ME 121 Engineering Mechanics

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| **Lecture Schedule** | Monday (11:00 am – 12:30 pm)  Tuesday (02:00pm – 3:30 pm)  Wednesday(11:00 pm – 12:30 pm)  Thursday (09:30am – 11:00am) | **Semester** | Spring 2016 |
| **Credit Hours** | Four (3 + 1) | **Pre-requisite** | N/A. |
| **Resource Person** | Muhammad Asim | **Contact** | [muhammad.asim@umt.edu.pk](mailto:muhammad.asim@umt.edu.pk)  Room # 510 |
| **Course Description** | Engineering Mechanics (ME 121) consists of two parts Statics & Dynamics. In Statics we will cover Engineering structures in equilibrium and physical phenomena in mathematical terms In Dynamics we will cover fundamental concepts of bodies under dynamic conditions and implement laws of motions to components / structure under the influence of force. | | |
| **Text Book** | **REQUIRED:**   * Engineering Mechanics (Statics + Dynamics) by R.C. Hibbler 11th Edition.   **OPTIONAL:**   * Engineering Mechanics (Statics + Dynamics) by J.L. Meriam * Vector Mechanics for Engineers (Statics + Dynamics) by Beer and Johnston | | |
| **Grading Policy** | * Quizzes: 15% (6 Quiz Each best 4 out of 6) * Midterm: 25% * Final: 50% * Assignments: 10% (3 Assignments) | | |

**Course Outline & Lecture Plan**

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| **Lectures** | Topics | **Readings** |
| **1~2\*** | **Introduction to Statics**   * Mechanics * Fundamental Concepts * Newton`s Laws * Measurements & System of Units | **CH # 1** |
| **3~8\*** | **Force System (Two and three Dimension):**   * Force * Rectangular Components * Moment & Couples * Resultant of Forces | **CH # 2, 4** |
| **9~11\*** | **Equilibrium**   * Mechanical System * Isolation and Equilibrium equations for two and three dimensional system * Free Body Diagram * Two and three forces member | **CH# 3, 5** |
| **12~14\*** | **Structures**   * Plane Trusses * Method of Joints * Forces in beams and cables | **CH# 6, 7** |
| **Mid Term (8 th week )** | | |
| **15\*** | **Advanced Concepts in Mechanics**   * Center of gravity, Center of mass & Centroid * Moment of Inertia (mass & area) & Radius of Gyration | **CH# 9, 10** |
| **16~17\*** | **Friction**   * Type of Friction and its application * Friction on wedges , screws and flat belts | **CH# 8** |
| **18~21\*** | **Introduction to Dynamics & Kinematics of Particles**   * Dynamics * Review of Scalars & Vectors * Rectilinear motion, * Plane curvilinear motion * Rectangular Coordinates (x-y) * Normal & Tangential Coordinates (n-t) * Polar coordinates (r-θ) | **CH # 12** |
| **22~30\*** | **Kinetics of Particles**   * Force and acceleration * Work and Energy * Impulse and Momentum | **CH # 13, 14, 15** |
| **Final Term** | | |

**NOTE:**

**Always bring calculator, scale and protractor and if possible Text book or Concerned Pages**

**This is Provisional Schedule. It may be change if required.**

**\* - Tentative**