Zał. nr 4 do ZW 25/2019 Attachment no. 3 to Program of Studies

PLAN OF STUDIES

FACULTY: FACULTY OF ENVIRONMENTAL ENGINEERING

MAIN FIELD OF STUDY: ENVIROMENTAL ENGINEERING

EDUCATION LEVEL: second-level studies

FORM OF STUDIES: full-time studies

PROFILE: general academic

SPECIALIZATION: ENVIRONMENTAL QUALITY MANAGEMENT (EQM)

LANGUAGE OF STUDY: English

Resolution no. 747/32/2016-2020 of 16 May 2019 of the Senate of Wroclaw University of Science and Technology

In effect since 1st October 2019

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

	ingatory co	uises/groups of courses	1,	um	IJULI	01 1	LCID PO	mis i.)									
N	Course/group		We	eekly h	numb ours	er of	Learning	Numbe	r of hours	Numb	er of ECTS	points	Form ² of	Way ³	Co	ourse/group	of courses	8
N O.	of courses code	Name of course/group of courses (denote group of courses with symbol GK)	1 e c	с 1	l p a r b	s e m	effect symbol	ZZU	CNPS	total	BK classe ¹	BU classe ^{1a}	group of courses	of creditin g	universiy -wide ⁴	practic al ⁵	kind ⁶	type ⁷
1	FLH071121 W	Ethics of new and emerging technologies	1				K2IS_W 03, K2IS_W 04, K2IS_W 09, K2IS_K0 2	15	60	2	0.5	1.0	Τ	Z	0		КО	Ob.
2	ZMZ000155	Strategic management	2				K2IS_W 03, S2EQM_ W08	30	90	3	1.0	2.0	Т	Z	0		KO	Ob.
3	ISS005006	Engineering applications of mathematical statistics	1				K2IS_W 01	15	60	2	0.5	1.0	Т	Z			PD	Ob.
4	ISS005006	Engineering applications of mathematical statistics		1			K2IS_U0 1, K2IS_K0 1	15	30	1	0.5	0.7	Т	Z		Р	PD	Ob.
5	ISS105051	Environmental chemistry	2				K2IS_W 01, K2IS_W 09, S2EQM_ W01, S2EQM_ W02, K2IS_K0 2	30	90	3	1.0	2.0	Τ	Z			PD	Ob.
6	ISS105051	Environmental chemistry			1		K2IS_U0 6,	15	60	2	0.5	1.0	Т	Z		Р	PD	Ob.

Obligatory courses/groups of courses Number of ECTS points 15

¹BK (^{1a}BU) – number of ECTS points assigned to hours of classes requiring direct contact (attendance) of teachers with students

 2 Traditional – enter T, remote – enter Z

 3 Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem) 4 University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶ KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷ Optional – enter W, obligatory – enter Ob

							S2EQM_ U02, S2EQM_ U04										
7	ISS105052	Automation in environmental engineering			1		K2IS_U0 2	15	60	2	0.5	1.0	Т	Z	Р	K	Ob.
		Total	6	1	2			135	450	15	4.5	8.7					

Optional courses/group of courses (minimum 30 hours in semester, 2 ECTS points)

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	We	eekl	y nun hours	nber	of	Learning effect	Number	of hours	Numbe	er of ECTS	points	Form ² of course/gro	Way ³ of crediting	C	ourse/group	of courses	
			lec	cl	lab	pr	sem	symbol	ZZU	CNPS	total	BK classes ¹	BU classes ^{1a}	up of courses		university- wide ⁴	practical5	kind ⁶	type ⁷
1	JZL100709BK	Polish language A1 or English Language C1+		1				K2IS_U05	15	30	1	0.5	1.0	Т	Z	0	Р	КО	W.
2	ISS200002BK	Elective subject	1						15	30	1	0.5	1.0	Т	Z			K	W
		Total	1	1					30	60	2	1.0	2.0						

Optional courses/group of courses (specialization EQM) (minimum 180 hours in semester, 13 ECTS points)

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	We	eekly n hou	umbe ırs	er of	Learning effect	Number	of hours	Numbe	er of ECTS	points	Form ² of course/gro	Way ³ of crediting	Co	ourse/group	of courses	
			lec	cl la	b pr	sem	symbol	ZZU	CNPS	total	BK classes ¹	BU classes ^{1a}	up of courses		university- wide ⁴	practical ⁵	kind ⁶	type ⁷
1	ISS105014	Water quality management	2				K2IS_W09, S2EQM_W 02	30	90	3	1.0	2.0	Т	E			S	Ob.
2	ISS105024	Raw materials management	1				S2EQM_W 03, S2EQM_W 05, K2IS_K02	15	30	1	0.5	0.7	Т	Z			S	Ob
3	ISS105024	Raw materials management				1	S2EQM_U0 1, K2IS_K03, K2IS_K02	15	30	1	0.5	0.7	Т	Z		Р	S	Ob
4	ISS105053	Water treatment technology	2				K2IS_W09, S2EQM_W	30	60	2	1,0	1,0	Т	Е			S	Ob

 ${}^{1}BK$ (${}^{1a}BU$) – number of ECTS points assigned to hours of classes requiring direct contact (attendance) of teachers with students ${}^{2}Traditional$ – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem) ⁴University-wide course /group of courses – enter O

							02										
5	ISS105053	Water treatment technology		1			K2IS_U06, S2EQM_U0 2, K2IS_K01	15	30	1	0.5	0.7	Т	Z	Р	S	Ob
6	ISS105054	Sanitary biology	1				K2IS_W09, S2EQM_W 05, K2IS_K02	15	30	1	0.5	0.7	Т	Е		S	Ob
7	ISS105054	Sanitary biology		1			K2IS_U06, S2EQM_U0 2, K2IS_K02	15	30	1	0.5	0.7	Т	Z	Р	S	Ob
8	ISS105055	AutoCad		1			S2EQM_U0 3, K2IS_K03	15	30	1	0.5	0.7	Т	Z	Р	S	Ob
9	ISS105028	Water supply systems	1				K2IS_W09, S2EQM_W 07, K2IS_K02	15	30	1	0.5	0.7	Т	Z		S	Ob
10	ISS105028	Water supply systems			1		K2IS_K02, K2IS_U02, K2IS_U05, K2IS_U06, S2EQM_U0 5	15	30	1	0.5	0.7	Т	Z	Р	S	Ob
		Total	7	3	1	1		180	390	13	6.0	8.6					

Altogether in semester

¹BK (^{1a}BU) – number of ECTS points assigned to hours of classes requiring direct contact (attendance) of teachers with students

 2 Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem) ⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter O ⁶ KO – general education, PD – basic sciences, K – field-of-studies, S – specialization ⁷ Optional – enter W, obligatory – enter Ob

	То	tal number o	f hours		Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹	Number of ECTS points for BU classes ^{1a}
lec	cl	lab	pr	sem					
14	2	5	1	1	345	900	30	11.5	19.3

Semester 2

 ${}^{1}BK$ (${}^{1a}BU$) – number of ECTS points assigned to hours of classes requiring direct contact (attendance) of teachers with students ${}^{2}Traditional$ – enter T, remote – enter Z

³Exam – enter I, reinore – enter Z
 ³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)
 ⁴University-wide course / group of courses – enter O
 ⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
 ⁶ KO – general education, PD – basic sciences, K – field-of-studies, S – specialization
 ⁷ Optional – enter W, obligatory – enter Ob

UDI	igatory co	urses/group of curses	NUII	iber of	EU	15 point	S /										
	Course/gro	Name of course/group of courses (denote group of	We	ekly numbe hours	er of	Learning	Numbe	r of hours	Num	ber of ECTS	points	Form ² of	Way ³	C	Course/grou	p of course	es
No.	courses code	courses with symbol GK)	le c	$\begin{array}{c} c \\ c \\ 1 \\ b \end{array} \begin{array}{c} 1 \\ r \\ r \end{array}$	s e m	effect symbol	ZZU	CNPS	total	BK classe ¹	BU classe ^{1a}	oup of courses	creditin g	univers ity- wide ⁴	practic al ⁵	kind ⁶	type ⁷
1	ISS005007	Environmental management	2			K2IS_W 03, K2IS_W 09, K2IS_K0 2	30	90	3	1.0	2.0	Т	Z			К	Ob.
2	GPA10572 3	Spatial planning	1			K2IS _W02, K2IS_W 09, K2IS_K0 1, K2IS_K0 2	15	60	2	0.5	1.0	Т	Z			К	Ob
3	ISS105029	Reliability of engineering systems	1			K2IS_W 06, K2IS_W 09	15	60	2	0.5	1.0	Т	Z			K	Ob
		Total	4				60	210	7	2.0	4.0						

Obligatory conversion of ourses Number of ECTS points 7

Optional courses/group of courses (minimum 45 hours in semester, 2 ECTS points)

No.	Course/group	Name of course/group of courses (denote group of courses with symbol GK)	Wee	kly n hoi	umb irs	er of	Learning effect	Number	of hours	Numbe	er of ECTS	points	Form ² of course/gro	Way ³ of crediting	C	ourse/group	of courses	
	code		lec c	l la	b pi	sem	symbol	ZZU	CNPS	total	BK classes ¹	BU classes ^{1a}	up of courses	ereening	university- wide ⁴	practical ⁵	kind ⁶	type ⁷
1	JZL100710BK	Polish language (or another language)		3			K2IS_U04	45	60	2	1.5	2.0	Т	Z	0	Р	KO	W
		Total		3				45	60	2	1.5	2.0						

Optional courses/group of courses (specialization EQM) (minimum 285 hours in semester, 21 ECTS points)

¹BK (^{1a}BU) – number of ECTS points assigned to hours of classes requiring direct contact (attendance) of teachers with students

 2 Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem) ⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶ KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷ Optional – enter W, obligatory – enter Ob

No.	Course/group of courses	Name of course/group of courses (denote group of courses with symbol GK)	Wee	kly n hou	umbe ırs	r of	Learning effect	Number	of hours	Numb	er of ECTS	points	Form ² of course/gro	Way ³ of crediting	C	ourse/group	of courses	5
	code		lec c	l la	b pr	sem	symbol	ZZU	CNPS	total	BK classes ¹	BU classes ^{1a}	up of courses		university- wide ⁴	practical ⁵	kind ⁶	type ⁷
1	ISS105015	Biodegradable materials	2				K2IS_W09, S2EQM_W 03, K2IS_K03	30	60	2	1.0	1.0	Т	Z			S	1
2	ISS105016	Waste water treatment technology	2				K2IS_W09, S2EQM_W 02	30	60	2	1.0	1.0	Т	Е			S	2
3	ISS105016	Waste water treatment technology		1			K2IS_U06, S2EQM_U0 2, K2IS_K01	15	30	1	0.5	0.7	Т	Z		Р	S	3
4	ISS105030	Solid waste management	2				S2EQM _W04	30	60	2	1.0	1.0	Т	Е			S	4
5	ISS105030	Solid waste management		1			S2EQM _U02, S2EQM _U04, K2IS_K02	15	30	1	0.5	07	Т	Z		Р	S	5
6	ISS105019	Waste gases purification	2				K2IS_W09, S2EQM_W 06	30	60	2	1.0	1.0	Т	Е			S	6
7	ISS105019	Waste gases purification	-	1			S2EQM_U0 4, K2IS_K01	15	30	1	0.5	0.7	Т	Z		Р	S	7
8	ISS105057	Environmental toxicology	1				K2IS_W09, S2EQM_W 05, K2IS_K02	15	30	1	0.5	0.7	Т	Z			S	8
9	ISS105057	Environmental toxicology		1			K2IS_U06, S2EQM_U0 2, K2IS_K02	15	30	1	0.5	0.7	Т	Z		Р	S	Ob
10	ISS105032	Environmental health hazards	2				K2IS_W09, S2EQM_W 05	30	60	2	1.0	1.0	Т	Z			S	Ob
11	ISS105033	Sewage systems	1				K2IS_W09,	15	60	2	0.5	1.0	Т	Z			S	Ob.

 11
 ISS105053
 Sewage systems
 1
 ISS105053
 60
 2
 0.5
 1.0

 1¹BK (^{1a}BU) – number of ECTS points assigned to hours of classes requiring direct contact (attendance) of teachers with students

 2²Traditional – enter T, remote – enter Z

 ³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

 ⁴University-wide course /group of courses – enter O

 ⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

 ⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

 ⁷Optional – enter W, obligatory – enter Ob

							S2EQM_W 07, K2IS_K02										
12	ISS105033	Sewage systems				1	K2IS_U02, K2IS_U05, S2EQM_U0 3, S2EQM_U0 5, K2IS_K02	15	30	1	0.5	0.7	Т	Z	Р	S	Ob.
13	ISS105049	Membrane separation processes in environmental protection	1				K2IS_W09, S2EQM_W 02	15	60	2	0.5	1.0	Т	Z		S	Ob.
14	ISS105049	Membrane separation processes in environmental protection			1		K2IS_U06, S2EQM_U0 2, K2IS_K01	15	30	1	0.5	0.7	Т	Z	Р	S	Ob.
		Total	13	1	4	1		285	630	21	9.5	11.9					

Altogether in semester

	То	tal number o	f hours		Total	Total	Total	Number of	Number of
					number	number	number	ECTS points	ECTS points
					of	of CNPS	of ECTS	for BK	for BU
					ZZU	hours	points	classes1	classes ^{1a}
					hours				
lec	cl	lab	pr	sem					
17	4	4	1		390	900	30	13	17.9

 ${}^{1}BK$ (${}^{1a}BU$) – number of ECTS points assigned to hours of classes requiring direct contact (attendance) of teachers with students ${}^{2}Traditional$ – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem) ⁴University-wide course /group of courses – enter O ⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses ⁶ KO – general education, PD – basic sciences, K – field-of-studies, S – specialization ⁷ Optional – enter W, obligatory – enter Ob

Semester 3

Obligatory courses number of ECTS points 28

	Course/gro		Wee	kly nu hou	ımber rs	of	Learning	Numbe	r of hours	Numb	er of ECTS	points	Form ² of	Way ³		Course/grou	p of courses	s
No.	up of courses code	courses with symbol GK)	le c	c 1 1 a t	p r	s e m	effect symbol	ZZU	CNPS	total	BK classes	BU classes la	group of courses	or creditin g	universi ty- wide ⁴	practica 1 ⁵	kind ⁶	type ⁷
1	ISS105036	Organization of construction works	1				K2IS_W	15	60	2	0.5	1.0	Т	Z			K	Ob
							02, K2IS W											
							08											
2	ISS105058	Buildings regulations	2				K2IS_W 02	30	60	2	1.0	1.0	Т	Z			K	Ob
3	ISS105038	Renewable energy systems	1				K2IS_W	15	60	2	0.5	1.0	Т	Z			К	Ob
							K2IS_W											
							09											
		Total	4					60	180	6	2.0	3.0						

Optional courses (minimum 30 hours in semester, 2 ECTS points)

No.	Course/group	Name of course/group of courses (denote group of	Weekly number of		Learning	Number of hours		Number of ECTS points			Form ² of	Way ³ of	Co	ourse/group	of courses				
	of courses	courses with symbol GK)		hours		effect						course/gro	crediting						
	code		lec	cl]	ab	pr	se	symbol	ZZU	CNPS	total	BK	BU	up of		university-	practical5	kind ⁶	type ⁷
						_	m					classes1	classes ^{1a}	courses		wide ⁴	_		
1	ISS500007BK	Elective subject	1						15	30	1	0.5	1.0	Т	Z				W
2	ISS500007BK	Elective subject			1				15	30	1	0.5	1.0	Т	Z		Р		W
		Total	1		1				30	60	2	1.0	2.0						

 ${}^{1}BK$ (${}^{1a}BU$) – number of ECTS points assigned to hours of classes requiring direct contact (attendance) of teachers with students ${}^{2}Traditional$ – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem) ⁴University-wide course /group of courses – enter O

No.	Course/group of courses	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours		Name of course/group of courses (denote group of courses with symbol GK) Weekly number of hours		Weekly number of Learning hours effect			Number	of hours	Numb	er of ECTS	points	Form ² of course/gro	Way ³ of crediting	C	ourse/group	of courses	l .
	code		lec cl	lab	pr	sem	symbol	ZZU	CNPS	total	BK classes ¹	BU classes ^{1a}	up of courses		university- wide ⁴	practical5	kind ⁶	type ⁷		
1	ISS105035	Diploma seminar				2	K2IS_U06, S2EQM_U0 1, S2EQM_U0 6, K2IS_K01, K2IS_K03	30	60	2	1.0	1.0	Т	Z		Ρ	S	Ob		
2	ISS105034	Diploma project (master thesis)			15		K2IS_U06, S2EQM_U0 1, S2EQM_U0 7, K2IS_K01, K2IS_K03	225	600	20	7.5	3.5	Т	Z		Р	S	Ob		
		Total			15	2		255	660	22	8.5	4.5								

Optional courses/group of courses (specialization EQM) (minimum 255 hours in semester, 22 ECTS points)

Altogether in semester

	Ţ	Fotal numbe	r of hours		Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹	Number of ECTS points for BU classes ^{1a}
lec	cl	lab	pr	sem					
5		1	15	2	345	900	30	11.5	9.5

 ${}^{1}BK$ (${}^{1a}BU$) – number of ECTS points assigned to hours of classes requiring direct contact (attendance) of teachers with students ${}^{2}Traditional$ – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem) ⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
 ⁶ KO – general education, PD – basic sciences, K – field-of-studies, S – specialization
 ⁷ Optional – enter W, obligatory – enter Ob

¹BK (^{1a}BU) – number of ECTS points assigned to hours of classes requiring direct contact (attendance) of teachers with students
 ²Traditional – enter T, remote – enter Z
 ³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)
 ⁴University-wide course / group of courses – enter O
 ⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
 ⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization
 ⁷ Optional – enter W, obligatory – enter Ob

2. Set of examinations in semestral arrangement

Course code	Names of courses ending with examination	Semester
ISS105014 ISS105053 ISS105054	 Water quality management Water treatment technology Sanitary biology 	1
ISS105030 ISS105019	 Solid waste management Waste gases purification 	2

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

Semester	Allowable deficit of ECTS points after semester
1	6
2	6

 ${}^{1}BK$ (${}^{1a}BU$) – number of ECTS points assigned to hours of classes requiring direct contact (attendance) of teachers with students ${}^{2}Traditional$ – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem) ⁴University-wide course /group of courses – enter O

Opinion of student government legislative body

..... Name and surname, signature of student representative Date Dean's signature Date

 ${}^{1}BK$ (${}^{1a}BU$) – number of ECTS points assigned to hours of classes requiring direct contact (attendance) of teachers with students ${}^{2}Traditional$ – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem) ⁴University-wide course /group of courses – enter O