Course Unit Descriptor

Study Programme: Mechanical Engineering

Course Unit Title: Basics of mechanical constructions

Course Unit Code: OAS085

Name of Lecturer(s): Associate Professor Eleonora Desnica

Type and Level of Studies: Bachelor academic degree

Course Status (compulsory/elective): Compulsory

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: 4

Prerequisites: None

Course Aims:

The main aim is to prepare students for acquiring appropriate knowledge in formulating, developing and realizing all theoretical and practical endeavours in the field of basics of mechanical constructions.

Learning Outcomes:

Acquired knowledge is used to implement engineering approach in solving problems related to basic machine component calculation and design in theory as well as practice.

Syllabus:

Theory

General principles in machine design. Standardization (Role of standardization, Standard numbers, Use of standard numbers). Tolerances of form and position (Basic concepts, System of standard tolerances, Clearance and interference, Nominal dimensions, Tolerance positions, Fits and their classifications, Geometric tolerances, Surface roughness, Dependencies among tolerances, surface roughness and machining strategies). Engineering design – Mechanical drawing. Basic stresses. Allowable stresses – critical and allowable stresses, factor of safety and their values. Shapes (Cast shapes; Welded shapes; Forged shapes)

Practice

Solving tasks and examples from selected fields covered in the theoretical part of teaching.

Required Reading:

Robert C. Juvinall, Kurt M. Marshek, Fundamentals of Machine Component Design , 5th Edition, John Wiley & Sons Inc., 2012, ISBN-13 9781118012895

Weekly Contact Hours: 4	**Lectures: 2**	**Practical work: 2**

Teaching Methods:

Verbal teaching methods. Illustrative - demonstration teaching methods. Computational exercises.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	**Final exam**	points
Active class participation	10	written exam	30
Practical work		oral exam	20
Preliminary exam(s)	40		
Seminar(s)			