ERASMUS+

EU programme for education, training, youth and sport

Incoming student mobility

Name of UNIOS University Unit: Mechanical Engineering Faculty in Slavonski Brod

COURSES OFFERED IN FOREIGN LANGUAGE
FOR ERASMUS+ INDIVIDUAL INCOMING STUDENTS

Department or Chair within the UNIOS Unit	Department of Mechanical Constructions

Study program	Mechanical Engineering

Study level	Undergraduate (bachelor)

Course title	**Strength of Materials**
Course code (if any)	P 203
Language of instruction	English
Brief course description	This course is a foundation to many advanced techniques that allow engineers to design structures, predict failures and understand the physical properties of materials. "Strength of materials" gives the student basic tools for stress, strain and strength analysis. Mechanics of deformable bodies: definitions of stress/strain components, stress and strain transformations, principal stresses, Mohr's circle for stress and strain, classification of material behavior, generalized Hooke's law, elastic constants. Stress concentrations. Engineering applications to: uniaxial loaded members and simple structures, torsion of circular rods and tubes, bending and shear stresses in prismatic beams, deflection of beams, curved beams. Thermal stresses. Statically indeterminate problems. Strain energy, yield theories, combined bending and torsion loads of beams. Buckling of columns. Introduction to experimental stress analyses: strain gauges method and method of photo-elasticity. The aim of the course is to skill the students to be able to solve solely simple problems of the strength of constructions elements.
Form of teaching	Lectures and exercises with individual problem solving. Students helped by instructor solve problems in classroom. Several problems are assigned for work at home and their grades form the basis for deciding upon the final grade in exercises of this course. The course includes demonstration use of equipment and results of experimental stress analyses.
Form of assessment	Written and oral exam (achievements of the students should be checked successively by 6 colloquiums in the written form).

Number of ECTS	**5**
Class hours per week	2 hours of lectures + 2 hours of exercises
Minimum number of students	20
Period of realization	Winter semester
Lecturer	Full Prof. Dr. Dražan Kozak