**ESOGU MECHANICAL ENGINEERING DEPARTMENT**

**COURSE INFORMATION FORM**

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| **Course Name** | **Course Code** |
| STATICS | 151812214 |

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| **Semester** | **Number of Course Hours per Week** | **ECTS** |
| **Theory** | **Practice** |
| 2 | 3 | 0 | 4 |

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| **Course Category (Credit)** |
| **Basic Sciences** | **Engineering Sciences** | **Design** | **General Education** | **Social** |
| 1 | 1 | 1 | 0 | 0 |

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

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| **Prerequisite(s) if any** | -- |
| **Objectives of the Course** | The course covers force analyses of rigid bodies and structures under static equilibrium. It also aims at providing freshmen students with the basic engineering concepts and terminologies. |
| **Short Course Content** | Fundamental concepts, Forces in plane, Forces in space, Equilibrium of a particle, Force system resultants, Moments in plane and space, Equilibrium of rigid bodies, Two-force and three-force members, Trusses, Frames, Forces in Beams, Moments of inertia, Friction, Principle of virtual work. |

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| **Learning Outcomes of the Course** | **Contributed PO(s)**  | **Teaching Methods \*** | **Measuring Methods \*\*** |
| **1** | This course covers force analyses of engineering structures that constructs a basis for the future mechanics-related courses such as; Mechanics of materials, Machine elements, Mechanisms, and Machine design. | 1,2,3,6,7,8,9 | 1, 2, 5, 8, 10, 11, 13 | A |

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| **Main Textbook** | Beer F.P., et al., 2007, Vector Mechanics for Engineers, McGraw-Hill. |
| **Supporting References** | Hibbeler R.C., 2003, Engineering Mechanics - Statics, Prentice Hall. |
| **Necessary Course Material** | Course notes |

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| **Course Schedule** |
| **1** | Fundamental concepts |
| **2** | Forces in plane |
| **3** | Forces in space |
| **4** | Equilibrium of a particle |
| **5** | Force system resultants |
| **6** | Moments in plane and in space |
| **7** | Equilibrium of rigid bodies |
| **8** | Mid-Term Exam |
| **9** | Two-force and three-force members |
| **10** | Structures - Trusses |
| **11** | Structures - Frames |
| **12** | Forces in Beams |
| **13** | Moments of inertia |
| **14** | Friction |
| **15** | Principle of virtual work |
| **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 | 3 | 42 |
| Classroom Studying Time (review, reinforcing, prestudy,….) | 14 | 2 | 28 |
| Mid-Term Exam | 1 | 2 | 2 |
| Studying for Mid-Term Exam | 1 | 20 | 20 |
| Final Exam | 1 | 2 | 2 |
| Studying for Final Exam | 1 | 20 | 20 |
|  | **Total workload** | **114** |
|  | **Total workload / 30** | **3.8** |
|  | **Course ECTS Credit** | **4** |

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| **Evaluation** |
| **Activity Type** | **%** |
| Mid-term | 40 |
| **Final Exam** | 60 |
| **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 mechanical engineering problems. | 5 |
| **2** | Ability to determine, define, formulate and solve complex mechanical engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods. | 3 |
| **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. | 3 |
| **4** | Ability to develop, select and use modern methods and tools required for mechanical engineering applications; ability to effective use of information technologies. | 1 |
| **5** | In order to investigate mechanical 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. | 5 |
| **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  | 3 |
| **10** | Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development. | 1 |
| **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. | 1 |

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| **LECTUTER(S)** |
| **Prepared by** | Assoc. Prof. Dr. Onur Arslan |  |  |
| **Signature(s)** |  |  |  |

**Date:** 10.07.2024