PLAN OF STUDIES - BSc level, full time studies

Faculty **POWER AND ENVIRONMENTAL ENGINEERING** from ac. year **2019/2020**

Branch **Power Engineering**

Speciality **Sustainable energy engineering**

SUBJECTS - SEMESTER	Total	Lectures	Classes	Seminars	Labs	Projects	1 sem				2 sem					3 sem				4 sem				5 sem					6 sem				7 sem					ECTS							
							Lectures	Classes	Labs	Projects	Lectures	Classes	Seminars	Labs	Projects	Lectures	Classes	Labs	Projects	Lectures	Classes	Labs	Projects	Lectures	Classes	Seminars	Labs	Projects	Lectures	Classes	Seminars	Labs	Projects	Lectures	Classes	Seminars	Labs	Projects	1	2	3	4	5	6	7	Σ
NON-TECHNICAL SUBJECTS																																											
Foreign language	120	0	120	0	0	0		2				2					2				2																2	2	2	2				8
Physical education	60	0	60	0	0	0		2				2																																0
Humanistic subjects - elective *	60	45	0	15	0	0	1				2		1																									1	3						4
Communication skills	30	15	15	0	0	0	1	1																														2							2
Intellectual property protection	15	15	0	0	0	0	1																															1							1
FUNDAMENTAL SUBJECTS																																												
Mathematics	150	60	90	0	0	0	2	4			2	2																										8	6						14
IT and introduction to programming	60	15	0	0	45	0	1		3																													5							5
Physics	60	30	15	0	15	0					2	1		1																									6						6
Engineering graphics	60	15	0	0	30	15	1		2						1																							5	2						7
Problem seminar	15	0	0	15	0	0							1																										2						2
Selected engineering problems **	180	180	0	0	0	0	4				8																											6	9						15
BRANCH SUBJECTS																																												
Fundamentals of design informatics	75	15	0	0	30	30										1		2					2																	3	2					5
Fundametals of metrology and experimental engineering	45	15	0	0	30	0										1		2																					4						4
Strength of materials	75	30	30	0	15	0										2	2	1																					6						6
CAD	45	0	0	0	45	0												3																					3						3
Electric machines	45	30	0	0	15	0														2		1																		3					3
Environmental protection in power engineerig	45	30	0	0	15	0																							2		1											3		3
Fundamentals of machinery design	60	30	0	0	0	30										2			2																					5						5
Materials for structures and operation	45	30	0	0	15	0										2		1																					4						4
Technical thermodynamics	120	45	60	0	15	0										2	2			1	2	1																	6	5					11
Fluid mechanics	75	30	30	0	15	0														2	2	1																		6					6
Technolgies of power engineering	75	45	30	0	0	0														2	1			1	1															3	2				5
Transfer of electrical energy	30	15	0	0	15	0														1		1																		2						2
Water and wastewater in power industry	45	30	0	0	15	0																							2		1											3		3
Waste management and recycling	45	30	0	0	15	0														2		1																		3						3
Fundametals of automatics	60	30	15	0	15	0														2	1	1																		4						4
Heat and mass transfer	75	30	30	0	15	0																		2	2		1														6					6
Operation of energy systems	45	30	0	0	15	0																		2			1														3					3
Energy management	60	30	30	0	0	0																							2	2											4					4
Finansial analysies in power engineering	45	30	0	0	15	0																							2		1											3					3
Alternative energy sources	45	30	0	0	15	0																							2		1											2					2
SPECIALITY SUBJECTS																																												
Municipal and distributed energy systems	60	15	30	0	0	15																		1	2			1													5					5
Emission and transport of air pollutants	45	15	0	0	0	30																		1				2													4					4
Fuels and combustion	30	15	0	0	15	0																		1			1														3					3
Selective subjects	135	135	0	0	0	0																		3					3				3							3	3	4	10
Water quality management and wastewater treatment	60	15	30	0	15	0																		1	2		1														4					4
Waste menagement and thermal waste utilization	45	30	0	0	0	15																							2			1										3		3
Air pollution engineering and monitoring	15	15	0	0	0	0																							1													1					1
Environmental impact analysis	45	30	0	0	0	15																							2			1										3					3
Computer modelling in power engineering	30	15	0	0	0	15																							1			1										2					2
Internship (4 weeks)	0	0	0	0	0	0																																				6					6
Regulations in environmental protection	15	15	0	0	0	0																																								1	1
Nuclear power technologies	45	30	0	0	15	0																																								4	4
Speciality seminar	30	0	0	30	0	0																																								5	5
Engineering project	45	0	0	0	0	45																																								15	15
Number of hours per week	**2565**	**1260**	**585**	**60**	**450**	**210**	11	9	5	0	14	7		1	1	10	6	9	2	12	8	6	2	12	7	0	4	3	19	2	4	3	6	0	2	1	3								
Total hours per week in semester							**25**				**23**					**27**				**28**				**26**					**28**				**12**												
Total ECTS																																							30	30	33	30	30	33	29	215
Exams							**1**				**3**					**2**				**3**				**3**					**2**																

Specjalność projektowa **Sustainable energy engineering**

Industrial project	180	0	0	0	0	180																						6				6								7	7		14
Number of hours per week	**2565**	**1110**	**585**	**60**	**420**	**390**																		7	7	0	3	9	14	2	3	9											
Total hours per week in semester																								**26**					**28**														
Total ECTS																																									31	34		217
Exams																								**3**					**2**															

- przedmioty zastąpione

*** Humanistic subjects - elective**

Philosophy
Sociology
Psychology
Logic
Management basics
Economy basics
Entrepreneurship
Marketing
Work organization and ergonomics
Ecology and environmental protection

**** Selected engineering problems**

Blok zajęć do wyboru z grupy przedmiotów:
- Chemistry
- Mechanics/Mechanics and Strength materials
- Electrical engineering and electronics
- Metrology
- Mathematics extended