UNIVERSITY OF NIŠ

Course Unit Descriptor	Faculty	Faculty of Mechanical Engineering

GENERAL INFORMATION

Study Program	**Mechanical Engineering**
Study Module (if applicable)	-
Course Title	Strength of materials
Level of Study	☒Bachelor ☐ Master's ☐ Doctoral
Type of Course	☒ Obligatory ☐ Elective
Semester	☐ Autumn ☒ Spring
Year of Study	I
Number of ECTS Allocated	7
Name of Lecturer/Lecturers	Predrag S. Kozić, Dragan B. Jovanović
Teaching Mode	☒ Lectures ☐ Group tutorials ☒ Individual tutorials ☐ Laboratory work ☐ Project work ☐ Seminar ☐ Distance learning ☐ Blended learning ☐ Other

Purpose and Overview (max. 5 sentences)

To provide students with the knowledge, they need to successfully attend classes and solve the problems of machine elements and other specialized subjects.In the course Strength of materials, behavior of deformable bodies under the influence of combined loads is analyzed. Define the stresses and strains of elementary types of stress and combinations thereof. Various methods for determining the deformation of the static dererminate beams and indeterminate beams, frames and structural elements are exposed.

Syllabus (brief outline and summary of topics, max. 10 sentences)

Introduction. External and internal forces. Types of stress states. Stresses and strains. Hooke's law.
Axial strain. Static indeterminate problems of axial stress state. Villiot's plan of displacement. Theorem of Menabrea. The dimensioning. The moments of inertia of flat surfaces. Two-dimensional stress state. Strain of thin pressure vessels. Shear. Three-dimensional stress state. Torsion. Pure bending. Bending of beams by forces. Obliquely bending. Elastic lines. Clebsch method. Graphoanalytical method. Clapeyron's theorem of the deformation work. Theorem on reciprocity of elastic displacements. Strain Energy Method (Castigliano's Theorem). Maxwell-Mohr method. Statically indeterminate problems in bending. Hypothesis about fracture of materials. The combined stress states. The excentric pressure and stretching. Bending and twisting combined. Buckling.

Language of Instruction

☒Serbian (complete course)   ☒ English (complete course)   ☐ Other _____ (complete course)

☒Serbian with English mentoring   ☐ Serbian with other mentoring _____

Assessment Methods and Criteria

Pre exam Duties	Points	Final Exam	Points
Activity During Lectures	10	Written Examination	40
Practical Teaching	10	Oral Examination	Max. 50
Teaching Colloquia	40	Overall Sum	100
*Final examination mark is formed in accordance with the Institutional documents			