SYLLABUS

1. Course title:

KINEMATICS

2. Code:

3. Cycle of study:

1

4. ECTS credits:

5

5. Type of course:

Mandatory

6. Prerequisites:

7. Class restrictions:

8. Duration / semester(s):

1 | 2

9. Weekly contact hours and student workload:

Semester (1)	II	Semester (2)		(for two-semester courses)	Workload: (hours)
9.1. Lectures	3			Classes:	45,00
9.2. Seminars	1			Individual work:	99,50
9.3. Laboratory / Practice classes	0			In total:	144,5

10. Faculty:

Faculty of Mechanical Engineering

11. Department/study program:

Energy and Thermo-Fluid Engineering, Production Engineering, Mechatronics

12. Lecturer:

dr.sc. Seniha Karić, docent

13. Course aims:

The aim of the course is to convey to students knowledge and skills in the field of kinematics of a point and kinematics of a rigid body. Training for independent solving of tasks in the field of kinematics.

14. Learning outcomes:

Based on the knowledge acquired while listening to the course, students will be able to calculate tasks from kinematics by analytical methods, using vector mathematics. Assess what type of movement it is and determine the law of motion, kinematic quantities and characteristics of movement. The acquired knowledge is necessary for independent solving of tasks in kinematics, and as a basic prerequisite for studying other subjects in the field of mechanics: Dynamics and oscillation, Mechanisms and dynamics of machines, etc.

15. Course content:

1. Introduction to kinematics, Basic concepts
2. Kinematics of a point, Vector method of definition
3. Coordinate method of defining the motion of a point
4. Method of Cartesian rectangular coordinates
5. Motion of a point in polar coordinates
6. Natural method of defining the motion of a point
7. Kinematics of a rigid body
8. Kinematics of a rigid body continued
9. Test 1
10. Linear motion
11. Linear motion continued
12. Spherical motion of a body
13. Complex motion of a point
14. Complex motion of a body
15. Test 2

16. Learning methods:

Lectures, auditory exercises, active learning techniques with active student participation and discussions, homework assignments, consultations.

17. Assessment methods:

The methods of knowledge assessment are: tests, assignments and final exam. Assignment tests are a form of continuous assessment in which students solve tasks in certain areas. During the semester, students solve 2 tests. For each test, a student can achieve a maximum of 30 points (minimum 15 points). For creating assignments and activities in lectures and auditory exercises, a student can achieve a maximum of 5 points. For pre-exam obligations, a student can achieve a maximum of 70 points.
The final exam consists of theory and is taken in writing and/or orally. The final exam can be passed if the student answers 50% of the questions correctly. The maximum number of points that a student can achieve on the final exam is 30 points (minimum 15 points). The make-up exam is taken in the same way as the final exam. In order to pass the exam, a student must achieve a minimum of 54 points and pass the tests. If a student has achieved 54 or more points with pre-exam obligations, he/she is not required to take the final exam.

18. Assessment components:

The grade on the exam is based on the total number of points that the student earned by fulfilling pre-exam obligations and taking the exam, and according to the quality of acquired knowledge and skills, and contains a maximum of 100 points, and is determined according to the following scale:
Obligation of the student points
Attendance at lectures and exercises 5
Task 5
Test 1 tasks 30
Test 2 tasks 30

Total pre-examination obligations 70
Final exam on the 30th
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100 total maximum

The point scale for the final grade is:
Rating Descriptive Verbal/Points
5 (five) Does not meet minimum criteria F <54
6 (six) Meets the minimum criteria of E 54-64
7 (seven) Generally good, but with significant flaws 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 success without mistakes or with a slight mistake A 95-100

19. Mandatory reading list:

1.Doleček V. (2005) Kinematika. Mašinski fakultet. Sarajevo
2.Karabegović I. (1994) Tehnička mehanika 2 -Kinematika. Univerzitetska knjiga. Sarajevo
3.Doleček V. (1984) Kinematika zbirka zadataka sa izvodima iz teorije. Svjetlost. Sarajevo.

20. Additional reading list:

21. Web sources:

22. Applicable from the academic year:

2025/2026

23. Adopted in the Faculty/Academy session: