SYLLABUS

1. Course title:

CAD Systems

2. Code:

3. Cycle of study:

1

4. ECTS credits:

3

5. Type of course:

○ Mandatory ◉ Elective

6. Prerequisites:

7. Class restrictions:

8. Duration / semester:

3 1

9. Weekly contact hours:

9.1. Lectures: 2

9.2. Seminars: 0

9.3. Laboratory/Practice classes: 1

10. Faculty:

Faculty of Mechanical Engineering

11. Department/study program:

Energy Department

12. Lecturer:

dr.sc. Salko Cosic

13. Lecturer's e-mail:

salko.cosic@untz.ba

14. Web site:

www.mf.untz.ba

15. Course aims:

The primary goal is to give students an understanding of the essential principles of Computer Aided Design process, basics of computer graphics, 3D modeling and numerical simulations by usage of modern design software tools.

16. Learning outcomes:

After successful completion of the course, student will be able, by using modern CAD software to realize 2D and 3D solid models, to prepare technical documentations, to conduct numerical simulations and to optimize mechanical components and technical processes.

17. Course content:

Introduction, contents and objectives of course, roll and importance of CAD systems
basics of computer graphics,
geometry modeling, engineering curves, surfaces, solid modeling,
CAD standards, interfaces, data bases,
Commercial Cad systems, SolidWorks, CATIA, main structure and GUI,
Mathematical basics in optimization process, unconstrained and constrained optimization, dual formulation, direct search and gradient methods, 1D and multivariable formulations, examples of optimization process
numerical simulations, FEM, CDM, theory basics,
moder FEM packages, examples of finite element analysis, elasticity and heat transfer problems

18. Learning methods:

Lectures, computer exercises, seminar presentations, consultations

19. Assessment methods:

Test of theory and practical test on computer. Seminar presentation can replace test of theory. The final mark is average between both tests.

20. Assessment components:

Test of theory: 2x25 points (50 %)
Practical test on computer: 2x25 points (50 %)
Seminar presentation: max 2x25 points (50 %)
Final exam: 100 points (100 %)

21. Required reading list:

1. Mitrović: "Osnovi CAD/CAM tehnologija", Naučna knjiga Beograd, 1998.
2. Cvetković: Računarska grafika, Akademska misao Beograd 2010
3. K.J.Bathe.: ''Finite element procedures'', Prentice Hall, 1996 god.
4. J. Arora, "Introduction to optimum design", Elsevier 1995 god.

22. Web sources:

www.mf.untz.ba

23. Applicable starting from the academic year:

2015/16

24. Adopted in the Faculty/Academy session:

(max. 10 char.)