Machine Design Project



Focus and Objectives of Course

- Basics of Engineering Design: Yielding and Fatigue
- Selection of Engineering Materials for Mechanical Design
- Analysis of Machine Elements
- Need Analysis & Concept, Analysis, Synthesis,
 Design, Modeling, Fabrication and Characterization
 of a complete system or a product (proposed and
 executed by self-selected group of 8 students)
- If you do not have a group, the instructors will help form the groups
- Every group will be given a maximum of Rs. 10,000.
 Frugal designs will get additional points

Grading Policy

Assignments+ Quizzes 15%

• Midterm 25%

• Project 35% (15% In-sem

in form of reports, presentations, stage-

wise prototype if

possible) + 20% Evaluation at

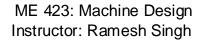
the semester end for

final presentation,

report and prototype)

• End semester exam 25%

• Total 100 %



Abstract Report (21 August)

- A one-page <u>abstract</u> clearly identifying the need and the objectives of your project will be due on August 21 in moodle
- The need can be a market need or a societal need.
- You have to list the objectives needed to be accomplished for successfully carrying out the project.
- The objectives are the broad tasks to be done in that project.

Progress Presentation 1 (5 Sep)

- Need (1 slide)
- Product specifications(1 slide)
- Conceptual design with some sketches (1-2 slides)
- Project tasks and timelines (1 slide)



Progress Presentation 2 (2nd November)

- Design specifications (1 slide)
- Analysis and/or selection rationale of the machine elements and components (2-3 slides)
- Synthesis and integration of components:
 Solid models of the components and the full assembly (2-3 slides)
- Bill of Materials & Fabrication Progress (1)

Design Open House, Project Report and Demonstration Video 27th November

- Your final prototypes will be displayed to IITB community.
- You need to submit a 5 min video describing and demonstrating the working prototype.
- The report should contain the following items and is due on 27th Nov during the design open house. Limit the final report to less than 15 pages.
 - Introduction and need analysis
 - Design specifications
 - Analysis and/or selection rationale of the machine elements and components
 - Synthesis and integration of components: Solid models of the components and the full assembly
 - Manufacturing drawings, bill of materials, cost analysis
 - Final product specifications and images
 - Summary and highlights of the project
- Statement outlining the contribution of each member of the team (list the tasks and provide an approximate percentage contribution of each team member

