Study program: Industrial Engineering – Mechanical Engineering	
Course title: Mechanics I	
Professor: Đukić V. Rade	
Type of course: Compulsory	
ECTS credits: 6	
Prerequisites: None	

Aims of the course:
Students gain basic knowledge about the laws of equilibrium of material bodies, interactions between the bodies, and statics. The course teaches students to simplify the system of forces and to determine conditions of equilibrium of the system of forces, which are necessary for engineers to solve a variety of technical problems.

Learning outcomes:
The student can independently solve technical problems of statics, define mutual influence of bodies at rest and optimal spatial relations with regard to the stability of system, and they will possess knowledge relevant for other subjects.

Syllabus:
Theoretical part:
1. Statics – basic terms;
2. System of direct forces, geometrical and analytical way of adding and subtracting force vectors;
3. Statics' axioms; Connected body, connections and types of connections; Principle of releasing the connections;
4. Vector projection on the axis and plane, conditions of equilibrium;
5. General system of forces and torque, moment of force for a point and axis, torque, parallel movement of the system of forces into a point;
6. Conditions of equilibrium of an arbitrary system of forces and torque;
7. Types of loads; Basic statics' quantities in the cross-section of a carrier; Planar carriers; Basic static diagrams;
8. Sliding and rolling friction;
9. Center of mass, its definition and ways of determining it, Pappus-Guldinus theorem.

Practical part: Auditory exercises – solving problems and writing term papers.

Literature:
1. Mićunović, M., Kojić, M., Statika, Naučna knjiga, Beograd, 1983.
2. Rusov, L.., Mehanika-Statika, Prvi redni pregled, Beograd, 1973.
3. Meščerski, I. V. Zbirka zadataka iz teorijske mehanike, Gradjevinska knjiga, Beograd 1971.
4. Golubović, D. Kojić, M., Savić, P.,; Metodička zbirka zadataka iz mehanike-statika, Naučna knjiga, Beograd, 1989.
5. Dragoljub Đorđević, Miloš Kojić: Zbirka zadataka iz statike, Trstenik 2001.

Total number of active classes: 60	**Lectures:** 30	**Practical classes:** 30

Teaching methods:
Interactive lectures;
Practical training – auditory exercises, solving tasks and exercises and writing papers.

Grading system (maximum 100 points)			
grading scale from 5 to 10: below 51 points – student fails the exam, grade 6 from 51- 60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91- 100 points.			
Pre-exam obligations:	**Points:**	**Final exam:**	**Points:**
Activity during lectures	max 5	Written exam	max 50
Practical training	max 5		
Written test(s)	max 20		
Term papers	max 20		
Minimum requirement for the final exam	30		