

# **PROGRAMME OF EDUCATION**

**FACULTY OF MECHANICAL AND POWER ENGINEERING**

**MAIN FIELD OF STUDY: MECHANICAL ENGINEERING AND MACHINE BUILDING**

in area of science: Technical Sciences

**EDUCATION LEVEL: 2nd level, magister inżynier studies**

**FORM OF STUDIES: part-time**

**PROFILE: general academic**

**SPECIALIZATION ENGINEERING OF AVIATION**

**LANGUAGE OF STUDY: polish**

Content:

1. Assumed educational effects – attachment no. 1
2. Programme of studies – attachment no. 2

Faculty Council Resolution of September 26, 2012

In effect since October 1, 2012

Edited adjustment\_April 2014

## PROGRAMME OF STUDIES

## 1. Description

<i>Number of semesters:3</i>	<i>Number ECTS points necessary to obtain qualifications:90</i>
<i>Prerequisites (particularly for second-level studies):</i> qualifications and competence of engineering degree and to continue education in college the second degree: knowledge of mathematics, physics and chemistry, enabling understanding of the fundamentals of mechanics, materials and principles of construction machinery, knowledge of mechanics, strength of materials and construction of foundations, enabling the understanding and design of the basic machine components, the ability to use to formulate and solve engineering tasks analytical methods, simulation and experimental knowledge of fluid flow including all thermal processes, knowledge of the record structure using 2D and 3D CAD, the ability to communicate in English and the presentation and documentation of the experiment, and the presentation and documentation of the tasks of a project	<i>Upon completion of studies graduate obtains professional degree of: magister inżynier</i>  <i>2nd level qualifications</i>
<i>Possibility of continuing studies:</i>  The third degree PhD studies	<i>Graduate profile, employability:</i> Graduates have the knowledge and skills in the following areas: engineering, design, manufacture and operation of machines and manufacturing systems and environmental technologies and safety. They are ready to use creative methods and technologies supporting the design, manufacture and operation of the equipment and the choice of materials engineering, management and development of production in industrial and process control, research in research institutes, management design companies in the

<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

	<p>field of construction machinery and technological processes of doing business. They have the necessary knowledge and skills in the design, testing and operation of aircraft with particular emphasis on planning, organization and control of the process of aircraft maintenance, repair and overhaul them. They knows a foreign language at level B2 + and a second foreign language at A1 or A2.</p>
<p><i>Indicate connection with University's mission and its development strategy:</i></p>	<p>The training program is consistent with the mission of the university in the transfer of knowledge and skills to maintain high quality of education and the development of creative, critical and tolerant personality of students by developing and nurturing a strong sense of academic community based on communication and social rights of students and staff</p>

## 2. Fields of science and scientific disciplines to which educational effects apply: Engineering Sciences

### 3. Concise analysis of consistency between assumed educational effects and labour market needs

The expected increase in education provide engineering competencies gained on the first level of education, especially in terms of knowledge and skills, with particular emphasis on creativity in solving specific technical problems. The training program equips graduates with the attributes thus enabling him to adapt to the rapidly changing requirements of the labor market.

<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

## 4. List of education modules

### 4.1. List of obligatory modules

#### 4.1.1 List of main-field-of-study modules

##### 4.1.1.1 Obligatory main-field-of-study modules

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			
			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	MNN0590	Mechatronics and Control Systems	1,07					K2MBM_W01	16	90	3	1,5	T	E			K	Ob
2	MNN0590	Mechatronics and Control Systems			1,07			K2MBM_U01 K2MBM_K02 K2MBM_K03 K2MBM_K04	16	60	2	1,5	T	Z		P	K	Ob
3	MNN1382	Modern engineering materials	1,07					K2MBM_W02	16	30	1	0,5	T	Z			K	Ob
4	MNN1382	Modern engineering materials			1,07			K2MBM_U02	16	30	1	0,75	T	Z		P	K	Ob
5	MNN1363	Modern engineering materials					0,53	K2MBM_U06	8	30	1	0,75	T	Z		P	K	Ob
6	MNN0532	Mechanics analytical	1,6					K2MBM_W03	24	60	2	1	T	Z			K	Ob
7	MNN0672	Modelling and Optimization	1,07					K2MBM_W04	16	60	2	1	T	E			K	Ob
8	MNN0672	Modelling and Optimization			1,6			K2MBM_U03	24	90	3	2,25	T	Z		P	K	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

9	MNN1520	Master Seminar					1,07	K2MBM_U07 K2MBM_K01 K2MBM_K03 K2MBM_K04 K2MBM_K05	16	60	2	1,5	T	Z		P	K	Ob
10	MNN0032	Analysis of turbomachinery damages	1,07					K2MBM_W05 K2MBM_K05	16	60	2	1	T	Z			K	Ob
11	MNN0032	Analysis of turbomachinery damages			0,53			K2MBM_U04	8	30	1	0,75	T	Z		P	K	Ob
12	MNN1437	Integrated Production Systems	1,6					K2MBM_W06	16	60	2	1	T	Z			K	Ob
13	MNN1437	Integrated Production Systems			1,07			K2MBM_U05	16	30	1	0,75	T	Z		P	K	Ob
Total			5,88	5,88		5,34		1,6		216	690	23	14,25					

**Altogether (for main-field-of-study modules):**

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				
7,48		5,34		1,6	216	690	23	14,25

<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

## 4.2 List of optional modules

### 4.2.1 List of general education modules

#### 4.2.1.1 Liberal-managerial subjects modules (min. 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	ZNN100200BK	Management course	0,53					K2MBM_W08	8	30	1	0,5	T	Z	O		KO	W
2	HNN100200BK	Humanities course	0,53					K2MBM_W07 K2MBM_K02	8	30	1	0,5	T	Z	O		KO	W
Total			1,06						16	60	2	1						

#### 4.2.1.2 Foreign languages module (min. 3 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	JZL100655BK	Foreign language (continuation), level B2+		0,53				K2MBM_U08	8	30	1	0,75	T	Z	O	P	KO	W
2	JZL100655BK	Foreign language (second), any level		2,13				K2MBM_U09	32	60	2	1,5	T	Z	O	P	KO	W
Total				2,66					40	90	3	2,25						

<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

### Altogether for general education modules:

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				
1,06	2,66				56	150	5	3,25

## 4.2.2 List of main-field-of-study modules

### 4.2.2.1 Master individual student project module (*min.9 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	MNN1490	Master individual student project				6,00		K2MBM_U07 K2MBM_K01 K2MBM_K04 K2MBM_K05	90	270	9	4	T	Z		P	K	W
Total						6			90	270	9	4						

### 4.2.2.2 Master Thesis module (*min.20 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	MNN1550	Master Thesis						K2MBM_U07 K2MBM_K01 K2MBM_K04 K2MBM_K05		600	20	4	T	Z		P	K	W
Total										600	20	4						

<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

### Altogether for main-field-of-study modules:

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				
			6		90	870	29	8

## 4.2.3 List of specialization modules

### 4.2.3.1 Engineering of Aviation modules (min. 33. 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	MNN0060	Structure of aircrafts	1,07					S2ILO_W02	16	60	2	1	T	Z			S	W
2	MNN0060	Structure of aircrafts		0,53				S2ILO_U03	8	30	1	0,75	T	Z		P	S	W
3	MNN1660	Aircraft power systems	0,53					S2ILO_W08	8	30	1	0,5	T	Z			S	W
4	MNN1660	Aircraft power systems				0,53		S2ILO_U04	8	30	1	0,75	T	Z		P	S	W
5	MNN0841	Bases of the theory of oscillation	1,07					S2ILO_W03	16	60	2	1	T	E			S	W
6	MNN0841	Bases of the theory of oscillation		1,07				S2ILO_U05	16	30	1	0,75	T	Z		P	S	W

<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

7	MNN0911	Aviation law	0,53					S2ILO_W06	8	30	1	0,5	T	Z			S	W
8	MNN0911	Aviation law					0,53	S2ILO_U10	8	30	1	0,75	T	Z		P	S	W
9	MNN0951	Design of propulsion units	1,07					S2ILO_W01	16	60	2	1	T	E			S	W
10	MNN0951	Design of propulsion units		1,07				S2ILO_U01	16	30	1	0,75	T	Z		P	S	W
11	MNN0951	Design of propulsion units				0,53		S2ILO_U02	8	30	1	0,75	T	Z		P	S	W
12	MNN1301	Durability and reliability of aircraft	1,07					S2ILO_W07	16	60	2	1	T	Z			S	W
13	MNN1391	Selected problems on fluid mechanics	0,53					S2ILO_W04	8	30	1	0,5	T	Z			S	W
14	MNN1391	Selected problems on fluid mechanics		0,53				S2ILO_U06	8	30	1	0,75	T	Z		P	S	W
15	MNN1391	Selected problems on fluid mechanics			0,53			S2ILO_U07	8	30	1	0,75	T	Z		P	S	W
16	MNN0181	Flight dynamics and aeroelasticity of aircrafts	1,07					S2ILO_W05	16	60	2	1	T	E			S	W
17	MNN0181	Flight dynamics and aeroelasticity of aircrafts				1,07		S2ILO_U08	16	60	2	1,5	T	Z		P	S	W
18	MNN0551	Helicopter flight mechanics	1,07					S2ILO_W09	16	60	2	1	T	Z			S	W
19	MNN0551	Helicopter flight mechanics		1,07				S2ILO_U11	16	30	1	0,75	T	Z		P	S	W
20	MNN0551	Helicopter flight mechanics				0,53		S2ILO_U12	8	30	1	0,75	T	Z		P	S	W

<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

21	MNN0601	Numerical methods in design of constructions				2,13		S2ILO_U09	32	120	4	3	T	Z		P	S	W
22	MNN1461	Safety management in aviation	1,07					S2ILO_W10	16	60	2	1	T	Z			S	W
Total			9,08	4,27	0,53	4,79	0,53		288	990	33	20,5						

**Altogether for specialization modules:**

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				
9,08	4,27	0,53	4,79	0,53	288	990	33	20,5

**4.3 Diploma dissertation module**

<b>Type of diploma dissertation</b>	magister	
<b>Number of diploma dissertation semesters</b>	<b>Number of ECTS points</b>	<b>Code</b>
1	20	MNN1550
<b>Character of diploma dissertation</b>		
Experiment/Literature survey/ project, computer program, etc.		
<b>Number of BK<sup>1</sup> ECTS points</b>	4	

<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

## 5. Ways of verifying assumed educational effects

Type of classes	Ways of verifying assumed educational effects
lecture	examination/ final test
class	progress/final test
laboratory	pretest, report from laboratory
project	project defence
seminar	participation in discussion, topic presentation, essay
training	report from training
diploma dissertation	prepared diploma dissertation

**6. Total number of ECTS points, which student has to obtain from classes requiring direct academic teacher-student contact (enter total of ECTS points for courses/groups of courses denoted with code BK<sup>1</sup>)**

**46 ECTS**

**7. Total number of ECTS points, which student has to obtain from basic sciences classes**

Number of ECTS points for obligatory subjects.	0
Number of ECTS points for optional subjects	0
Total number of ECTS points	0

<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

**8. Total number of ECTS points, which student has to obtain from practical classes, including laboratory classes** (enter total number of ECTS points for courses/group of courses denoted with code P)

Number of ECTS points for obligatory subjects including laboratory classes and project <sup>8</sup>	11
Number of ECTS points for optional subjects including laboratory classes and project including diploma dissertation <sup>20</sup>	48 19
Total number of ECTS points	59

**9. Minimum number of ECTS points, which student has to obtain doing education modules offered as part of university-wide classes or other main field of study** (enter number of ECTS points for courses/groups of courses denoted with code OG)

**5 ECTS points**

**10. Total number of ECTS points, which student may obtain doing optional modules (min. 30% of total number of ECTS points)**

**46 ECTS points**

**11. Range of diploma dissertation**

**1. Teoretical issues**

- 1.1. Free and constrained systems, constraints, and their classification
- 1.2. Construction and operation of computerized measuring systems
- 1.3. Flatter wings - symptoms, causes, methods of elimination
- 1.4. Divergence of an aircraft wing
- 1.5. Trust of helicopterer rotor with axial flow
- 1.6. Rotor torque reaction
- 1.7. Controllability of the helicopter
- 1.8. Aviation safety measures
- 1.9. Classification of air accidents

<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

1.10. Redundant in aircraft construction

## **2. Structural Issues**

2.1. Analog-digital data acquisition systems

2.2. Sensors in data acquisition systems

2.3. Buffeting vibration of aircraft structures

2.4. Vibration type Shimmy

2.5. Methodology preliminary calculations one gas-dynamic flow turboengine

2.6. Methodology preliminary calculations two gas-dynamic flow turboengine

2.7. Construction and operation of an aircraft air conditioning system

2.8. Construction and operation of aircraft fuel systems

2.9. Construction and operation of aircraft hydraulic systems

2.10. Construction materials used in the construction of aircraft

## **3. Operational Issues**

3.1. Development of reliable methods in the design of aircraft

3.2. The rules controlling the efficiency of systems: fuel, hydraulic and pneumatic

3.3. Methods of air accident investigation

3.4. Characteristics of physical phenomena that affect the aging of technical objects

3.5. The types of aircraft stability

3.6. Issues fatigue strength of aircraft components

3.7. Reliability models

3.8. Flight Crew Licensing

3.9. Rescue flights

3.10. Characterization methods of handling aircraft

<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

## 12. Requirements concerning deadlines for crediting courses/groups of courses for all courses in particular modules

<i>No.</i>	<i>Course code</i>	<i>Name of course</i>	<i>Crediting by deadline of... (number of semester)</i>
	Faculty Council Resolution nr 4/D/2008 of 19.09.2008	Student to be admitted to the execution module thesis is to pass all subjects in the curriculum in the semester prior to the semester of graduation	

## 13. Plan of studies (attachment no. 1)

<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