UNIVERSITY OF TUZLA UNIVERZITET U TUZLI

SYLLABUS

1. Course title:

COMPUTER GRAPHICS AND 3D MODELING

2. Code:

3. Cycle of study:

1

4. ECTS credits:

3

5. Type of course:

Elective

6. Prerequisites:

7. Class restrictions:

8. Duration / semester(s):

1 | 3

9. Weekly contact hours and student workload:

Semester (1)	III	Semester (2)		(for two-semester courses)	Workload: (hours)
9.1. Lectures	2			Classes:	33,75
9.2. Seminars	0			Individual work:	51,42
9.3. Laboratory / Practice classes	1			In total:	85,17

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 transfer knowledge and skills in the field of Computer Graphics and 3D object and assembly modeling to students. Students should be able to independently perform 3D modeling in SolidWorks and create technical documentation.

14. Learning outcomes:

Based on the knowledge acquired during the course, students will know the basics of computer graphics, model basic and complex models and assemblies in Solid Works, simulate models in different conditions, and create workshop drawings.

15. Course content:

1. Introductory lectures
2. Visual computer communication techniques
3. Hardware and software components of computer graphics
4. Raster and vector graphics systems
5. Geometric transformations and projections of objects
6. Parametric curves and surfaces
7. CAD technologies
8. Graphic standards
9. 3D object models: wireframe, surface, solid, Boolean operations, CSG
10. SolidWorks, tools and functions for 3D modeling of parts and assemblies,
11. Parametric approach, application examples
12. Creation of workshop drawings
13. SolidWorks, advanced options
14. Simulations in SolidWorks
15. Sustainability in SolidWorks

16. Learning methods:

Lectures using multimedia tools, Computer laboratory exercises, Graphic design, Consultations

17. Assessment methods:

The student takes a test that includes the tasks covered in the exercises, and consists of a task that is done on the computer. The student can achieve a maximum of 40 points on the test (minimum 20) and the difficulty of the task determines the number of possible points achieved. As part of the pre-exam obligations, the student is required to complete and defend a graphic work that carries a maximum of 25 (minimum 12.5) points. The student can achieve a maximum of 70 points on the pre-exam obligations. The final exam consists of theory and is taken in writing and/or orally. 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, the student must achieve a minimum of 54 points and pass the pre-exam obligations (pass the test and defend the graphic work). If the student has achieved 54 or more points with the 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 passing the exam, as follows:

Pre-examination obligations points
Attendance at classes and exercises 5
Test 40
Graphic work 25

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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 minor mistakes A 95-100

19. Mandatory reading list:

Lemeš S. (2017) Računarska grafika i geometrijsko modeliranje, Zenica SolidWorks
2010 Bible (2010), SamsPublishing

Foley, van Dam, Feiner, Hughes (1996) Computer Graphics: Principles and Practice, Addison Wesley, Massachusetts

20. Additional reading list:

21. Web sources:

22. Applicable from the academic year:

2025/2026

23. Adopted in the Faculty/Academy session: