Opole University of Technology	FULL-TIME STUDIES	FIELD OF STUDY: ENVIRONMENTAL ENGINEERING	The study plan approved by Council of Faculty of Mechanical Engineering on:	18.03.2015 r.	DEPARTMENT
Faculty of Mechanical Engineering	2nd cycle studies	SPECIALIZATION: Advanced Technologies in Environmental Engineering (ATEE)			

Item	Course	HOURS OF COURSE						WEEKLY TIMETABLE														ECTS POINTS AND FORM OF PASSING COURSES									DEPARTMENT
		Total	TYPE OF COURSE					SEMESTER														SEMESTER									
								I					II					III					I			II			III			
			LE	C	LA	P	S	LE	C	LA	P	S	LE	C	LA	P	S	LE	C	LA	P	S	ECTS	E	CC	ECTS	E	CC	ECTS	E	CC	
A.	BASIC COURSES																														
A.1.	Environmental Statistics	30	15	0	15	0	0	1		1													2		CC							KTCiAP
A.2.	Advanced Environmental Chemistry	30	15	0	15	0	0	1		1													2	E								KIS
A.3.	Modern Materials in Engineering Applications	15	15	0	0	0	0	1															1		CC							KIS
A.4.	Safety and Reliability of Engineering Systems	30	15	0	0	0	15	1				1											2		CC							KIP
A.5.	Computer Aided Design	45	15	0	0	30	0	1			2												3		CC							KMiPKM
A.6	Data Bases and Advanced GIS	45	15	0	30	0	0	1		2													3		CC							KTCiAP
B.	MAJOR COURSES - GENERAL:																														
B.1.	Heat and Mass Transfer Processes Design	60	30	15	0	15	0	2	1		1												5	E								KIP
B.2.	Renewable Energy Technologies	45	30	0	15	0	0						2		1											4	E					KIŚ
B.3.	Bioprocess Engineering	45	30	15	0	0	0						2	1												3		CC				KIP
B.4.	Environmental Analytics	30	15	0	15	0	0	1		1													2		CC							KIŚ
C.	MAJOR COURSES - SPECIALIZATION:																														
C.1.	MODULE I: WATER AND WASTEWATER TREATMENT																														
C.1.1.	Water Treatment Technologies	45	15		15	15		1		1	1												3	E								KTCiAP
C.1.2.	Biological Wastewater Treatment	45	15		15	15							1		1	1										3		CC				KTCiAP
C.1.3.	Modelling of Water Distribution Systems	45	15		30													1		2									3		CC	KTCiAP
C.2.	MODULE II: AIR PROTECTION																														
C.2.1.	Techniques of Air Pollution Control	45	15		30								1		2											4	E					KTCiAP
C.2.2.	Environmental Fluid Transport	45	15		15	15							1		1	1										3		CC				KTCiAP
C.2.3.	Modelling of Pollutant Propagation in Atmosphere	30	15		15													1		1									2		CC	KTCiAP
C.3.	MODULE III: ADVANCED TECHNOLOGIES IN WASTE MANAGEMENT																														
C.3.1.	Material Reuse Technologies	30	15				15						1				1									2	E					KIS
C.3.2.	Waste to Energy - Application Technologies	30	15				15						1				1									2		CC				KIP
C.4.	MODULE IV: ADVANCED ENERGY TECHNOLOGIES																														
C.4.1.	Energy Analysis and Feasibility Studies	30	15			15												1			1								2		CC	KIS
C.4.2.	Clean Fossil and Alternative Fuels	30	15		15			1		1													2		CC							KIS
C.4.3.	Modelling of Energy Systems	30	15			15												1			1								2	E		KIS
C.5	Diploma Seminar	15					15															1							1		CC	KIP
C.6	Master's Thesis		0	0	0	0															X								20	E		DEAN
D.	ADDITIONAL COURSES:																														
D.1.	Technical English Support/Polish Language	30	0	0	30	0	0			2													2		CC							SJO
D.2.	Physical Education	15	0	15	0	0	0							1												1		CC				WWFF
E.	ELECTIVE COURSES: OPTIONAL																														
	HUMANITIES COURSES																														
E.1.	Sustainable Development for Engineers	30	30	0	0	0	0	2															3		CC							KTCiAP
E.2.	Communication and Negotiations in Business	30	30	0	0	0	0	2															3		CC							DEAN
E.3.	Ethics in Business	30	30	0	0	0	0						2													2		CC				DEAN
E.4.	Creativity Training	30	30	0	0	0	0						2													2		CC				DEAN
	TECHNICAL COURSES																														
E.5.	Energy Consumption of Industrial Processes	30	15	15	0	0	0						1	1												2		CC				KIS
E.6.	Chemical Reactors Engineering	30	15	15	0	0	0						1	1												2		CC				KIP
E.7	Mass Exchanger Design	30	15	0	0	15	0						1			1										2		CC				KIP
E.8	Spatial Planning and Urban Design	30	15	0	0	15	0						1			1										2		CC				KTCiAP
E.9	Multiphase Flow in Environmental Technology	30	15	0	15	0	0						1		1											2		CC				KIP
E.10	Advanced Environmental Metrology	30	15	0	15	0	0						1		1											2		CC				KIŚ
Total		990	465	60	270	135	60	13	1	9	4	1	14	3	6	3	2	4		3	2	1	30	3	10	30	3	10	30	2	4	DEPARMENT
			Total weekly hours					28					28					10					TOTAL - ECTS						90			
			EXAMS					3					3					2					Basic Courses	according to education curriculum	13	according to degree curriculum		13				
			Course credit					21					22					8					Major Courses - general		14			14				
		Control number 990 / 990	Total					24					25					10					Total		27			27				

STATISTICS CURRICULUM

Group	COURSES - TOTAL ECTS POINTS	according to degree programme	according to education programme	percentage
A	Basic courses	13	13	14%
B	Major courses - general	14	14	16%
C	Major - specialization courses	49		54%
D	Additional including university-wide education modules	3	3	3%
E	Elective courses	11	6	12%
	Total:	90	36	100%

Elective courses in total - specialization and optional courses, at least 30% in relation to the total number of ECTS points according to the education programme

Elective	Calculated number of hours of elective courses
Total 67%	
Required 30%	90

E - EXAM

CC - COURSE CREDIT

Numbers of exams	8	Total	59
Numbers of course credit	51		

FEANI - according to ECTS	Basic courses	18%
	Specjalization - technical courses	82%

Index hour (C+LA+P+S)/Σ =	53%
Participation of major courses - according to ECTS points	82%

REQUIREMENTS FRAMEWORK		Total ECTS points
- Basic courses and major courses - general (A+B)	27	49
- Foregin Language	2	
- Master's Thesis	20	

Plan of studies and education programme valid from the academic year 2015/2016, for the first year of study

Faculty Student Council	Dean of Faculty of Mechanical Engineering	Approved by
date/signature - position	date/signature	date/signature