

Faculty of Mechanical Engineering / ROAD TRAFFIC / ENGINEERING GRAPHICS AND DOCUMENTATION

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| Course: | ENGINEERING GRAPHICS AND DOCUMENTATION | | | |
| Course ID | Course status | Semester | ECTS credits | Lessons (Lessons+Exercises+Laboratory) |
| 10308 | Mandatory | 2 | 6 | 2+0+2 |
| Programs | ROAD TRAFFIC | | | |
| Prerequisites | There are no conditions for registering and listening to the subject | | | |
| Aims | In this course, students are trained for making of technical documentation - classical and computer application. | | | |
| Learning outcomes | After passing the exam in this course, students will be able to: 1. Establishes technical documentation - classical and computer application 2. Explicit applications of CAD software and hardware at different stages of machine-assembly design and assembly 3. Use one of the CAD systems at the stage of development of technical documentation (workshop, switching, assembly, schematic drawings) of machine elements and assemblies (AutoCAD, Catia, SolidWorks or similar) | | | |
| Lecturer / Teaching assistant | Prof. dr Radoslav Tomović, mr Aleksandar Tomović | | | |
| Methodology | Lectures, exercises - making of graphic works (classical and computer use) with consultations. | | | |
| Plan and program of work | | | | |
| Preparing week | Preparation and registration of the semester | | | |
| I week lectures | Types of design. Projection of the orthogonal point, line and plate. | | | |
| I week exercises | Types of design. Projection of the orthogonal point, line and plate. | | | |
| II week lectures | The cross-section of the two plates, penetration of line through the plate. Rigid bodies. Transformation of the point, line and the body. | | | |
| II week exercises | The cross-section of the two plates, penetration of line through the plate. Rigid bodies. Transformation of the point, line and the body. | | | |
| III week lectures | Rotation of points, figures and bodies. Knockdown of the plate. Collineation. Crossings of the body. | | | |
| III week exercises | Rotation of points, figures and bodies. Knockdown of the plate. Collineation. Crossings of the body. | | | |
| IV week lectures | Penetration of the body. | | | |
| IV week exercises | Penetration of the body. | | | |
| V week lectures | Penetration of the body. | | | |
| V week exercises | Penetration of the body. | | | |
| VI week lectures | Displaying objects on a technical drawing. Formats and scales. Types of lines. Technical letter. | | | |
| VI week exercises | Displaying objects on a technical drawing. Formats and scales. Types of lines. Technical letter. | | | |
| VII week lectures | I colloquium. | | | |
| VII week exercises | I colloquium. | | | |
| VIII week lectures | Dimension lines drawing. Sections. Surface quality. | | | |
| VIII week exercises | Dimension lines drawing. Sections. Surface quality. | | | |
| IX week lectures | Tolerance. Axonometry. Material labeling. | | | |
| IX week exercises | Tolerance. Axonometry. Material labeling. | | | |
| X week lectures | II colloquium. | | | |
| X week exercises | II colloquium. | | | |
| XI week lectures | Computer graphics in mechanical engineering. CAD hardware and software. The concept of computer graphics development. | | | |
| XI week exercises | Computer graphics in mechanical engineering. CAD hardware and software. The concept of computer graphics development. | | | |
| XII week lectures | Presentation of curved line in computer graphics. | | | |
| XII week exercises | Presentation of curved line in computer graphics. | | | |

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| XIII week lectures | Geometric transformations. Models of color in computer graphics. | | | | | |
| XIII week exercises | Geometric transformations. Models of color in computer graphics. | | | | | |
| XIV week lectures | Standards for data exchange between the CAD system. Use of computers in the preparation of technical documentation. | | | | | |
| XIV week exercises | Standards for data exchange between the CAD system. Use of computers in the preparation of technical documentation. | | | | | |
| XV week lectures | II colloquium. Final exam. | | | | | |
| XV week exercises | II colloquium. Final exam. | | | | | |
| Student workload | Weekly: 5 credits x 40/30 = 6 hours and 60 minutes Structure: - 3 hours of lectures - 2 hours of exercise - 1 hour and 40 minutes of independent work, including consultations During the semester: Teaching and final exam: (6 hours and 40 minutes) x 16 = 106 hours 40 minutes Necessary preparations before the beginning of the semester (administration, enrollment, certification): 2 x (6 hours and 40 minutes) = 13 hours 20 minutes Total load for the subject: 5 x 30 = 150 hours Supplementary work: 30 hours for the preparation of the exam in the corrective test period, including taking a correctional exam (the remaining time from the first two items to the total load for the course of 180 hours) Load structure: 106 hours 40 minutes (Teaching) + 13 hours 20 minutes (Preparation) + 30 hours (Supplementary work) | | | | | |
| Per week | | | Per semester | | | |
| 6 credits x 40/30=8 hours and 0 minuts 2 sat(a) theoretical classes 2 sat(a) practical classes 0 excercises 4 hour(s) i 0 minuts of independent work, including consultations | | | Classes and final exam: 8 hour(s) i 0 minuts x 16 =128 hour(s) i 0 minuts Necessary preparation before the beginning of the semester (administration, registration, certification): 8 hour(s) i 0 minuts x 2 =16 hour(s) i 0 minuts Total workload for the subject: 6 x 30=180 hour(s) Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) 36 hour(s) i 0 minuts Workload structure: 128 hour(s) i 0 minuts (cources), 16 hour(s) i 0 minuts (preparation), 36 hour(s) i 0 minuts (additional work) | | | |
| Student obligations | | | Students are obliged to attend classes and exercises, to do all graphic tasks and work all three colloquiums. | | | |
| Consultations | | | 2 time a week. | | | |
| Literature | | | [1] B.Čurčić, Tehničko crtanje sa nacrtom geometrijom [2] T.Pantelić, Tehničko crtanje [3] D.Vitas, Osnovi mašinskih konstrukcija I dio [4] J.Jovanović, Kompjuterska grafika, Univerzitet Crne Gore - Mašinski fakultet 2010 | | | |
| Examination methods | | | Knowledge forms and grading: - Graphic works, homework, regular attending classes - 14 points - I colloquium - 14, II colloquium - 10, III colloquium - 12 points (total 36 points) - Final exam 50 points Transient grade is obtained if at least 50 poi | | | |
| Special remarks | | | | | | |
| Comment | | | | | | |
| Grade: | F | E | D | C | B | A |
| Number of points | less than 50 points | greater than or equal to 50 points and less than 60 points | greater than or equal to 60 points and less than 70 points | greater than or equal to 70 points and less than 80 points | greater than or equal to 80 points and less than 90 points | greater than or equal to 90 points |