

## **PLAN OF STUDIES**

**FACULTY: FACULTY OF ENVIRONMENTAL ENGINEERING**

**MAIN FIELD OF STUDY: ENVIROMENTAL ENGINEERING**

**EDUCATION LEVEL: 2nd level, Master of Science**

**FORM OF STUDIES: full-time**

**PROFILE: general academic**

**SPECIALIZATION: Environmental Quality Management (EQM)**

**LANGUAGE OF STUDY: English**

Faculty of Environmental Engineering Council Resolution of **12.12.2017**

In effect since **01.10.2017**

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

## Semester 1

### Obligatory courses number of ECTS points 29

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form <sup>2</sup> of course/group of courses	Way <sup>3</sup> of crediting	Course/group of courses			
			l e c	cl	lab	pr	sem		ZZU	CNPS	total	BK classes <sup>1</sup>			university-wide <sup>4</sup>	practical <sup>5</sup>	kind <sup>6</sup>	type <sup>7</sup>
1	JZL10070 9BK	Polish language A1 or English Language C1+		1				K2IS_U0 4	15	30	1	0.5	T	Z	O	P	KO	Ob.
2	FLH07112 1W	Ethics of new and emerging technologies	1					K2IS_W 03, K2IS_W 09, K2IS_K0 2	15	60	2	0.5	T	Z	O		KO	Ob.
3	ZMZ0001 55	Strategic management	2					K2IS_W 03, S2EQM_ W08	30	90	3	1.0	T	Z	O		KO	Ob.
4	ISS005006	Engineering applications of mathematical statistics	1					K2IS_W 01	15	60	2	0.5	T	Z			PD	Ob.
5	ISS005006	Engineering applications of mathematical statistics		1				K2IS_U0 1, K2IS_K0 1	15	30	1	0.5	T	Z		P	PD	Ob.
6	ISS105051	Environmental chemistry	2					K2IS_W 01, K2IS_W 09, S2EQM_ W01, S2EQM_ W02, K2IS_K0 2	30	90	3	1.0	T	Z			PD	Ob.
7	ISS105051	Environmental chemistry			1			K2IS_U0 6,	15	60	2	0.5	T	Z		P	PD	Ob.

<sup>1</sup>BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

<sup>2</sup>Traditional – enter T, remote – enter Z

<sup>3</sup>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)

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

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

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

<sup>7</sup> Optional – enter W, obligatory – enter Ob

										S2EQM_U02, S2EQM_U04										
8	ISS105052	Automation in environmental engineering			1					K2IS_U02	15	60	2	0.5	T	Z		P	K	Ob.
9	ISS105014	Water quality management	2							K2IS_W09, S2EQM_W02	30	90	3	1	T	E			S	Ob.
10	ISS105024	Raw materials management	1							S2EQM_W03, S2EQM_W05, K2IS_K02	15	30	1	0.5	T	Z			S	Ob
11	ISS105024	Raw materials management						1		S2EQM_U01, K2IS_K03, K2IS_K02	15	30	1	0.5	T	Z		P	S	Ob
12	ISS105053	Water treatment technology	2							K2IS_W09, S2EQM_W02	30	60	2	1	T	E			S	Ob
13	ISS105053	Water treatment technology			1					K2IS_U06, S2EQM_U02, K2IS_K01	15	30	1	0.5	T	Z		P	S	Ob
14	ISS105054	Sanitary biology	1							K2IS_W09, S2EQM_W05, K2IS_K02	15	30	1	0.5	T	E			S	Ob
15	ISS105054	Sanitary biology			1					K2IS_U06, S2EQM_U02, K2IS_K0	15	30	1	0.5	T	Z		P	S	Ob

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<sup>2</sup>Traditional – enter T, remote – enter Z

<sup>3</sup>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)

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

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

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<sup>7</sup> Optional – enter W, obligatory – enter Ob

16	ISS105055	AutoCad				1			2	S2EQM_U03, K2IS_K03	15	30	1	0.5	T	Z		P	S	Ob
17	ISS105028	Water supply systems	1							K2IS_W09, S2EQM_W07, K2IS_K02	15	30	1	0.5	T	Z			S	Ob
18	ISS105028	Water supply systems					1			K2IS_K02, K2IS_U02, K2IS_U05, K2IS_U06, S2EQM_U05	15	30	1	0.5	T	Z		P	S	Ob
Total			1 3	2	5	1	1				330	870	29	11.0						

### Optional courses (minimum 15 hours in semester, 1 ECTS points)

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol <b>GK</b> )	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form <sup>2</sup> of course/group of courses	Way <sup>3</sup> of crediting	Course/group of courses				
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes <sup>1</sup>			university-wide <sup>4</sup>	practical <sup>5</sup>	kind <sup>6</sup>	type <sup>7</sup>	
1	ISS200002BK	Elective subject	1						15	30	1	0.5	T	Z				K	W
Total			1						15	30	1	0.5							

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<sup>2</sup>Traditional – enter T, remote – enter Z

<sup>3</sup>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)

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

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

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

<sup>7</sup> Optional – enter W, obligatory – enter Ob

## Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes <sup>1</sup>
lec	cl	lab	pr	sem				
14	2	5	1	1	345	900	30	11.5

## Semester 2

### Obligatory courses number of ECTS points 30

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol <b>GK</b> )	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form <sup>2</sup> of course/group of courses	Way <sup>3</sup> of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes <sup>1</sup>			university-wide <sup>4</sup>	practical <sup>5</sup>	kind <sup>6</sup>	type <sup>7</sup>
1	JZL10071 OBK	Polish language A2		3				K2IS_U04	45	60	2	1.5	T	Z	O	P	KO	Ob
2	ISS005007	Environmental management	2					K2IS_W03, K2IS_W09, K2IS_K02	30	90	3	1.0	T	Z			K	Ob.
3	GPA10572 3	Spatial planning	1					K2IS_W02, K2IS_W09, K2IS_K01, K2IS_K02	15	60	2	0.5	T	Z			K	Ob
4	ISS105029	Reliability of engineering systems	1					K2IS_W06, K2IS_W09	15	60	2	0.5	T	Z			K	Ob
5	ISS105015	Biodegradable materials	2					K2IS_W	30	60	2	1.0	T	Z			S	Ob

<sup>1</sup>BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

<sup>2</sup>Traditional – enter T, remote – enter Z

<sup>3</sup>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)

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

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

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<sup>7</sup> Optional – enter W, obligatory – enter Ob

								09, S2EQM_ W03, K2IS_K0 3										
6	ISS105016	Waste water treatment technology	2					K2IS_W 09, S2EQM_ W02	30	60	2	1.0	T	E			S	Ob
7	ISS105016	Waste water treatment technology			1			K2IS_U0 6, S2EQM_ U02, K2IS_K0 1	15	30	1	0.5	T	Z		P	S	Ob
8	ISS105030	Solid waste management	2					S2EQM_ W04	30	60	2	1.0	T	E			S	Ob
9	ISS105030	Solid waste management			1			S2EQM_ U02, S2EQM_ U04, K2IS_K0 2	15	30	1	0.5	T	Z		P	S	Ob
10	ISS105019	Waste gases purification	2					K2IS_W 09, S2EQM_ W06	30	60	2	1.0	T	E			S	Ob
11	ISS105019	Waste gases purification		1				S2EQM_ U04, K2IS_K0 1	15	30	1	0.5	T	Z		P	S	Ob
12	ISS105057	Environmental toxicology	1					K2IS_W 09, S2EQM_ W05, K2IS_K0 2	15	30	1	0.5	T	Z			S	Ob
13	ISS105057	Environmental toxicology			1			K2IS_U0 6, S2EQM_ U02,	15	30	1	0.5	T	Z		P	S	Ob

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<sup>2</sup>Traditional – enter T, remote – enter Z

<sup>3</sup>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)

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

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

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<sup>7</sup> Optional – enter W, obligatory – enter Ob

									K2IS_K0 2										
14	ISS105032	Environmental health hazards	2						K2IS_W 09, S2EQM_ W05	30	60	2	1.0	T	Z			S	Ob
15	ISS105033	Sewage systems	1						K2IS_W 09, S2EQM_ W07, K2IS_K0 2	15	60	2	0.5	T	Z			S	Ob.
16	ISS105033	Sewage systems				1			K2IS_U0 2, K2IS_U0 5, S2EQM_ U03, S2EQM_ U05, K2IS_K0 2	15	30	1	0.5	T	Z		P	S	Ob.
17	ISS105049	Membrane separation processes in environmental protection	1						K2IS_W 09, S2EQM_ W02	15	60	2	0.5	T	Z			S	Ob.
18	ISS105049	Membrane separation processes in environmental protection			1				K2IS_U0 6, S2EQM_ U02, K2IS_K0 1	15	30	1	0.5	T	Z		P	S	Ob.
Total			1 7	4	4	1	0			390	900	30	13						

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<sup>3</sup>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)

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

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

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<sup>7</sup> Optional – enter W, obligatory – enter Ob

### Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes <sup>1</sup>
lec	cl	lab	pr	sem				
17	4	4	1	0	390	900	30	13

<sup>1</sup>BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

<sup>2</sup>Traditional – enter T, remote – enter Z

<sup>3</sup>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)

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

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

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

<sup>7</sup> Optional – enter W, obligatory – enter Ob



## Semester 3

### Obligatory courses number of ECTS points 28

No..	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol <b>GK</b> )	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form <sup>3</sup> of course/group of courses	Way <sup>3</sup> of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes <sub>1</sub>			university-wide <sup>4</sup>	practical <sup>5</sup>	kind <sup>6</sup>	type <sup>7</sup>
1	ISS105036	Organization of construction works	1					K2IS_W02, K2IS_W08	15	60	2	0.5	T	Z			K	Ob
2	ISS105058	Buildings regulations	2					K2IS_W02	30	60	2	1.0	T	Z			K	Ob
3	ISS105038	Renewable energy systems	1					K2IS_W07, K2IS_W09	15	60	2	0.5	T	Z			K	Ob
4	ISS105035	Diploma seminar					2	K2IS_U06, S2EQM_U01, S2EQM_U06, K2IS_K01, K2IS_K03	30	60	2	1.0	T	Z		P	S	Ob
5	ISS105034	Diploma project (master thesis)				15		K2IS_U06, S2EQM_U01, S2EQM_U07, K2IS_K01, K2IS_K03	225	600	20	7.5	T	Z		P	S	Ob
Total			4			15	2		315	840	28	10.5						

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<sup>2</sup>Traditional – enter T, remote – enter Z

<sup>3</sup>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)

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

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

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<sup>7</sup> Optional – enter W, obligatory – enter Ob

**Optional 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 <b>GK</b> )	Weekly number of hours					Field-of-study educational effect symbol	Number of hours		Number of ECTS points		Form <sup>2</sup> of course/group of courses	Way <sup>3</sup> of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	total	BK classes <sup>1</sup>			university-wide <sup>4</sup>	practical <sup>5</sup>	kind <sup>6</sup>	type <sup>7</sup>
1	ISS500007BK	Elective subject	1					15	30	1	0.5	T	Z				W	
2	ISS500007BK	Elective subject			1			15	30	1	0.5	T	Z		P		W	
Total			1		1			30	60	2	1.0							

**Altogether in semester**

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes <sup>1</sup>
lec	cl	lab	pr	sem				
5	0	1	15	2	345	900	30	11.5

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<sup>3</sup>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)

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

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

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## 2. Set of examinations in semestral arrangement

Course code	Names of courses ending with examination	Semester
ISS105014 ISS105053 ISS105054	1. Water quality management 2. Water treatment technology 3. Sanitary biology	1
ISS105030 ISS105019	1. Solid waste management 2. 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

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<sup>3</sup>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)

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

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

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<sup>7</sup> Optional – enter W, obligatory – enter Ob

Opinion of student government legislative body

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Date Name and surname, signature of student representative

.....

Date Dean's signature

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<sup>3</sup>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)

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

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

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<sup>7</sup> Optional – enter W, obligatory – enter Ob