SYLLABUS

1. Course title:

Strength of materials I

2. Code:

3. Cycle of study:

1

4. ECTS credits:

5

5. Type of course:

Mandatory

6. Prerequisites:

7. Class restrictions:

Students of the second year of study at the Faculty of Mechanical Engineering (I cycle of studies)

8. Duration / semester(s):

I **III**

9. Weekly contact hours and student workload:

Semester (1)	**3**	**Semester (2)**		**(for two-semester courses)**	**Workload: (hours)**
9.1. Lectures	**3**			**Classes:**	**45**
9.2. Seminars	**1**			**Individual work:**	**101,6**
9.3. Laboratory/Practice classes	**0**			**In total:**	**146,6**

10. Faculty:

Faculty of Mechanical Engineering

11. Department/study program:

Production engineering, Energy and thermo-fluid engineering, Mechatronics

12. Lecturer:

Dr. sci. Edis Nasić, Assistant professor

13. Course aims:

Acquisition of basic knowledge in the Strength of materials I.

14. Learning outcomes:

At the end of the semester/course, successful students, who continuously performed their duties during the entire teaching period, will be able to: master the basic knowledge in the field Strength of materials I.

15. Course content:

1. Methods of solving strength problems and calculated model
2. Geometric characteristics of the carrier
3. Stress and deformation analysis
4. Axial load
5. Hooke's Law on Three-State Tension and deformation
6. Stress and deformation measurement (tensometry)
7. First partial test
8. Plane and spatial state of stress
9. Shearing
10. Torsion, dimensioning of rods in torsion
11. Bending, dimensioning of loaded in bending
12. Stress concentrations in bending and torsion
13. Oblique bending and excentric stresses
14. Complex stresses
15. Second partial test.

16. Learning methods:

Lectures, exercises, graphic works, consultations.

17. Assessment methods:

The methods of knowledge assessment are:
• 2 tests (tasks),
• Graphic works,
• Final written or oral exam
• Make-up exam; theory and task test

Two tests will be held during the semester, each containing two calculation tasks. Graphic works must be completed and defended during the semester. After achieving the minimum required number of points through attendance, tests and graphic works, the student takes the final exam, which consists of a written or oral part (theory). Before the final exam, a student who did not achieve 50% of the points on any of the tests may take a make-up exam.

Grading system: (5) + (20) + (20) + (15) + (40) = (100) points.

Grade	Descriptive	Letter	For the number of points achieved
5 (five)	"does not meet the minimum criteria"	F,FX	<54 points
6 (six)	"meets the minimum criteria"	E	54-64 points
7 (seven)	"generally good, but with significant shortcomings"	D	65-74 points
8 (eight)	"average, with noticeable errors"	C	75-84 points
9 (nine)	"above average, with some errors"	B	85-94 points
10 (ten)	"exceptional success with no errors or with minor errors"	A	95-100 points

18. Assessment components:

Students mark is based on the total number of points a student earned by completing pre-exam requirements and exams, according to the quality of the acquired knowledge and skills, and contains a maximum of maximum 100 points, and is determined according to the following scale:

Student obligation	points
The presence on lectures, exercises and activity	5
Seminars-graphic works	15
2 pre-exam test	2x20
(pre-exam requirements, total)	(60)
Final exam: - written (theory)	40
Total: 100 points	

19. Mandatory reading list:

1. Kudumović Dž.: Nauka o čvrstoći I, Mašinski fakultet Tuzla 2009.
2. Žiga A., Kačmarčik J.: Otpornost materijala 1, Mašinski fakultet Zenica 2020.

20. Additional reading list:

1. Kudumović Dž. i grupa autora:Elastostatika,Univerzitet Bihać 2003.
2. Brnić J., Turkaj G.:Nauka o čvrstoći I, Rijeka, 2004.
3. Alfirević I.:Nauka o čvrstoći I,Tehnička knjiga Zagreb,1995.
4. **Robert L. Mott and Joseph A. Untener.:Applied Strength of Materials, Sixth Edition SI Units** Version, 2018.

21. Web sources:

https://sfsb.unisb.hr/ksk/cvrstoca/index-v.htm

22. Applicable from the academic year:

2025/26

23. Adopted in the Faculty/Academy session:

00.04.2025