

Mechanical Design and Production Engineering Program – First Cycle

Compulsory Courses

Year 1 - Semester 1

Code	Course	ECTS
2FI100124	Mathematics 1	8
2MF100124	Mechanics 1	6
2MF100224	Mechanical Materials 1	6
2MF100324	Engineering Graphics	6

Year 1 - Semester 2

Code	Course	ECTS
2FI100224	Mathematics in 3D	6
2MF100424	Strength of Materials	6
2MF100424	Industrial Management	6
2FP160324	Basics of Design	6

Year 2 - Semester 3

Code	Course	ECTS
2MF100724	Mechanics 2	8
2MF104324	Production Techniques for Product Design	8
2MF101724	CAD Technology	6

Year 2 - Semester 4

Code	Course	ECTS
2MF101124	Machine Elements	6
2MF102924	Materials for Design	6
2MF103024	Sustainable Production	6
2FP162524	Industrial Design	6

Year 3 - Semester 5

Code	Course	ECTS
2MF103124	Product Construction	8
2MF101524	3D Modelling and Visualization	6
2MF102624	Project Management	6
2MF102324	Modeling and Simulation 1	6

Year 3 - Semester 6

Code	Course	ECTS
2MF103224	Advanced Computer Modelling Techniques	8
2TT100124	Design & Production of Plastic Products	6
2FP164624	Process Design	6

Year 4 - Semester 7

Code	Course	ECTS
2MF103324	Rapid Prototyping, Models and Tools	8
2MF102524	Product Development Management	8
2RT100924	Actuators and Sensors	6

Year 4 - Semester 8

Code	Course	ECTS
2MF103524	Thermofluid Analysis and CFD Design	4
2MF103624	Machine and Device Design	4
2MF103724	Production Information Systems	4

Elective Courses

Table 1 Electives – Semester 1 - one elective course must be selected

Code	Course	ECTS
4FF100124	Macedonian Language 1	4
4FF100224	English Language A2.1	4
4FF100324	German Language A1.1	4
4FF100424	Italian Language A1.1	4
4FF100524	Spanish Language A1.1	4
4FF100624	French Language A1.1	4
4FF100724	Russian Language A1.1	4

Table 2 Electives – Semester 2 - one elective course must be selected

Code	Course	ECTS
4FF100824	Macedonian Language 2	4
4FF100924	English Language A2.2	4
4FF101024	German Language A1.2	4
4FF101124	Italian Language A1.2	4
4FF101224	Spanish Language A1.2	4
4FF101324	French Language A1.2	4

4FF101424	Russian Language A1.2	4
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Table 3 Electives – Semester 3 - two elective courses must be selected

Code	Course	ECTS
2FP161724	Design Elements	4
2MF101024	Technology Development Management	4
2ET100124	Programming Basics	4
2ET100224	Electrical Engineering	4
2FI130424	Professional Skills	4

Table 4 Electives -Semester 4 - one elective course must be selected

Code	Course	ECTS
2MF10324	Thermal Machines & Devices	4
2ET100524	Cloud Computing	4

Table 5 Electives – Semester 5 - one elective course must be selected

Code	Course	ECTS
2MF104024	Automation of Machines and Processes	4
2FP121824	Workplace Safety	4
2MF100824	Numerical Mathematics	4

Table 6 Electives – Semester 6 - two elective courses must be selected

Code	Course	ECTS
2FP170824	Graphic Design	4
2MF100924	Intelligent Transport Systems	4
2MF103124	Geoinformation Management	4
2MF104124	Energy Efficient Devices	4

Table 7 Electives – Semester 7 - two elective courses must be selected

Code	Course	ECTS
2MF104024	Design and Analysis of Experiments	4
2TT104724	Quality Systems and Standards	4
2FP170424	3D Computer Simulation	4
2MF104224	Engineering Economics	4

Table 8 Electives – Semester 8 - two elective courses must be selected

Code	Course	ECTS
2ET101224	Industrial Robots	4
2MF104224	Transport Vehicle Design	4
2MF102824	Finite Element Method	4

2TT100224	Composite Product Design	4
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