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|  | **HASAN KALYONCU UNIVERSITY**  **Faculty of Engineering**  **Course Description Form** |

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| **COURSE:**  Statics | | | | |
| **CODE:**  CE122 | **SEMESTER:** SPRING | | | |
| **LANGUAGE:**  ENGLISH | **TYPE:** COMPULSORY | | | |
| **PRE-REQUISITES: -**  **CO-REQUISITES: -** | **THEORY** | **PRACTICAL** | **CREDIT** | **ECTS** |
| **WEEKLY HOURS: 4** | 4 | 0 | 4 | 5 |

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| **CONTENT OF THE COURSE:**  The course introduces the fundamentals of statics within the field of engineering mechanics and provide a background for structural analysis of civil engineering systems. This course covers: rigid body mechanics, free body diagram in equilibrium position and static equilibrium equations for rigid body systems, finding the centroids of different geometric shapes, moments of inertia, analysis of trusses and beams, and defining distributed, normal and shear forces. |

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| **OBJECTIVE OF THE COURSE:**  To enable students to understand the basic concepts of forces, couples and moments in two and three dimensions. Furthermore, to develop their analytical skills relevant to the equilibrium of rigid bodies and composite bodies. As well as understanding the effect of center of gravity on stability of different engineering structures. |

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| **WEEKLY SCHEDULE** | |
| **Week** | **Topics** |
| 1 | Chapter 1: General Principles |
| 2 | Chapter 2: Force Vectors |
| 3 | Chapter 3: Equilibrium of  a Particle |
| 4 | Chapter 4: Force System  Resultants |
| 5 | Chapter 4: Force System  Resultants |
| 6 | Chapter 5: Equilibrium of  a Rigid Body |
| 7 | Chapter 5: Equilibrium of  a Rigid Body |
| 8 | Midterm Week |
| 9 | Chapter 6: Structural Analysis |
| 10 | Chapter 6: Structural Analysis |
| 11 | Chapter 7: Internal Forces |
| 12 | Chapter 8: Center of Gravity and Centroid |
| 13 | Chapter 8: Center of Gravity and Centroid |
| 14 | Chapter 9: Moments of Inertia |

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| **TEXTBOOK:** • Russell G. Hibbeler, “Engineering Mechanics, Statics”, 14th edition, Pearson Prentice – Hall, 2019.  **REFERENCE BOOKS**  • Meriam & Kraige, "Engineering Mechanics (Statics)", Wiley, Sixth edition.  • Macklin & Nelson, “Engineering Mechanics”, McGraw Hill, (Latest edition). |

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| **EVALUATION SYSTEM:** | | |
| **IN-TERM STUDIES** | **QUANTITY** | **PERCENTAGE (%)** |
| Midterm Exam | 1 | 30 |
| Homework | 4 | 20 |
| Laboratory works | 0 | 0 |
| Quiz | 0 | 0 |
| Final Exam | 1 | 50 |
| **TOTAL** | 6 | 100 |
| CONTRIBUTION OF INTERM STUDIES TO OVERALL GRADE | 5 | 50 |
| CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE | 1 | 50 |
| **TOTAL** | 6 | 100 |

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| **COURSE CATEGORY:** | **PERCENTAGE (%)** |
| Mathematics and Basic Sciences | 40 |
| Engineering | 40 |
| Engineering Design | 20 |
| Social Sciences |  |

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| **TABLE OF ECTS / WORKLOAD:** | | | |
| **Activities** | **QUANTITY** | **Duration**  **(Hour)** | **Total**  **Workload** |
| Course Duration | 13 | 4 | 52 |
| Hours for off-the-classroom study (Pre-study, practice) | 14 | 6 | 84 |
| Laboratory works | 0 | 0 | 0 |
| Mid-term | 1 | 2 | 2 |
| Final examination | 1 | 2 | 2 |
| Homework | 4 | 2 | 8 |
| Quiz | 0 | 0 | 0 |
| **Total Work Load** |  |  | 148 |
| **Total Work Load / 30** |  |  | 4,9 |
| **ECTS Credit of the Course** |  |  | 5 |

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** |
| **LO1** | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **LO2** | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **LO3** | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **LO4** | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **LO5** | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | PO: Program Outcomes | LO: Learning Outcomes  Values: 0: None | 1: Low | 2: Medium | 3: High | | | | | | | | | | |

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| **INSTRUCTOR(S):** | Assoc. Prof. Dr. Amjad Khabaz |
| **FORM PREPARATION DATE:** | 22.05.2019 |

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| **LEARNING OUTCOMES OF THE COURSE:** | **PROGRAM OUTCOMES:** |
| **LO1:** To determine the resultant of coplanar and space force system  LO2: To distinguish between concurrent, coplanar and space forces systems  LO3: To draw free body diagrams  LO4: To analyze the reactions and pin forces induced in coplanar and space systems using equilibrium equations and free body diagrams  LO5: To determine friction forces and their influence upon the equilibrium of system | **PO1:** Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied knowledge in these areas in complex engineering problems.  **PO2:** Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.  **PO3:** Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.  **PO4:** Ability to devise, select, and use modern techniques and tools needed for analyzing and solving complex problems encountered in engineering practice; ability to employ information technologies effectively.  **PO5:** Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions.  **PO6:** Ability to work efficiently in intra-disciplinary and multi-disciplinary teams; ability to work individually.  **PO7:** Ability to communicate effectively in Turkish, both orally and in writing; knowledge of a minimum of one foreign language; ability to write effective reports and comprehend written reports, prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions.  **PO8:** Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.  **PO9:** Consciousness to behave according to ethical principles and professional and ethical responsibility; knowledge on standards used in engineering practice.  **PO10:** Knowledge about business life practices such as project management, risk management, and change management; awareness in entrepreneurship, innovation; knowledge about sustainable development.  **PO11:** Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering; awareness of the legal consequences of engineering solutions. |