

ME 357 – Machine Design (2)

Hour: Lecture: 2 Hrs.

Tutorial: 2 Hrs.

Credit: 3.

Coordinator: Mostafa Rostom

Text Book:

- Shigley & Mischke “Mechanical Engineering design” , McGraw Hill, latest edition.

Reference Books:

- Deutschman “Machine design “, Macmillan, latest edition
- Black & Adams “Machine design”, McGraw Hill, latest edition

Specific course information

- a. Belt selection – Chains selection – Wire rope selection – Gears types and spur gear force analysis – Design of spur gears – Helical gear force analysis – Bevel and worm gears – Design of shafts based on strength and rigidity – Clutches and brakes.
- b. Prerequisite: ME 356
- c. Designation: Required

Specific goals for the course:

- An ability to apply knowledge of mathematics, science, and engineering.
- Design a system, process, or component to meet desired needs subject to given constraints. Analyze and evaluate alternative solutions.
- An ability to function on multidisciplinary teams.
- Use oral, written, and audio-visual techniques effectively for successful communication.
- Recognize the need for and demonstrate ability to engage in lifelong learning.

Course instruction outcomes:

- The students will be able to be creative and capable of dealing with several Mechanical Engineering design problems

Student outcomes:

A, C, D, G, I

Topics Covered:

- Power transmission systems, Specifications of different types of belts
- Belt selection, Chains. Types and selection

- Wire Rope selection
- Gear types and spur gear force analysis
- Design of spur gears
- Helical gear force analysis
- Bevel and Worm Gears
- Introduction to Anti-Friction Bearings
- Selection of Ball and Roller Bearings
- Design and Selection of Sliding Bearings
- Design of shafts based on strength and rigidity
- Clutches and Brakes

Course / credit hours	Math & Basic Sciences	Engineering Topics	General Education
Machine design 2 (ME357)/3		3	