

**STRUCTURE OF THE STUDY PROGRAM POWER ENGINEERING AND
RENEWABLE ENERGY SOURCES
FIRST CYCLE FOUR-YEAR ACADEMIC STUDIES**

Courses, 1st year – 1st semester

No.	Code	Courses	ECTS	Hours	Total
1.	2FI100121	Mathematics 1	8	3+2+2	240
2.	2ET100121	Electrical Engineering 1	6	2+2+1	180
3.	2FI100221	Fundamentals of computer programming	6	2+2+1	180
4.	2ET100421	Physics	6	2+2+1	180
5.		Electives from list No.1	4	2+1+1	120
		Total ECTS	30	11+9+6	900

List No. 1 of elective subjects (choose one of the offered subjects)

No.	Code	Courses	ECTS	Hours	Total
1.	4FF100721	Macedonian language 1	4	2+1+1	120
2.	4FF100621	English language level A2.1	4	2+1+1	120
3.	4FF100221	German language level A1.1	4	2+1+1	120
4.	4FF100421	Italian language level A1.1	4	2+1+1	120
5.	4FF100121	Spanish language level A1.1	4	2+1+1	120
6.	4FF100521	French language level A1.1	4	2+1+1	120
7.	4FF100321	Russian language level A1.1	4	2+1+1	120

Courses, 1st year – 2nd semester

No.	Code	Courses	ECTS	Hours	Total
1.	2FI101121	Mathematics 2	6	2+2+1	180
2.	2ET100521	Electrical Engineering 2	6	2+2+1	180
3.	2FI101221	Object-oriented Programming	6	2+2+1	180
4.	2ET100721	CAD/CAM in electrical engineering	6	2+2+1	180
5.		Electives from list No.2	4	2+1+1	120
6.	2ET106421	Practical work	2	0+0+2	60
7.	2SC100121	Sport and recreation			
		Total ECTS	30	10+9+7	900

List No. 2 of elective subjects (choose one of the offered subjects)

No.	Code	Courses	ECTS	Hours	Total
1.	4FF101421	Macedonian language 2	4	2+1+1	120
2.	4FF101121	English language level A2.2	4	2+1+1	120
3.	4FF101221	German language level A1.2	4	2+1+1	120
4.	4FF100921	Italian language level A1.2	4	2+1+1	120
5.	4FF100821	Spanish language level A1.2	4	2+1+1	120
6.	4FF101021	French language level A1.2	4	2+1+1	120
7.	4FF101321	Russian language level A1.2	4	2+1+1	120

Courses, 2nd year – 3th semester

No.	Code	Courses	ECTS	Hours	Total
1.	2FI106521	Mathematics 3	8	3+2+2	240
2.	2ET100821	Electrical Measurements	8	3+2+2	240
3.	2ET100921	Electronics	6	2+2+1	180
4.		Electives from list No.3	4	2+1+1	120
5.		Electives from list No.4	4	2+1+1	120
		Total ECTS	30	12+8+7	900

List No. 3 of elective subjects (choose one of the offered subjects)

No.	Code	Courses	ECTS	Hours	Total
1.	2FI130221	Probability and Statistics	4	2+1+1	120
2.	2ET100321	Theory of signals and systems	4	2+1+1	120

List No. 4 of elective subjects (choose one of the offered subjects)

No.	Code	Courses	ECTS	Hours	Total
1.	2ET101121	Electrical Installations	4	2+1+1	120
2.	2ET101221	Electrical Engineering Materials	4	2+1+1	120

Courses, 2nd year – 4th semester

No.	Code	Courses	ECTS	Hours	Total
1.	2ET101321	Fundamentals of automation	6	2+2+1	180
2.	2ET101421	Power Electronics	6	2+2+1	180
3.	2ET101521	Electrical Machines	6	2+2+1	180
4.	2ET100421	Fundamentals of energy and energy legislation	6	2+2+1	180
5.		Electives from list No.5	4	2+1+1	120
6.	2ET106421	Practical work	2	0+0+2	60
		Total ECTS	30	10+9+7	900

List No. 5 of elective subjects (choose one of the offered subjects)

No.	Code	Courses	ECTS	Hours	Total
1.	2ET102221	Electromagnetics	4	2+1+1	120
2.	2ET101021	Modeling and simulations	4	2+1+1	120

Courses, 3rd year – 5th semester

No.	Code	Courses	ECTS	Hours	Total
1.	2ET101621	Electrical Circuits Theory	8	3+2+2	240
2.	2ET102721	Power Plants and Substation	8	3+2+2	240
3.	2ET104321	Fundamentals of Renewable Energy Sources	6	2+2+1	180
4.		Electives from list No.6	4	2+1+1	120
5.		Electives from list No.7	4	2+1+1	120
		Total ECTS	30	12+8+7	900

List No. 6 of elective subjects (choose one of the offered subjects)

No.	Code	Course			Total
1.	2ET110382	SCADA systems in power engineering	4	2+1+1	120
2.	2ET104021	Fundamentals of web programming	4	2+1+1	120

List No. 7 of elective subjects (choose one of the offered subjects)

No.	Code	Course			Total
1.	2ET104121	Geothermal and biomass energy	4	2+1+1	120
2.	2ET106521	Safety at work	4	2+1+1	120

Courses, 3rd year – 6th semester

No.	Code	Course			Total
1.	2ET104821	Wind generator systems	6	2+2+1	180
2.	2ET104521	Solar energy systems	6	2+2+1	180
3.	2ET104621	Relay Protection	6	2+2+1	180
4.	2ET104921	Small Hydro Power Plants	6	2+2+1	180
5.		Electives from list No.8	4	2+1+1	120
6.	2ET106421	Practical work	2	0+0+2	60
		Total ECTS	30	10+9+7	900

List No. 8 of elective subjects (choose one of the offered subjects)

No.	Code	Course			Total
1.	2ET100621	Engineering Economics	4	2+1+1	120
2.	2ET105021	Software for Automation	4	2+1+1	120

Courses, 4th year – 7th semester

No.	Code	Course			Total
1.	2ET101821	Electrical Drives	8	3+2+2	240
2.	2ET104721	Transmission and Distribution Power Systems	8	3+2+2	240
3.	2ET105321	Electricity Markets	6	2+2+1	180
4.		Electives from list No.9	4	2+1+1	120
5.		Electives from list No.10	4	2+1+1	120
		Total ECTS	30	12+8+7	900

List No. 9 of elective subjects (choose one of the offered subjects)

No.	Code	Course			Total
1.	2ET105421	Geoinformatics	4	2+1+1	120
2.	2ET105521	Technical Standards and Regulatory	4	2+1+1	120

List No. 10 of elective subjects (choose one of the offered subjects)

No.	Code	Course			Total
1.	2ET105621	Computer and robotic vision	4	2+1+1	120
2.	2ET105721	Human-Computer Interaction	4	2+1+1	120

Courses, 4th year – 8th semester

No.	Code	Co			Total
1.	2ET105921	Energy and ecology	4	2+1+1	120
2.	2ET105821	Smart grids	4	2+1+1	120
3.	2ET106421	Power Quality	4	2+1+1	120
4.		Electives from list No.11	4	2+1+1	120
5.		Electives from list No.12	4	2+1+1	120
6.	2ET106621	Practical work – interdisciplinary project	4	0+0+4	120
7.	2ET104021	Graduate Thesis	6	0+0+8	180
		Total ECTS	30	10+5+17	900

List No. 11 of elective subjects (choose one of the offered subjects)

No.	Code	Co			Total
1.	2ET106521	Mechatronics	4	2+1+1	120
2.	2ET106621	Microcomputers and programmable controllers	4	2+1+1	120

List No. 12 of elective subjects (choose one of the offered subjects)

No.	Code	Co			Total
1.	2ET102421	Computer Control of Process	4	2+1+1	120
2.	2ET106021	Industrial robots	4	2+1+1	120