

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Semester: 2

Mechanical Engineering (CAD/CAM)

Subject Name Machine Tool Design

Sr.No	Course content
1.	Design requirements of machine tools. A design approach for machine tools. Identification and quantification of objectives and constraints in machine tool design.
2.	Estimation of power requirements and selection of motor for metal cutting machine tool spindles.
3.	Design of gearbox, spindle and guide ways.
4	Principles of design of structural components, namely, head stock, tail stock, carriage, table, knee, column and over arms to achieve desired static & fatigue strength, stiffness, dynamic characteristics and other requirements.
5	Exercises on the design of machine tools using existing CAD software packages.
6	Design aspects of Modern CNC machine tools. CNC structures, Design/selection of linear motion systems, ball screws, CNC feedback devices, CNC spindles, bearings, feed drives and servomotors for CNC machine tools.

REFERENCE BOOKS:

1. Handbook of Machine Tools by Malfred Weck, John-Wiley publication Vol. 1 to 4.
2. CMTI Handbook of Machine tool design.
3. Principle of Machine Tool Design by N.K.Mehta.
4. Principle of Machine Tool Design by S.K.Basu.