

**Course title: Technical mechanics**

Course code	Course status	Semester	Number of ECTS credits	Lecture hours
131002085	Mandatory	II	4	2+1

**Study program:**

Basic academic studies, ELECTRICAL ENGINEERING, study program: Power systems and Control (studies last for 6 semesters, 180 ECTS credits).

**Prerequisites:**

No prerequisites required.

**Course aims:**

Through this course, students are introduced to the basic ideas and laws of the Technical mechanics, and its implementation.

**Teacher(s) and assistant(s):**

PhD Goran Čulafić - teacher

**Teaching method:**

Lectures (which include exercises), home exercises, consultations and tests.

**Course synopsis:**

Preliminary weeks

Preparation and semester enrolment.

I week

Point-particle kinematics.

II week

Point-particle kinematics; Rotation around fixed axes.

III week

Uniform motion.

IV week

Composite point-particle motion.

V week

Kinematics analysis of the mechanisms.

VI week

Kinematics analysis of the mechanisms

VII week

**Free week**

VIII week

**First test**

IX week

Dynamics of point-particle and translation motion of the body.

X week

Dynamics of translation motion. Dynamics of the body, rotating around fixed axes.

XI week

Dynamics of body rotating around fixed axes.

XII week

Dynamics of uniform motion.

XIII week

Dynamics of uniform motion. Dynamics of mechanisms.

XIV week

Work. Energy.

XV week

Work. Energy.

XVI week

**Second test**

Final week

Administrative procedures.

XVIII-XXI week

Additional lessons, correction of the final exam and administrative procedures.

**STUDENT WORKLOAD**

per week

**4 credits x 40/30 = 5 hours and 20 minutes**

**Working hours structure:**

2 hours for teaching

1 hour for exercises

2 hours and 20 minutes for individual work, including consultations.

per semester

**Teaching and the final exam: (5 h 20 min.) x 16 = 85 h 20 min.**

**Necessary preparation** (before semester): 2 x (5 h 20 min.) = 10 h 40 min.

**Total work hours for the course: 4 x 30 hours = 120 hours**

**Additional hours** for preparing correction of the final exam, including the exam taking: up to 24 hours (the rest of the time from the first two items, up to the total work hours for the course, 120 hours).

**Work hours structure:**

85 h 20 min. (lectures) + 10 h 40 min. (preparation) + 24 hours (additional work)

Lessons attendance is mandatory for students, as well as doing home exercises and both tests.

**Literature:** Handout: G. Čulafić, Technical mechanics.

**The forms of knowledge testing and grading:**

- Home exercises carry 20 points maximum; First test carries 20 points maximum. Second test carries 20 points maximum.
- Student gets the passing grade by collecting 34 (from 60) points at least.
- Prerequisite for taking the first test is at least 10 problems solved – collected 10 points (1 point for each problem) from the set of the home exercises for the first test.
- There are 2 problems at the first test, each carrying 10 points. Students have to collect 7 points at least (out of 20).
- Prerequisite for taking the second test is at least 10 problems solved – collected 10 points (1 point for each problem) from the set of the home exercises for the second test.
- There are 2 problems at the first test, each carrying 10 points. Students have to collect 7 points at least, (out of 20).
- If the student, at the correction test, takes less than 70% of the points taken at the original test, than the result accomplished at the correction test is valid. Otherwise, better result from the original test or correction test is valid.

**Special remarks for the course:** The teaching is organized for student groups of about 40 students.

**Teacher(s) who provided the information: PhD Goran Čulafić**

**Remark:**