

**STRUCTURE OF THE STUDY PROGRAM INDUSTRIAL ENGINEERING  
FIRST CYCLE OF FOUR-YEAR STUDIES**

**Subject programs, first year - first semester**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1.	2FI100112	Mathematics 1	8	3+2+2	240
2.	2MF100117	Mechanical materials 1	8	3+2+2	240
3.	2MF100617	Engineering graphics	6	2+2+1	180
4.		Elective university subject from a list Nr.1-1	4	2+1+1	120
5.		Elective university subject from a list Nr.1-2	4	2+1+1	120
6.		Sport and Recreation			
<b>Total ECTS</b>			<b>30</b>	<b>12+8+7</b>	<b>900</b>

**List Nr.1-1** elective university subject (only one subject)

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1.	4FF100817	English language A2.1	4	2+1+1	120
2.	4FF100917	German language A1.1	4	2+1+1	120

**List Nr.1-2** elective university subject (only one subject)

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1.	2MF100317	Chemics	4	2+1+1	120
2.	2MF100417	Phisics	4	2+1+1	120

**Subject programs, first year - second semester**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	2FI100412	Mathematics 2	8	3+2+2	240
2	2MF100517	Mechanical materials 2	6	2+2+1	180
3	2MF100217	Statics	6	2+2+1	180
4		Elective university subject from a list Nr.2	4	2+1+1	120
5		Elective university subject from a list Nr.9	4	0+0+4	120
		<b>Practical teaching *</b>	2	0+0+2	60
<b>Total ECTS</b>			<b>30</b>	<b>9+7+1</b>	<b>900</b>

**List Nr.2** elective university subject (only one subject)

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	4FF101717	English language A2.2	4	2+1+1	120
2	4FF101817	German language A1.2	4	2+1+1	120

**Subject programs, first year - third semester**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	2MF100817	Strength of materials	8	3+2+2	240
2	2MF100917	Kinematics and dynamics	8	3+2+2	240
3	2MF101017	Industrial Management	6	2+2+1	180
4		Elective faculty subject from a list Nr.3-1	4	2+1+1	120
5		Elective faculty subject from a list Nr.3-2	4	2+1+1	120
<b>Total ECTS</b>			<b>30</b>	<b>12+8+7</b>	<b>900</b>

**List Nr.3-1 elective faculty courses (only one subject)**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	2MF101117	Modern engineering materials	4	2+1+1	120
2	2MF101217	Engineering software	4	2+1+1	120

**List Nr.3-2 elective faculty courses (only one subject)**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	2MF100717	Electrical engineering and electronics	4	2+1+1	120
2	2MF101417	Engineering logistics	4	2+1+1	120

**Subject programs, second year - fourth semester**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	2MF101517	Mechanical elements 1	6	2+2+1	180
2	2MF101617	Thermodynamics	8	3+2+2	240
3	2MF101717	Numerical mathematics	6	2+2+1	180
4		Elective faculty subject from a list Nr.4	4	2+1+1	120
5		Elective faculty subject from a list Nr.9	4	0+0+4	120
		<b>Practical teaching *</b>	<b>2</b>		
<b>Total ECTS</b>			<b>30</b>	<b>9+7+9</b>	<b>900</b>

**List Nr.4 elective faculty courses (only one subject)**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	2MF102817	Quality management	4	2+1+1	120
2	2MF101317	Renewable energy sources	4	2+1+1	120

**Subject programs, third year - fifth semester**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	2MF102017	Fluid mechanics	8	3+2+2	240
2	2MF102117	Basics of internal combustion engines	8	3+2+2	240
3	2MF104417	Project management	6	2+2+1	180
4		Elective faculty subject from a list Nr.5	4	2+1+1	120
5		Elective faculty subject from a list Nr.5	4	2+1+1	120
<b>Total ECTS</b>			<b>30</b>	<b>12+8+7</b>	<b>900</b>

**List Nr.5 elective faculty courses (two subject)**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	2MF102317	Engineering economics	4	2+1+1	120
2	2MF102417	Measurement and measuring instruments	4	2+1+1	120
3	2MF104517	Operational management	4	2+1+1	120
4	2MF102617	Probability and statistics	4	2+1+1	120

**Subject programs, third year - sixth semester**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	2MF104617	Operational research	8	3+2+2	240
2	2MF101817	Welding technologies	6	2+2+1	180
3	2MF102917	CAD Technology	6	2+2+1	180
4		Elective faculty subject from a list Nr.6	4	2+1+1	120
5		Elective university subject from a list Nr.9	4	0+0+4	120
		<b>Practical teaching *</b>	<b>2</b>	<b>0+0+4</b>	<b>60</b>
<b>Total</b>			<b>30</b>	<b>9+7+13</b>	<b>900</b>

**List Nr.6 elective faculty courses (only one subject)**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	2MF102717	Production technologies	4	2+1+1	120
2	2MF103117	Occupational safety	4	2+1+1	120

**Subject programs, fourth year - seventh semester**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	2MF104817	Information systems management	8	3+2+2	240
2	2MF104917	Study of the work	8	3+2+2	240
3	2MF105517	Optimization models	6	2+2+1	180
4		Elective faculty subject from a list Nr.7.1	4	2+1+1	120
5		Elective faculty subject from a list Nr.7.2	4	2+1+1	120
<b>Total</b>			<b>30</b>	<b>12+8+7</b>	<b>900</b>

**List Nr.7.1 elective faculty courses (only one subject)**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	2MF105117	Business Law	4	2+1+1	120
2	2MF105717	Human resources	4	2+1+1	120

**List Nr.7.2 elective faculty courses (only one subject)**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	2MF105317	Strategic management	4	2+1+1	120
2	2MF105417	Basics of accounting	4	2+1+1	120

**Subject programs, fourth year - eighth semester**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	2MF105617	Business process design and simulations	4	2+1+1	120
2	2MF105017	Technological development management	4	2+1+1	120
3	2MF104117	Product development management	4	2+1+1	120
4		Elective faculty subject from a list Nr.8	4	2+1+1	120
5		Elective university subject from a list Nr.9	4	0+0+4	120
		Practical teaching - interdisciplinary project	4	0+0+4	120
		Diploma thesis	6	0+0+8	180
<b>Total</b>			<b>30</b>	<b>8+4+20</b>	<b>900</b>

**List Nr.8 elective faculty courses (only one subject)**

	<b>Code of the subject</b>	<b>Subject</b>	<b>ECTS</b>	<b>Fund of classes</b>	<b>Total classes</b>
1	2MF105217	Innovation management	4	2+1+1	120
2	2MF104317	Ergonomics	4	2+1+1	120
3	2MF104717	Product life management	4	2+1+1	120
4	2MF101917	Organizational behavior	4	2+1+1	120

**List Nr.9 of electives from the free list of University subjects for the first cycle of studies  
(four subjects to be selected)**

	<b>Code</b>	<b>List of University electives subjects II, IV, VI and VIII semester</b>			
		<b>Subjects</b>	<b>ECTS</b>	<b>Classes</b>	<b>Total</b>
1.	UGD100117	Macedonian literature and culture	4	0+0+4	120
2.	UGD100217	Macedonian language, orthography	4	0+0+4	120
3.	UGD100317	Ethics	4	0+0+4	120
4.	UGD100417	History of Macedonia	4	0+0+4	120
5.	UGD100517	Copyright	4	0+0+4	120
6.	UGD100617	Tolerance and conflict resolution	4	0+0+4	120
7.	UGD100717	Business systems	4	0+0+4	120
8.	UGD100817	Tourism industry	4	0+0+4	120
9.	UGD100917	Entrepreneurship and innovation	4	0+0+4	120
10.	UGD101017	Management of self-development and behavior	4	0+0+4	120
11.	UGD101117	Business Economics	4	0+0+4	120
12.	UGD101217	Choir singing	4	0+0+4	120
13.	UGD101317	Music and art	4	0+0+4	120
14.	UGD101417	Introduction to film history	4	0+0+4	120
15.	UGD101517	Dramaturgy	4	0+0+4	120
16.	UGD101617	Basics of drawing	4	0+0+4	120
17.	UGD101717	History of classical painting	4	0+0+4	120
18.	UGD101817	Health promotion	4	0+0+4	120
19.	UGD101917	Oral health and hygiene	4	0+0+4	120
20.	UGD102017	Precious and semi-precious minerals	4	0+0+4	120
21.	UGD102117	Earth science	4	0+0+4	120
22.	UGD102217	Living science	4	0+0+4	120
23.	UGD102317	Environmental Protection	4	0+0+4	120
24.	UGD102417	Intelligent electronic components and devices	4	0+0+4	120
25.	UGD102517	Experiment planning	4	0+0+4	120
26.	UGD102617	History of clothing	4	0+0+4	120
27.	UGD102717	Management and quality control	4	0+0+4	120
28.	UGD102817	Informatics	4	0+0+4	120
29.	UGD102917	Basics of programming	4	0+0+4	120