

Course Code	Course Name	Credits
MEL601	Machine Design	01

Objectives:

1. To study the basic of modelling software, part design and assembly making.
2. To familiarize with use of design data books & various codes of practice.
3. Based on design calculation preparation of working drawings of actual design model.

Outcomes: Learner will be able to...

1. Design shaft under various conditions
2. Design Knuckle Joint / cotter joint
3. Design Screw Jack
4. Design Flexible flange couplings/ Leaf spring
5. Convert design dimensions into working/manufacturing drawing
6. Use design data book/standard codes to standardise the designed dimensions.

Term Work:

a) Term work - Shall consist of (minimum 3) design exercises from the list which may include computer aided drawing on A3 size sheets.

- 1) Knuckle Joint / cotter joint
- 2) Couplings
- 3) Screw Jack
- 4) Leaf springs

Software Analysis of any one component from the above list

b) Assignments:

Design exercises in the form of design calculations with sketches and/ or drawings on following machine elements.

- 1) Bolted and welded joints
- 2) Bearings.
- 3) Shaft design (solid and hollow shaft)
- 4) Flywheel and Belts.

The distribution of marks for term work shall be as follows:

Assignments, Exercises & Drawing sheets: 15 Marks
 Course Project: 05 Marks (Minimum five components)
 Attendance: 05 Marks

End Semester Practical/Oral examination:

1. Each student will be given a small task of design, based on syllabus, which will be assessed by pair of examiners during the oral examination.
2. Distribution of marks for practical-oral examination shall be as follows:
 - Design Task: 15 marks
 - Oral: 10 marks
3. Evaluation of practical/oral examination to be done based on the performance of design task.
4. Students work along with evaluation report to be preserved till the next examination.

Text/Reference Books

1. Design of Machine Elements - V.B. Banadari, Tata McGraw Hill Publication
2. Design of Machine Elements - Sharma, Purohil. Prentice Hall India Publication
3. Machine Design -An Integrated Approach - Robert L. Norton, Pearson Education
4. Machine Design by Pandya & Shah, Charotar Publishing
5. Mechanical Engineering Design by J.E.Shigley, McGraw Hill
6. Recommended Data Books - PSG
7. Machine Design by Reshetov, Mir Publication
8. Machine Design by Black Adams, McGraw Hill
9. Fundamentals of Machine Elements by Hawrock, Jacobson McGraw Hill
10. Machine Design by R.C.Patel, Pandya, Sikh, Vol-I & II C. Jamnadas& Co
11. Design of Machine Elements by V.M.Faires
12. Design of Machine Elements by Spotts.