|  |
| --- |
| UNIVERSITY „DŽEMAL BIJEDIĆ“ MOSTARFACULTY OF MECHANICAL ENGINEERING |
| Subject: | Rapid Prototyping | Course code: 0000 |
| Level of cycle, year of study, semester | Ciklus studija II | year 1. / Semester 2. |
| professor: | prof. dr. Dragi Tiro |
| Contact: | E-mail: dragi.tiro@unmo.ba Tel.: 036 571 258 |
| Total hours of coursework: | Hours of lectures per week: 2 | Hours of exercises per week: 2 | Total (30+30) |
| ECTS-a: | 8 ECTS |
| Qualification: |  |
| Status: |  |
| Prerequisites: |  |
| Access restrictions: | *No*  |
| Explanation of the ECTS: |  |
| Subject goal: | The objectives are to:1. enable students to use basic prototype technology and can explain and critically examine them in terms of improvement,2. provide students transferable skills that will be useful in working environments in research and development departments |
| Description of general and specific competences (knowledge and skills) / learning outcomes: | Upon successful completion of this course students will be able to:• define prototype and rapid prototype development, lists and explains the most important methods and technologies for rapid prototype production,• make with the 3D printer model of the machine part and use modern equipment for rapid prototyping, and to critically observe the process in terms of improving• understand the importance of lifelong learning in the field of rapid prototyping |
| Subject content: | 1. The concept and application of rapid prototyping in architecture, engineering, medicine, construction and other fields2. Rapid Manufacturing 3. Rapid Prototyping 4. Three-dimensional modelling5. Data formats for the Rapid Manufacturing6. Three-Dimensional Printing (3DP)7. Stereolithography - (Stereolithography Apparatus - SLA)8. Solid Ground Curing (SGC)9. Production of laminated objects - (Laminated Object Manufacturing - LOM)10. Fused Deposition Modelling (FDM)11. Cube 3D print system for rapid prototyping12. Selective Laser Sintering (SLS)13. Rapid Tooling and Manufacturing(RT & M)14. Examples of processes simulation using software.15. Three-dimensional scan |
| Forms of teaching / learning methods: | Visual and oral presentation methodMethod of demonstration and laboratory workPractical work on your computer and 3D printer |
| Other obligations of the student (if they are foreseen): | case study: practical work on a 3D printer |
| Knowledge check / exam way and % weight factor: | The ratings will be given according to the following criteria:1. Presence and participation in classes - weight factor 10%- Presence of 5%- Participation in classes 5%2. Two colloquia (periodical knowledge tests - theory) - weight factor 40%- First colloquium 20%- Second colloquium 20%3. Seminar work (case study) - weight factor 20%- Accuracy of fabrication 15%- Level of Demonstrated Understanding and Independence 5%4. Final work 30% |
| literature and internet web references: | 1. D. Tiro, A. Fajić: „Trodimenzionalno printanje i ostali postupci brze izrade“, Mašinski fakultet Mostar, 2008.
2. Chee Kai Chua, Kah Fai Leong, Chu Sing Lim, “Rapid Prototyping - Principles and Applications”, ISBN: 978-981-277-897-0, World Scientific Publishing, 2010.

Added literature: Journal: Advances in Production Engineering & Management (APEM), University of Maribor, Slovenia |
| How to monitor the quality and effectiveness of the subject realization: | Anonymous student survey on the success of teaching. |