

**Faculty of Mechanical Engineering / MECHANICAL ENGINEERING /**

<b>Course:</b>				
<b>Course ID</b>	<b>Course status</b>	<b>Semester</b>	<b>ECTS credits</b>	<b>Lessons</b> (Lessons+Exercises+Laboratory)
11101	Mandatory	6	4	2+0+2
<b>Programs</b>	MECHANICAL ENGINEERING			
<b>Prerequisites</b>				
<b>Aims</b>	Acquisition of theoretical and practical knowledge when using modern CAD/CAM systems.			
<b>Learning outcomes</b>	After passing the exam in this subject, students will be able to: 1. Apply fundamental knowledge in the field of geometric product modeling. 2. Perform product design using modern software tools. 3. They will be able to define the choice of technology. 4. Generate a program for creating a workpiece. 5. Describe and explain CNC machines, as well as the principles of operation.			
<b>Lecturer / Teaching assistant</b>	Asst. Prof. Nikola Šibalić, PhD			
<b>Methodology</b>	Lectures, laboratory exercises, consultations and preparation of the test report.			
<b>Plan and program of work</b>				
Preparing week	Preparation and registration of the semester			
I week lectures	Introduction. Application of CAD/CAM system.			
I week exercises	Introduction. Application of CAD/CAM system.			
II week lectures	The design process and the role of CAD.			
II week exercises	The design process and the role of CAD.			
III week lectures	Parametric modeling and shape definition.			
III week exercises	Parametric modeling and shape definition.			
IV week lectures	Techniques for geometric modeling. Surface and volume modeling.			
IV week exercises	Techniques for geometric modeling. Surface and volume modeling.			
V week lectures	Designing simple objects. Creating three-dimensional objects by rotating the cross-section.			
V week exercises	Designing simple objects. Creating three-dimensional objects by rotating the cross-section.			
VI week lectures	Colloquium I.			
VI week exercises	Colloquium I.			
VII week lectures	Remedial colloquium I.			
VII week exercises	Remedial colloquium I.			
VIII week lectures	Designing complex objects. Creating coils and spirals.			
VIII week exercises	Designing complex objects. Creating coils and spirals.			
IX week lectures	Creation of dimensioned technical drawings.			
IX week exercises	Creation of dimensioned technical drawings.			
X week lectures	Creation and production of assemblies and sub-assemblies.			
X week exercises	Creation and production of assemblies and sub-assemblies.			
XI week lectures	3D digitization. Digitizing devices.			
XI week exercises	3D digitization. Digitizing devices.			
XII week lectures	Definition and selection of general production parameters. Types of technological operations.			
XII week exercises	Definition and selection of general production parameters. Types of technological operations.			
XIII week lectures	Creation of technological operations and post-processing.			
XIII week exercises	Creation of technological operations and post-processing.			
XIV week lectures	CNC - machines, principle of operation. Integration of product design and manufacturing processes.			
XIV week exercises	CNC - machines, principle of operation. Integration of product design and manufacturing processes.			
XV week lectures	Application of conventional languages for programming CNC machines.			

XV week exercises		Application of conventional languages for programming CNC machines.				
Student workload						
Per week		Per semester				
<b>4 credits x 40/30=5 hours and 20 minuts</b> 2 sat(a) theoretical classes 2 sat(a) practical classes 0 excercises <b>1 hour(s) i 20 minuts</b> of independent work, including consultations		Classes and final exam: <b>5 hour(s) i 20 minuts x 16 =85 hour(s) i 20 minuts</b> Necessary preparation before the beginning of the semester (administration, registration, certification): <b>5 hour(s) i 20 minuts x 2 =10 hour(s) i 40 minuts</b> Total workload for the subject: <b>4 x 30=120 hour(s)</b> Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) <b>24 hour(s) i 0 minuts</b> Workload structure: <b>85 hour(s) i 20 minuts (cources), 10 hour(s) i 40 minuts (preparation), 24 hour(s) i 0 minuts (additional work)</b>				
Student obligations		Attendance at lectures and laboratory exercises. Project work done. Colloquium passed.				
Consultations						
Literature		[1] Predavanja u elektronskom obliku. [2] R. Toogood: Pro/Engineer wildfire 3.0, Kompjuter biblioteka, 2007. [3] Creo, manuel, 2015. [4] Cris Mc Mahon: CADCAM, Addison Wesley, 1998.				
Examination methods		Project work 30 points. Colloquium 30 points. Final exam 40 points, written/oral.				
Special remarks						
Comment						
Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points