UNIVERSITY OF TUZLA UNIVERZITET U TUZLI

# SYLLABUS

## 1. Course title:

CAD/CAM Systems

## 2. Code:

## 3. Cycle of study:

I

## 4. ECTS credits:

3

## 5. Type of course:

Elective

## 6. Prerequisites:

## 7. Class restrictions:

## 8. Duration / semester(s):

1 VII

## 9. Weekly contact hours and student workload:

| | | | | | | |
|---|---|---|---|---|---|---|
| Semester (1) | VII | Semester (2) | | (for two-semester courses) | Workload: (hours) | |
| 9.1. Lectures | 2 | | | | Classes: | 33,75 |
| 9.2. Seminars | 0 | | | | Individual work: | 52,00 |
| 9.3. Laboratory / Practice classes | 1 | | | | In total: | 85,75 |

## 10. Faculty:

Faculty of Mechanical Engineering Tuzla

## 11. Department/study program:

Production mechanical engineering

## 12. Lecturer:

Ph.D Muhamed Mehmedović, associate prof.

## 13. Course aims:

The basis aims of this course realization are:
to introduce students with CAD system elements and CAM System elements,
to introduce students with the possibilities of machining processes planning by using the CAD/CAM Systems,

to introduce students with CAD/CAM Systems application steps and principles as well as with potential problems during importing the CAD data in to the CAM,
to introduce students about CAD/CAM Systems application from the aspect of the CNC Lathes programming and CNC Mills programming,
that students recognize importance and benefits of CAD/CAM systems application in industrial practice.

## 14. Learning outcomes:

Understand the problems during importing the CAD data in to the CAM and to find adequate solutions,
Make 3D of product model, plan of machining processes as well as simulation of machining process on CNC machines,
Generate numerical programs for machining as simple as well as complex parts by using CNC Lathes and CNC Mills, and everything of that for different types of CNC control system,
Simulation and optimization of the tool path with the goal of the machining time reduction,
Understand possibilities of CAD/CAM Systems application for machining of more complex parts by using CNC machining centers.

## 15. Course content:

1. Introductions. Basic definitions and terms.
2. CAD System elements, CAM System elements.
3. Possibilities of the CAD/CAM system application
4. Basic characteristics of modern CAD/CAM software.
5. CAD/CAM interfaces, CAP connection between CAD and CAM systems.
6. CNC machines programming by CAD/CAM system application.
7. CAD modeling and its connection with creation of programs for CNC machining, Test 1
8. Tool set up and manipulation by work pieces and tools.
9. Planning and machining of cylindrical parts by CAD/CAM application.
10. Planning and machining of cylindrical parts by CAD/CAM application.
11. Planning and machining of prismatic parts by CAD/CAM application.
12. Planning and machining of prismatic parts by CAD/CAM application.
13. Planning and machining of more complex parts by CAD/CAM application - multi axis machining systems.
14. Planning and machining of more complex parts by CAD/CAM application - multi axis machining systems.
15. Test 2.

## 16. Learning methods:

The following methods are planned for successful learning:

- Lectures with the use of multimedia equipment and learning technique with active participation and student discussions,
- Laboratory exercises,
- Graphic paper preparation and working

## 17. Assessment methods:

• Lectures – theoretical lectures, active two-way communication between student and professor, compulsory attendance of students;
• Theory tests - solving tests;
• Tests with tasks - solving tests;
• Graphic work – independent work of the student to solve the problem;
• Oral final exam - interactive conversation with the student in order to validate the acquired knowledge;
• Consultations – clarification of any ambiguities related to the topic of the studied subject.

The condition for signing is the student's attendance at a minimum of 70% of lectures and exercises.
Grading Scale:

| Grade | Descriptive | Letter | Points |
|---|---|---|---|
| 5 (five) | Does not meet minimum criteria | F, FX | <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 occasional errors | B | 85÷94 |
| 10 (ten) | Exceptional success with no errors or with minor errors | A | 95÷100. |

## 18. Assessment components:

1. Attendance at lectures (45×0.111=5)
2. Theory test (2 tests - 2×10=20)
3. Tests with tasks (2 tests - 2×10=20)

**4. Graphic work (1×10=10)**
**5. Final exam (45)**
**Through the continuous activities of checking the student's knowledge during the semester (sequential number: 1, 2, 3 i 4), the student can win 55% of the total number of points, and by passing the oral (final) exam another 45% of the total number of points**

## 19. Mandatory reading list:

**1. S. Rahimić: "CAD-CAM technologies", "Džemal Bijedić" University in Mostar, 2017**

## 20. Additional reading list:

**1. McMahon, Browne: CAD CAM, Addison-Wesley 2003 godina**

## 21. Web sources:

## 22. Applicable from the academic year:

**2025/2026**

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

**29.04.2025**