

| <b>Course Description Form</b>                                |   |
|---|---|
| <b>Course Code and Name</b>                                   | MM201 Statics   |
| <b>Course Semester</b>  | 3   |
| <b>Catalog Content</b>  | Basic Definitions. Force Vectors. Equilibrium of A Particle. Moment. Equilibrium of a Rigid Body. Structural Analysis. Frames and Machines. Internal Forces. Friction. Centroid. Moment of Inertia.   |
| <b>Textbook</b>   | Engineering Mechanics-Statics, R. C. Hibbeler, Prentice Hall Inc, USA   |
| <b>Supplementary Textbooks</b>                                | Vector Mechanics for Engineers-Statics, Mc-Graw Hill Comp., England   |
| <b>Credit</b>   | 6   |
| <b>Prerequisites of the Course ( Attendance Requirements)</b> | 70% Attendance  |
| <b>Type of the Course</b>                                     | Compulsory  |
| <b>Instruction Language</b>                                   | Turkish   |
| <b>Course Objectives</b>                                      | <ol style="list-style-type: none"> <li>1- Learning the Force and Moment concepts.</li> <li>2- Learning the static equilibrium concept.</li> <li>3- Gaining the ability to make structural analysis.</li> <li>4- Learning the internal loadings concept.</li> <li>5- Learning the friction concept.</li> <li>6- Learning the centroid and moment of inertia concepts.</li> </ol>   |
| <b>Course Learning Outcomes</b>                               | <ol style="list-style-type: none"> <li>1. Gaining the ability to draw Free Body Diagrams and to make force analysis for the mechanical systems.</li> <li>2. Gaining the equivalent force system concept to make force analysis.</li> <li>3. Gaining the ability to make the internal force analysis for the strength of materials problems.</li> <li>4. Learning the fundamentals of thee engineering mechanics for the rigid bodies subjected to planar force systems.</li> <li>5. Learning the fundamentals of thee engineering mechanics for the rigid bodies subjected to 3D force systems.</li> <li>6. Gaining the ability to calculate the cross-sectional properties.</li> </ol>   |
| <b>Instruction Methods</b>                                    | The mode of delivery of this course is “Face to face”   |
| <b>Weekly Schedule</b>  | <ol style="list-style-type: none"> <li>1. GENERAL PRINCIPLES: Fundamental Concepts, Units of Measurement.</li> <li>2. FORCE VECTORS: Vector Operations, Cartesian Vectors, Addition of Cartesian Vectors.</li> <li>3. FORCE VECTORS: Force Vector Directed Along a Line, EQUILIBRIUM OF A PARTICLE: Condition for the Equilibrium of a Particle, Free Body Diagram.</li> <li>4. EQUILIBRIUM OF A PARTICLE: Coplanar Force Systems, Three-Dimensional Force Systems.</li> <li>5. FORCE SYSTEM RESULTANTS: Cross Product, Moment of a Force, Moment of a Force about a Specified Axis.</li> <li>6. FORCE SYSTEM RESULTANTS: Moment of a Couple, Simplification of a Force and Couple System.</li> <li>7. EQUILIBRIUM OF A RIGID BODY: Equations of Equilibrium for the planar and three dimensional force systems, Two- and Three-Force Members.</li> <li>8. Midterm 1; STRUCTURAL ANALYSIS: Simple Trusses.</li> <li>9. STRUCTURAL ANALYSIS: Frames and Machines.</li> <li>10. INTERNAL FORCES: Internal Loadings Developed in Structural Members, Shear and Moment Equations and</li> </ol> |

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|---|---|------------------------------|-------------------------------|-------------------------------|
|   | Diagrams.<br>11. INTERNAL FORCES: Internal Loadings Developed in Structural Members, Shear and Moment Equations and Diagrams.<br>12. FRICTION: Characteristics of Dry Friction, Problems Involving Dry Friction.<br>13. Midterm 2; CENTER OF GRAVITY AND CENTROID: Center of Gravity, Center of Mass, and the Centroid of a Body, Composite Bodies.<br>14. MOMENTS OF INERTIA: Definition of Moments of Inertia for Areas, Parallel-Axis Theorem for an Area.<br>15. Final Exam |                              |                               |                               |
| <b>Teaching and Learning Methods</b><br><br><i>(These are examples. Please fill which activities you use in the course)</i> | Weekly theoretical course hours:3<br>Weekly applied course hours:1<br>Reading Activities: 2<br>Internet browsing, library work:2<br>Preparation of Midterm and Midterm Exam:10<br>Final Exam and Preparation for Final Exam:10<br>Other: Preparation of Quizzes: 4  |                              |                               |                               |
| <b>Assessment Criteria</b>  |   | <b>Numbers</b>               | <b>Total Weighting (%)</b>    |                               |
|   | Midterm Exams   | 2                            | 50                            |                               |
|   | Assignment  |                              |                               |                               |
|   | Application   |                              |                               |                               |
|   | Projects  |                              |                               |                               |
|   | Practice  |                              |                               |                               |
|   | Quiz  | 6                            | 10                            |                               |
|   | Percent of In-term Studies (%)  |                              | 60                            |                               |
|   | Percentage of Final Exam to Total Score (%)   |                              | 40                            |                               |
|   | Attendance  |                              |                               |                               |
| <b>Workload</b>   | <b>Activity</b>   | <b>Total Number of Weeks</b> | <b>Duration (weekly hour)</b> | <b>Total Period Work Load</b> |
|   | Weekly Theoretical Course Hours   | 14                           | 3                             | 42                            |
|   | Weekly Tutorial Hours   | 14                           | 1                             | 14                            |
|   | Reading Tasks   | 11                           | 2                             | 22                            |
|   | Studies   | 11                           | 2                             | 22                            |
|   | Material Design and Implementation  |                              |                               |                               |
|   | Report Preparing  |                              |                               |                               |
|   | Preparing a Presentation  |                              |                               |                               |
|   | Presentations   |                              |                               |                               |
|   | Midterm Exam and Preperation for Midterm Exam   | 2                            | 10                            | 20                            |
|   | Final Exam and Preperation for Final Exam   | 1                            | 10                            | 10                            |
|   | Other ( should be emphasized)   | 5                            | 4                             | 20                            |
|   | Total Workload  |                              |                               | 150                           |
|   | Total Workload / 25   |                              |                               | 6                             |
|   | Course Credit (ECTS)  |                              |                               | 6                             |

| Contribution Level Between Course Learning Outcomes and Program Outcomes | No   | Program Outcomes   | 1 | 2 | 3 | 4 | 5 |
|--|--|--|---|---|---|---|---|
|  | 1  | Adequate knowledge of subjects specific to mathematics, natural sciences and related engineering disciplines; ability to use theoretical and applied knowledge related to these areas in complex engineering problems.   |   |   |   | x |   |
|  | 2  | Ability to identify, define, formulate, and solve complex engineering problems; ability to select and apply appropriate analysis and modeling methods to this end.   |   |   |   | x |   |
|  | 3  | Ability to design a complex system, process, device or product under realistic constraints and conditions to meet specific requirements; ability to apply modern design methods for this purpose.  |   |   | x |   |   |
|  | 4  | Ability to develop, select and use modern techniques and tools required for the analysis and solution of complex problems encountered in engineering practice; ability to use information technologies effectively.  |   |   |   |   |   |
|  | 5  | Ability to design and conduct experiments, collect data, analyze and interpret results to investigate complex engineering problems or discipline-specific research topics  |   |   |   |   |   |
|  | 6  | Ability to work effectively in disciplinary and multi-disciplinary teams; ability to work individually.  |   |   |   |   |   |
|  | 7  | Ability to communicate effectively in Turkish, both orally and in writing; knowledge of at least one foreign language; the ability to write effective reports and understand written reports, to prepare design and production reports, to deliver effective presentations, to give and receive clear and understandable instructions. |   |   |   |   |   |
|  | 8  | Awareness of the necessity of lifelong learning; the ability to access information, to follow developments in science and technology, and to renew oneself constantly.   |   |   |   |   |   |
|  | 9  | Acting in accordance with ethical principles, professional and ethical responsibility; information about standards used in engineering applications.   |   |   |   |   |   |
|  | 10   | Information about business life practices such as project management, risk management and change management; awareness of entrepreneurship, innovation; information about sustainable development.   |   |   |   |   |   |
| 11   | Knowledge about the universal and social effects of engineering applications on health, environment and safety and the problems of the age reflected in the engineering field; awareness of the legal consequences of engineering solutions. |  |   |   |   |   |   |

**The Course's Lecturer(s) and Contact Informations**

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