MAT001733C	Elements of Vector Analysis		1				K1ETK_U4 K1ETK_K4	11	60	2	1,4	T	Z	O	P	PD	OB
13	MAT001734W	Ordinary differential equations	2					K1ETK_W5 K1ETK_K4	20	90	3	2,1	T	Z	O		PD	OB
14	MAT001735W	Applied Statistics	2					K1ETK_W6 K1ETK_K4	20	90	3	2,1	T	Z	O		PD	OB
		Total	13	7	0	2	0		233	1020	34	23,8						

4.1.2.2. Physics block

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	FZP003071W	Physics B5	2					K1ETK_W8 K1ETK_K6	22	120	4	2,8	T	E	O		PD	OB
2	FZP003071C	Physics B5		1				K1ETK_U6 K1ETK_K6	11	30	1	0,7	T	Z	O	P	PD	OB
3	FZP003072W	Physics D5	2					K1ETK_W9	22	120	4	2,8	T	E	O		PD	OB
4	FZP003072L	Physics D5			1			K1ETK_U6 K1ETK_U7 K1ETK_K9	11	30	1	0,7	T	Z	O	P	PD	OB
		Total	4	1	1	0	0		66	300	10	7						

4.1.2.3. Chemistry block

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

4.1.2.4. Computer science block

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	ELR052163W	Computer engineering – digital modelling	1					K1ETK_W7 K1ETK_W20	10	30	1	0,7	T	Z			PD	OB
2	ELR052163P	Computer engineering – digital modelling				1		K1ETK_U17 K1ETK_K1 K1ETK_K5	10	30	1	0,7	T	Z		P	PD	OB
3	ELR052565W	Programming in the C language	2					K1ETK_W15	20	60	2	1,4	T	Z			PD	OB
4	ELR052565L	Programming in the C language			2			K1ETK_U12 K1ETK_K6	20	60	2	1,4	T	Z		P	PD	OB
5	ELR052569W	Informatics in electrical engineering	1					K1ETK_W20 K1ETK_K5	10	30	1	0,7	T	Z			PD	OB
6	ELR052569P	Informatics in electrical engineering				1		K1ETK_U18 K1ETK_K5	10	30	1	0,7	T	Z		P	PD	OB
		Total	4	0	2	2	0		80	240	8	5,6						

Altogether for basic sciences blocks

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				
21	8	3	4	0	379	1560	52	36,4

4.1.3. List of main-field-of-study blocks

4.1.3.1. Obligatory main-field-of-study block

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	ELR051162L	High voltage technology 2			2			K1ETK_U20 K1ETK_K9	20	60	2	1,4	T	Z		P	K	OB
3	ELR051261W	Fundamentals of Materials Engineering 1	2					K1ETK_W10 K1ETK_K5	20	120	4	2,8	T	Z			K	OB
4	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
5	ELR051361W	Circuits theory 1A	2					K1ETK_W16	20	30	1	0,7	T	Z			K	OB
6	ELR051361C	Circuits theory 1A		1				K1ETK_U14 K1ETK_K4 K1ETK_K6	10	30	1	0,7	T	Z		P	K	OB
7	ELR051362W	Circuits theory 1B	2					K1ETK_W16	20	60	2	1,4	T	E			K	OB
8	ELR051362C	Circuits theory 1B		2				K1ETK_U14 K1ETK_K4 K1ETK_K6	20	30	1	0,7	T	Z		P	K	OB
9	ELR051366W	Electromagnetic field theory	2					K1ETK_W4 K1ETK_W9 K1ETK_W18 K1ETK_K4	20	120	4	2,8	T	E			K	OB
10	ELR051366C	Electromagnetic field theory		2				K1ETK_U4 K1ETK_U6 K1ETK_U15 K1ETK_K4	20	60	2	1,4	T	Z		P	K	OB
11	ELR051368W	Circuits theory 2	2					K1ETK_W16 K1ETK_W17	20	90	3	2,1	T	E			K	OB
12	ELR051368C	Circuits theory 2		2				K1ETK_U14 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
13	ELR051368L	Circuits theory 2			2			K1ETK_U19 K1ETK_K5	20	30	1	0,7	T	Z		P	K	OB
14	ELR052161W	Fundamentals of control engineering 1	2					K1ETK_W5 K1ETK_W27 K1ETK_K5	20	90	3	2,1	T	E			K	OB
15	ELR052161C	Fundamentals of control engineering 1		1				K1ETK_U14 K1ETK_U24 K1ETK_K5	10	30	1	0,7	T	Z		P	K	OB
16	ELR052162W	Fundamentals of control engineering 2	2					K1ETK_W27	20	60	2	1,4	T	E			K	OB
17	ELR052162C	Fundamentals of control engineering 2		1				K1ETK_U24 K1ETK_K5	10	30	1	0,7	T	Z		P	K	OB
18	ELR052162L	Fundamentals of control engineering 2			2			K1ETK_U14 K1ETK_U24 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
19	ELR052361W	Electrical Devices 1	2					K1ETK_W28 K1ETK_W29 K1ETK_K4	20	150	5	3,5	T	E			K	OB
20	ELR052362W ELR053375W	Power electronics 1	2					K1ETK_W25 K1ETK_K1	20	60	2	1,4	T	Z			K	OB
21	ELR052363L ELR053376L	Power electronics 2			2			K1ETK_U30 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB

22	ELR052364L	Electrical Devices 2			2			K1ETK_U25 K1ETK_K5 K1ETK_K9	20	60	2	1,4	T	Z		P	K	OB
23	ELR052364P	Electrical Devices 2				1		K1ETK_U26 K1ETK_K5 K1ETK_K9	10	30	1	0,7	T	Z		P	K	OB
24	ELR052461W	Systems of protection against electric shock 1	1					K1ETK_W32 K1ETK_K5 K1ETK_K6	10	30	1	0,7	T	Z			K	OB
25	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
26	ELR052566W	Electric energy generation	2					K1ETK_W11 K1ETK_K4	20	60	2	1,4	T	Z			K	OB
27	ELR052567W	Electric Power Systems 1	2					K1ETK_W33 K1ETK_K5	20	90	3	2,1	T	E			K	OB
28	ELR052568L	Electric Power Systems 2			2			K1ETK_U22 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
29	ELR053162W	Electrical Machines 1	2					K1ETK_W30 K1ETK_K8	20	60	2	1,4	T	Z			K	OB
30	ELR053163W	Electrical Machines 2	1					K1ETK_W30	10	60	2	1,4	T	E			K	OB
31	ELR053163L	Electrical Machines 2			2			K1ETK_U27 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
32	ELR053164L	Electrical Machines 3			1			K1ETK_U27 K1ETK_K5	10	30	1	0,7	T	Z		P	K	OB
33	ELR053261W	Electrical Drive 1	2					K1ETK_W31 K1ETK_K5	20	60	2	1,4	T	Z			K	OB
34	ELR053263L	Electrical Drive 2			1			K1ETK_U28 K1ETK_K5	10	60	2	1,4	T	Z		P	K	OB
35	ELR053363W	Basics of Electronics 1	2					K1ETK_W24 K1ETK_K4	20	60	2	1,4	T	Z			K	OB
36	ELR053364W	Fundamentals of microprocessors	1					K1ETK_W26 K1ETK_K5	10	30	1	0,7	T	Z			K	OB
37	ELR053364L	Fundamentals of microprocessors			2			K1ETK_U23 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
38	ELR053370L	Basics of Electronics 2			2			K1ETK_U21 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
39	ELR053372W	Electrical Metrology 1	1					K1ETK_W21 K1ETK_K8	10	60	2	1,4	T	Z			K	OB
40	ELR053373W	Electrical Metrology 2	2					K1ETK_W22 K1ETK_K5	20	60	2	1,4	T	Z			K	OB
41	ELR053373L	Electrical Metrology 2			1			K1ETK_U19 K1ETK_K5	10	30	1	0,7	T	Z		P	K	OB
42	ELR053374L	Electrical Metrology 3			2			K1ETK_U19 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
43	GFR053161W	Engineering Graphics	1					K1ETK_W12	10	60	2	1,4	T	Z			K	OB
44	GFR053161L	Engineering Graphics			2			K1ETK_U9 K1ETK_K5	20	60	2	1,4	T	Z		P	K	OB
45	MMM012006W	Technical Mechanics	2					K1ETK_W13 K1ETK_K9	20	60	2	1,4	T	Z			K	OB
46	MMM012006C	Technical Mechanics		1				K1ETK_U10 K1ETK_K9	10	30	1	0,7	T	Z		P	K	OB
		Total	39	10	29	1	0		790	2730	91	63,7						

Altogether for main-field-of-study blocks

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				
39	10	29	1	0	790	2730	91	63,7

4.2. List of optional blocks

4.2.1. List of general education blocks

4.2.1.1. Liberal-managerial subjects block

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	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
5	PRR051263W	Protection of intellectual property	1					K1ETK_W36 K1ETK_K2	10	30	1	0,7	T	Z	O		KO	W
6	PRR051264W	Protection of intellectual property in engineering activity	1					K1ETK_W36 K1ETK_K2	10	30	1	0,7	T	Z	O		KO	W
7	PRR051265W	Patent and copyright	1					K1ETK_W36 K1ETK_K2	10	30	1	0,7	T	Z	O		KO	W
8	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
9	PRR051912W	Intellectual Property Law	1					K1ETK_W36 K1ETK_K2	10	30	1	0,7	T	Z	O		KO	W
10	PSR050612S	The basis of negotiations					1	K1ETK_U33 K1ETK_K9	10	60	2	1,4	T	Z	O	P	KO	W
11	PSR050712S	Selfpresentation					1	K1ETK_U33 K1ETK_K9	10	60	2	1,4	T	Z	O	P	KO	W
12	PSR050912S	Self among others					1	K1ETK_U33 K1ETK_K9	10	60	2	1,4	T	Z	O	P	KO	W
13	ZMR052562W	Management bases	1					K1ETK_W35 K1ETK_K1 K1ETK_K6	10	30	1	0,7	T	Z	O		KO	W
14	ZMR052563W	Marketing management	1					K1ETK_W35 K1ETK_K1 K1ETK_K6	10	30	1	0,7	T	Z	O		KO	W
15	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
		Total	3				1		40	150	5	3,5						

4.2.1.2. Foreign languages block

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	JZL030003BKC	Foreign language B2 or C1		2				K1ETK_U31 K1ETK_K3 K1ETK_K4	20	30	1	0,7	T	Z	O	P	KO	W
2	JZL030004BKC	Foreign language B2 or C1		2				K1ETK_U31 K1ETK_K3 K1ETK_K4	20	30	1	0,7	T	Z	O	P	KO	W
3	JZL030005BKC	Foreign language B2 or C1		2				K1ETK_U31 K1ETK_K3 K1ETK_K4	20	30	1	0,7	T	Z	O	P	KO	W
4	JZL030007BKC	Foreign language B2 or C1		2				K1ETK_U31 K1ETK_K3 K1ETK_K4	20	60	2	1,4	T	Z	O	P	KO	W
		Total	0	8	0	0	0		80	150	5	3,5						

4.2.1.3. Sporting classes block

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

4.2.1.4. Information technologies block

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

Altogether for general education blocks

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				
3	8	0	0	1	120	300	10	7

4.2.2. List of basic sciences blocks

4.2.2.1. Mathematics block

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

4.2.2.2. Physics block

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

4.2.2.3. Chemistry block

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

4.2.2.4. Computer science block

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	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
		Total	0	0	1	0	0		10	60	2	1,4						

Altogether for basic sciences blocks

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				
0	0	1	0	0	10	60	2	1,4

4.2.3. List of main-field-of-study blocks

4.2.3.1. Optional main-field-of-study subjects block

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

4.2.3.2. Optional main-field-of-study subjects - EEN block

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	ELR051369W	Renewable Energy Sources	2					K1ETK_EEN_W2 K1ETK_K4 K1ETK_K6	20	90	3	2,1	T	Z			K	W
2	ELR052165L	Programmable Logic Controllers			2			K1ETK_U23 K1ETK_EEN_U6 K1ETK_K5	20	60	2	1,4	T	Z		P	K	W
3	ELR052261W	Optoelectronics in control systems	2					K1ETK_EEN_W1 K1ETK_K5	20	90	3	2,1	T	Z			K	W
4	ELR052262W	Power system protection - fundamentals	2					K1ETK_EEN_W4 K1ETK_K9	20	30	1	0,7	T	Z			K	W
5	ELR052262L	Power system protection - fundamentals			1			K1ETK_EEN_U2 K1ETK_K9	10	30	1	0,7	T	Z		P	K	W
6	ELR052263W	Power system operation and control	2					K1ETK_EEN_W7 K1ETK_K9	20	90	3	2,1	T	Z			K	W
7	ELR052263L	Power system operation and control			1			K1ETK_EEN_U4 K1ETK_K9	10	60	2	1,4	T	Z		P	K	W
8	ELR052365W	Intelligent installations	1					K1ETK_EEN_W8	10	30	1	0,7	T	Z			K	W
9	ELR052365L	Intelligent installations			1			K1ETK_EEN_U5 K1ETK_K5 K1ETK_K9	10	60	2	1,4	T	Z		P	K	W
10	ELR052366W	Power substations	2					K1ETK_EEN_W9 K1ETK_K9	20	120	4	2,8	T	E			K	W
11	ELR052462W	Protection against electromagnetic fields	2					K1ETK_EEN_W5	20	30	1	0,7	T	Z			K	W
12	ELR052462L	Protection against electromagnetic fields			1			K1ETK_EEN_U3 K1ETK_K6	10	30	1	0,7	T	Z		P	K	W
13	ELR052463W	Electric power industries	2					K1ETK_EEN_W6 K1ETK_K6 K1ETK_K7	20	60	2	1,4	T	E			K	W
14	ELR053365W	Assessment of Power Quality	2					K1ETK_EEN_W3	20	60	2	1,4	T	Z			K	W
15	ELR053365L	Assessment of Power Quality			1			K1ETK_EEN_U1 K1ETK_K5	10	30	1	0,7	T	Z		P	K	W
		Total	17	0	7	0	0		240	870	29	20,3						

4.2.3.3. Optional main-field-of-study subjects - ETP block

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	ELR051266W	Fundamentals of applied electrostatics	2					K1ETK_ETP_W1 K1ETK_K8	20	90	3	2,1	T	Z			K	W
2	ELR051267W	Energy-saving technologies in industry	2					K1ETK_ETP_W4 K1ETK_K6	20	30	1	0,7	T	Z			K	W
3	ELR051267L	Energy-saving technologies in industry			1			K1ETK_ETP_U3 K1ETK_K6	10	30	1	0,7	T	Z		P	K	W
4	ELR051268W	Sensors and Transducers	1					K1ETK_ETP_W7 K1ETK_K9	10	30	1	0,7	T	Z			K	W
5	ELR051268L	Sensors and Transducers			1			K1ETK_ETP_U5 K1ETK_K9	10	30	1	0,7	T	Z		P	K	W
6	ELR051280W	Diagnostics of materials and insulation systems	1					K1ETK_ETP_W3 K1ETK_K4	10	30	1	0,7	T	Z			K	W
7	ELR051280L	Diagnostics of materials and insulation systems			2			K1ETK_ETP_U2 K1ETK_K5	20	60	2	1,4	T	Z			K	W
8	ELR052463W	Electric power industries	2					K1ETK_ETP_W5 K1ETK_K6 K1ETK_K7	20	60	2	1,4	T	E			K	W
9	ELR052464W	Electrical receiver	2					K1ETK_ETP_W6	20	60	2	1,4	T	Z			K	W
10	ELR052464L	Electrical receiver			1			K1ETK_ETP_U4 K1ETK_K5 K1ETK_K9	10	30	1	0,7	T	Z		P	K	W
11	ELR053264L	Automation of Production Processes			2			K1ETK_ETP_U1 K1ETK_K5	20	60	2	1,4	T	Z		P	K	W
12	ELR053265W	Testing and diagnostic of electric machines	2					K1ETK_ETP_W8	20	90	3	2,1	T	Z			K	W
13	ELR053265L	Testing and diagnostic of electric machines			1			K1ETK_ETP_U6 K1ETK_K5	10	60	2	1,4	T	Z		P	K	W
14	ELR053266W	Controlled Electrical Drives - fundamentals	2					K1ETK_ETP_W9 K1ETK_K4	20	120	4	2,8	T	E			K	W
15	ELR053371W	Power Quality	2					K1ETK_ETP_W2 K1ETK_K5	20	90	3	2,1	T	Z			K	W
		Total	16	0	8	0	0		240	870	29	20,3						

4.2.3.4. Training block

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	ELR050095Q	Professional practice (6-week)				40		K1ETK_U32 K1ETK_K5	240	180	6	4,2	T	Z		P	K	W
		Total	0	0	0	40	0		240	180	6	4,2						

4.2.3.5. Diploma dissertation block

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	ELR051099D ELR052099D ELR053099D	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	ELR051098S ELR053098S	Diploma seminar					2	K1ETK_ETP_U7 K1ETK_K9	20	90	3	2,1	T	Z		P	K	W
4	ELR051099D ELR052099D ELR053099D	Engineering Thesis				9		K1ETK_ETP_U8 K1ETK_K8	90	450	15	10,5	T	Z		P	K	W
		Total	0	0	0	9	2		110	540	18	12,6						

Altogether for main-field-of-study blocks

	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				
Professional practice (6-week)	0	0	0	40	0	240	180	6	4,2
EEN	17	0	7	9	2	350	1410	47	32,9
ETP	16	0	8	9	2	350	1410	47	32,9

4.3 Training module (Faculty Council resolution on principles of crediting training – attachment no.2)

Name of training:	Professional practice (6-week)		
Number of ECTS points	**Number of ECTS points for BK classes**	**Training crediting mode**	**Code**
6	**4,2**	**report from training**	**ELR050095Q**
Training duration	**Training objective**		
6 weeks	The primary objective is to confront the theoretical knowledge acquired during studies, with the real demands of the employers. During internship the student gains industrial experience, learns the basic technical equipment and technologies in a company, gain understanding of the role of higher level technical supervision, in particular: • extends the knowledge gained during studies and develop the skills to use it, • familiarize himself with professional environment specifics, • develops specific skills directly related to the place of internship, • shaping the skills of effective communication, • learns the functioning of the organizational structure, principles of work organization and responsibilities sharing, procedures, work planning, and control process, • improves the ability of self-organization, teamwork, effective time management, diligence, responsibility for assigned tasks, • improves the ability to use a foreign language in professional contexts. A free choice of the place of internship, i.e. a company or an institution from a faculty list of internship places, enables students to pursue their professional interests. A possible result of internship is selection of topics for the future engineering thesis and formulation of an individual title, which generally - in consultation with supervisors - is approved by the Faculty Council for realisation.		

4.4. Diploma dissertation module

Type of diploma dissertation:	inżynier	
Number of diploma dissertation semesters	**Number of ECTS points**	**Code**
1	**18**	**ELR051098S** **ELR052098S** **ELR053098S** **ELR051099D** **ELR052099D**
Character of diploma dissertation		
The character of Engineering Thesis stresses it usefulness for engineering practice. The purpose is a solution for a given problem in the following areas: design and planning, measurement experiment, development of a computer program and an analysis of some or all of the processes and objects of a technical nature (especially electrical), organization with technical aspects, technical and economic. The work is not only descriptive, contains student's own contribution.		
Number of BK ECTS points:	**12,6**	

5. Ways of verifying assumed learning outcomes

Type of classes	Ways of verifying assumed learning outcomes
lecture	examination, progress/final test
class	progress/final test
laboratory	pretest, report from laboratory
project	project defence
seminar	participation in discussion, topic presentation, essay
training	report from training
diploma dissertation	prepared diploma dissertation

6. Range of diploma dissertation

The diploma examination problems are available on the Faculty website.

7. Requirements concerning deadlines for crediting courses/groups of courses for all courses in particular blocks

No.	Course code	Name of course	Crediting by deadline of... (number of semester)
1			
2			
3			
4			

8. Plan of studies (attachment no. 1 to Description of the Programme of Studies)

Approved by faculty student government legislative body:

....

Date Name and surname, signature of student representative

....

Date Dean’s signature