

Course Unit Descriptor

Study Programme: Mechanical Engineering		
Course Unit Title: Assembly technologies		
Course Unit Code: 21.DAS103		
Name of Lecturer(s): Assistant professor Mića Đurđev, PhD		
Type and Level of Studies: Bachelor Academic Degree		
Course Status (compulsory/elective): Elective		
Semester (winter/summer): Summer		
Language of instruction: English		
Mode of course unit delivery (face-to-face/distance learning): Face-to-Face		
Number of ECTS Allocated: 6		
Prerequisites: None		
Course Aims: Introducing students to technologies and systems for joining parts and components in order to obtain an assembled and functional product.		
<p>Learning Outcomes:</p> <p>After completing the course and passing the exam, the student is capable of structuring products, identifying necessary joining operations, and defining the optimal sequence of their execution. The student is then capable of planning the technological process and systems for manual-mechanized, robotic, and automated assembly operations, as well as joining individual elements into a complex system. The student is also equipped to perform evaluations of operation cost and time.</p>		
<p>Syllabus:</p> <p><i>Theory</i></p> <p>Design and Assembly, Classification and Joining Operations; Types of Mechanical Joints; Classification of Threaded Joints; Threaded Joints; Metric, Trapezoidal Threads.</p> <p>Thread Tolerances; Thread Load; Load Distribution; Stress in Thread Core; Material and Durability of Threaded Parts; Screw Joints; Tightening of Screw Joints; Longitudinal Load of Screw Joints; Stiffness of Screws and Joined Parts; Transverse Load of Screw Joints; Group Screw Joints; Movable Threaded Joints; Shaft-Hub Joints; Wedge Joints; Groove Joints; Conical Surface Joints; Soldering Assembly (Soldered Joint, Fluxes, Hard and Soft Soldering, Forms of Additional Materials (powder, paste, wires, foils, strips), Types of Joints); Soldering Operations (Gas Soldering, Arc Soldering, Resistance Soldering, Laser Soldering, Dip Soldering in Liquid Solder, Furnace Soldering, Induction Soldering, Welding Soldering, Soft Wave Soldering, Soft Soldering with a Soldering Iron); Adhesive Assembly; Hardening Mechanisms; Riveting Assembly (Types of Riveted Joints, Rivets, Classifications); Press Assembly; Mechanical Functional Joints; Bearing Assembly; Sliding Bearing Assembly; Rolling Bearing Assembly; Gear Drive Assembly; Cylindrical Gear Drive Assembly; Bevel Gear Drive Assembly; Worm Gear Drive Assembly; Chain Drive Assembly; Assembly of Pulleys and Flywheels on Shafts; Shaft and Coupling Assembly; Assembly of Axles and Spindles; Installation of Springs; Assembly of Movable Conical Joints; Pipeline and Seal Assembly.</p> <p><i>Practice</i></p> <p>Solving tasks and examples from the selected fields that are covered in the theoretical part.</p>		
Required Reading: None		
Weekly Contact Hours: 4	Lectures: 2	Practical work: 2
Teaching Methods: Illustrative teaching methods. Demonstration teaching methods. Laboratory and experimental		

methods.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	Final exam	points
Active class participation	10	written exam	40
Practical work	/	oral exam	20
Preliminary exam(s)	20	
Seminar(s)	10		

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.