

## SYLLABUS

**1. Course title:**

Fundamentals of mechanical power transmission

**2. Code:**

**3. Cycle of study:**

1

**4. ECTS credits:**

3

**5. Type of course:**

Elective

**6. Prerequisites:**

No

**7. Class restrictions:**

Students of the second year of study at the Faculty of Mechanical Engineering (1st cycle of studies)

**8. Duration / semester(s):**

1

4

**9. Weekly contact hours and student workload:**

	Semester (1)	Semester (2)	(for two-semester courses)	Workload: (hours)
9.1. Lectures	3			Classes: 33,75
9.2. Seminars	0			Individual work: 49,5
9.3. Laboratory / Practice classes	0			In total: 83,25

**10. Faculty:**

Faculty of Mechanical Engineering

**11. Department/study program:**

Production engineering, Energy and thermo-fluid engineering, Mechatronics

**12. Lecturer:**

Dr.sc. Denijal Sprečić, Full Professor

**13. Course aims:**

Provide basic knowledge in the field of mechanical power transmissions..

#### 14. Learning outcomes:

At the end of the semester, successful students who continued to perform their duties throughout the course of the teaching process will be trained to master the basic knowledge of mechanical power transmissions.

#### 15. Course content:

1. Concept, division and purpose of mechanical power transmissions, basic terms
2. Systematization of mechanical power transmissions, structure, parts (members), joints, structural groups
3. The basics of transmission kinematics, kinematic parameters analysis, kinematic analysis methods
4. The basics of transmission dynamics, force and force analysis, kinetostatic, kinetostatic analysis methods
5. Planar transmissions of forces and movements, types
6. Chain power transmission, classification, marking, coupling
7. Working capacity criteria and dimensioning of chain power transmission components, materials
8. Colloquium 1
9. Other power transmissions with flexible connections, basic characteristics, load schedule
10. Dimensioning of power transmission components with flexible connections
11. Gear power transmission, structure, transmission ratio
12. Dimensioning of gear power transmission components
13. Planetary gear power transmission, material, definition, kinematics
14. Other mechanical power transmissions
15. Colloquium 2

#### 16. Learning methods:

- Lectures (dealing with teaching units that are defined by the content of the course),
- Colloquiums (continuous knowledge examination),
- Seminar papers
- Consultations

#### 17. Assessment methods:

The methods of knowledge checking are: seminar papers, colloquiums, final exam (written).

- Regular attendance and teaching activities (lectures and exercises) carry a maximum of 10 points,
- Seminar papers are self-addressed topics that the student has to defend and submit to the end of the semester. The total number of points a student can win for a given seminar papers is a maximum of 15 points.
- Colloquiums represent the form of continuous checks that are defined during the semester and within which students are solving tasks from certain areas. The sum of the points from each colloquium that a student can obtain is a maximum of 30 points.
- Final exams are submitted in writing, and student can obtain a maximum of 45 points.

Rating system: (10) + (15) + (30) + (45) = (100) points

Grading scale is as follows:

Grade	Description	Letter/Points
5 (five)	Does not meet minimum criteria	F <54
6 (six)	Meets minimum criteria	E 54-64
7 (seven)	Generally good, but with significant shortcomings	D 65-74
8 (eight)	Average, with noticeable errors	C 75-84
9 (nine)	Above average, with some errors	B 85-94
10 (ten)	Exceptional with no or minor errors	A 95-100

In order for a student to obtain professor's signature and to take the final exam, it is necessary to fulfill the following conditions:

- attend to 80% of lectures and exercises,
- to fulfill all the other conditions that the subject teacher places during the semester.

Summarized points are collected from all student activities during the semester to the final exam. If the student has obtained the required score for the pass grade, the grade can be entered in the index. If the student has not achieved the required number of points, additional points can be obtained on the final written exam.

#### 18. Assessment components:

The assessment of the exam is based on the total number of points the student has obtained by fulfilling the pre-requisites and passing the exam according to the quality of the acquired knowledge and skills, and it contains a maximum of 100 points and is determined according to the following scale:

Before the final exam: 55 points

Final exam: 45 points

Before the final exam:

- attendance and activity on lectures (lectures and exercises) - maximum 10 points,
- seminar papers - maximum 15 points,
- colloquiums - maximum 30 points (15 points for each colloquium),

#### 19. Mandatory reading list:

1. K.H.Decker: Elementi strojeva, Tehnička knjiga Zagreb.

#### 20. Additional reading list:

- 1.E.Oberšmit: Ozubljenja i zupčanici, SNL, Zagreb.
2. S.Veriga: Mašinski elementi III; MF, Beograd,
- 3.M.Opalić: Prijenosnici snage i gibanja, FSB, Zagreb.
- 4.S.Tanasijević, A.Vulić: Mehanički prijenosnici.

#### 21. Web sources:

#### 22. Applicable from the academic year:

2025/2026.

#### 23. Adopted in the Faculty/Academy session: