**ESOGU MECHANICAL ENGINEERING DEPARTMENT**

**COURSE INFORMATION FORM**

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| **Course Name** | **Course Code** |
| Technical Drawing (II) | 151812207 |

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| **Semester** | **Number of Course Hours per Week** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 4 | 0 | 6 |

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| **Course Category (Credit)** |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
|  | x | x |  |  |

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| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Undergraduate | Compulsory |

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| **Prerequisite(s) if any** | none |
| **Objectives of the Course** | To provide the ability to define surface condition features with symbols; the ability to apply dimensional tolerances and geometric tolerances; the ability to recognize, draw and understand standard machine elements; and the ability to create and understand assembly drawings. |
| **Short Course Content** | Computer-aided drawing, assembly and technical drawing applications, dimensional tolerances and fits, geometric tolerances, surface condition features, screws and screwed elements, spline shaft-hub connections and gears drawing and assembly applications |

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| **Learning Outcomes of the Course** | **Contributed PO(s)**  | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Can perform computer-aided drawing and design applications. |  | 1,5,6 |  |
| **2** | Can define standard machine elements. |  | 1,5,6 |  |
| **3** | Can interpret dimensioning principles, surface condition properties, size and geometric tolerances. |  | 1,6 |  |
| **4** | Can apply the necessary symbolization for dimensioning, surface condition properties and tolerances to manufacturing drawings. |  | 1,6,8 |  |
| **5** | Can relate machine parts used in a construction to each other. |  | 1,6,10 |  |
| **6** | Can assemble machine parts to each other in construction. |  | 1,6,8 |  |
| **7** | Can evaluate designed mechanisms with the awareness of following developments in production and technology and updating information. |  | 1,6 |  |
| **8** |  |  |  |  |

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| **Main Textbook** | KIRAÇ, N., Teknik Resim, Dora Basım Yayın Dağıtım, Bursa, 2011. |
| **Supporting References** | KIRAÇ, N., Makine Meslek Resmi, Dora Basım Yayın Dağıtım, Bursa, 2011. |
| **Necessary Course Material** | Bilgisayar destekli çizim programları, Ders kitabı, projeksiyon |

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| **Course Schedule** |
| **1** | 2D computer aided drawing program interface introduction, drawing area creation, layer and line type creation applications |
| **2** | 2D computer aided drawing program drawing commands (line, circle, arc, curve, ellipse, rectangle, polygon drawing and scanning command) and drawing modification commands (delete, move, copy, offset, scale, mirror, rotate, multiply as a series, trim, extend, radius, chamfer and explode) introduction and applications |
| **3** | 2D computer aided drawing program dimensioning commands (linear dimensioning, angular dimensioning, radius and diameter dimensioning etc.) |
| **4** | Dimensional tolerances, fits (definitions in ISO tolerance system, ISO tolerance system) and definition of geometric tolerances and display of tolerances in 2D computer aided drawing program technical drawing. |
| **5** | Definition of surface condition (surface roughness, display of surface conditions with symbols in technical drawing) features and applications with 2D computer aided drawing program. |
| **6** | Screws and screwed elements (showing screw threads in technical drawings, dimensioning screws, screwed joints) and their applications with 2D computer-aided drawing program. |
| **7** | Definition of gear wheels and creation of manufacturing drawings with 2D computer-aided drawing program. |
| **8** | Midterm Exams |
| **9** | Definition of gear wheels and creation of assembly drawings with 2D computer-aided drawing program. |
| **10** | 3D computer-aided solid model drawing program interface introduction, drawing commands (line, circle, arc, curve, ellipse, rectangle and polygon drawing), solid model commands (extrude, cut, revolve, chamfer and radius) and sample applications |
| **11** | 3D computer-aided solid model drawing program solid model commands (thin wall, hole, sweep, loft, helix), drawing modification commands (modify, mirror, pattern, plane), calculation tools (distance, angle, area and volume measurements) and sample applications |
| **12** | 3D computer-aided solid model drawing program assembly commands (mate, planar align, axial align, insert, connect, angle, tangant etc.) and sample machine element applications |
| **13** | 3D computer-aided solid model drawing program technical drawing creation commands (title creation, view creation, sectioning, dimensioning) and sample machine element applications |
| **14** | 3D computer-aided solid model drawing program technical drawing creation commands (creating title block, creating appearance, taking sections, dimensioning) and sample machine element applications |
| **15** | Final exams |
| **16,17** | 2D computer aided drawing program interface introduction, drawing area creation, layer and line type creation applications |

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| **Calculation of Course Workload** |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 4 | 56 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 3 | 42 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam  |  |  |  |
| Studying for Oral Exam  |  |  |  |
| Report (Preparation and presentation time included) |  |  |  |
| Project (Preparation and presentation time included) |  |  |  |
| Presentation (Preparation time included) |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Mid-Term Exam | 1 | 1 | 1 |
| Studying for Mid-Term Exam | 1 | 7 | 7 |
| Final Exam | 1 | 1 | 1 |
| Studying for Final Exam | 1 | 7 | 7 |
|  | **Total workload** | **174** |
|  | **Total workload / 30** | **5.8** |
|  | **Course ECTS Credit** | **6** |

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| **Evaluation** |
| **Activity Type** | **%** |
| Mid-term | 50 |
| Quiz |  |
| Homework |  |
| Bir öğe seçin. |  |
| Bir öğe seçin. |  |
| **Final Exam** | 50 |
| **Total** | 100 |

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| **RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO)** (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low) |
| **NO** | **PROGRAM OUTCOME** | **Contribution** |
| **1** | Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | 4 |
| **2** | Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | 1 |
| **3** | Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods. | 1 |
| **4** | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies. | 1 |
| **5** | In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results. | 1 |
| **6** | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | 3 |
| **7** | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | 3 |
| **8** | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | 4 |
| **9** | Understanding of professional and ethical issues and taking responsibility  | 5 |
| **10** | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | 5 |
| **11** | Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions. | 5 |

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| **LECTUTER(S)** |
| **Prepared by** | Doç.Dr. Koray Kılıçay | Dr. Öğr. Üyesi Esad Kaya |  |  |
| **Signature(s)** |  |  |  |  |

**Date:**21.11.2024