**ESOGU MECHANICAL ENGINEERING DEPARTMENT**

**COURSE INFORMATION FORM**

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| **Course Name** | **Course Code** |
| Mechanical Engineering Design I | 151817480 |

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| **Semester** | **Number of Course Hours per Week** | **ECTS** |
| **Theory** | **Practice** |
| 7 | 2 | 3 | 9 |

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| **Course Category (Credit)** |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
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| **Course Language** | **Course Level** | **Course Type** |
| Turkish | Undergraduate | Compulsory |

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| **Prerequisite(s) if any** | - |
| **Objectives of the Course** |  The students will design projects at different areas of mechanical engineering by combining their knowledge on the theoretical and practical training courses. |
| **Short Course Content** | Each student will have a design project to cover the branches of Mechanical Engineering |

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| **Learning Outcomes of the Course** | **Contributed PO(s)**  | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | Planning, formulating and organizing of the system design, | 1,3,5,6 | 6,7,8,10,11,12,13,14,15 | C,D,E,F,G,I,J,K,L |
| **2** | Questioning, optimizing,simulating of the existing systems, and develop and re-design of the system, | 1,2,3,4,5,6 | 6,7,8,10,11,12,13,14,15 | C,D,E,F,G,I,J,K,L |
| **3** | Interpreting, presenting,suggesting and reporting the system. | 6,7,10,11 | 6,7,8,10,11,12,13,14,15 | C,D,E,F,G,I,J,K,L |
| **4** |  |  |  |  |

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| **Main Textbook** |  |
| **Supporting References** |  |
| **Necessary Course Material** | Computer and other laboratory facilities |

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| **Course Schedule** |
| **1** | Information about general design elements, design variables, constraints, needs, conceptual |
| **2** | Notification of project topics to students. |
| **3** | Giving general information about report writing and literature review. |
| **4** | Giving the necessary theoretical information |
| **5** | Giving the necessary theoretical information |
| **6** | Determination of design parameters, determine of design variables and create conceptual design |
| **7** | ProjectConsultancy |
| **8** | Mid-Term Exam |
| **9** | ProjectConsultancy |
| **10** | ProjectConsultancy |
| **11** | ProjectConsultancy |
| **12** | ProjectConsultancy |
| **13** | Preparation of project report |
| **14** | ProjectPresentations |
| **15** | ProjectConsultancy |
| **16,17** | Final Exam |

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| **Calculation of Course Workload** |
| **Activities** | **Number** | **Time (Hour)** | **Total Workload (Hour)** |
| Course Time (number of course hours per week) | 14 | 5 | 70 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 10 | 140 |
| Homework |  |  |  |
| Quiz Exam |  |  |  |
| Studying for Quiz Exam |  |  |  |
| Oral exam  |  |  |  |
| Studying for Oral Exam  |  |  |  |
| Report (Preparation and presentation time included) | 2 | 15 | 30 |
| Project (Preparation and presentation time included) | 1 | 25 | 25 |
| Presentation (Preparation time included) | 1 | 10 | 10 |
| Mid-Term Exam |  |  |  |
| Studying for Mid-Term Exam |  |  |  |
| Final Exam |  |  |  |
| Studying for Final Exam |  |  |  |
|  | **Toplam iş yükü** | 275 |
|  | **Toplam iş yükü / 30** | 9.166 |
|  | **Dersin AKTS Kredisi** | 9 |

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| **Evaluation** |
| **Activity Type** | **%** |
| Report | 50 |
| Jury Exam | 50 |
| **Final Exam**  |  |
| **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 to mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems. | 5 |
| **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. | 4 |
| **3** | Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economic and political problems; for that purpose an ability to apply modern design methods. | 5 |
| **4** | Ability to develop, select and use modern methods and tools required for engineering applications; ability to effectively use information technologies. | 4 |
| **5** | To investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpret experimental results. | 5 |
| **6** | Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence. | 5 |
| **7** | Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language. | 4 |
| **8** | Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement. | 3 |
| **9** | Understanding of professional and ethical issues and taking responsibility | 4 |
| **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** |  |  |  |  |  |  |  |
| **Signature(s)** |  |  |  |  |  |  |  |

**Date:** 17.11.2024