

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. Semester: II

Plastic Engineering

Subject Name: **CAM/CAE APPLICATION IN MOULD/TOOL DESIGN
(Major Elective-III)**

Sr.No	Course content
1.	Introduction: Basic concepts of Computer Aided Design – CAD and CADD system – Shape and size description. Parametric programming - Construction of Engineering drawing – Two dimensional drafting – 3D surface & Solid Modelling – Concepts of engineering data base – Various techniques used to analyse the material properties.
2.	Introduction to Numerical Control System : CNC machines - Types of control system for CNC machine – CNC processing – co-ordinate system – CNC axis and motion – CNC milling – CNC turning – CNC EDM – machining – CNC wire EDM concepts – concepts of CNC program – tool motion – canned cycles – CNC interface with CAD-CNC stimulation softwares.
3.	Computer Integrated Manufacturing: (CIM) - Computer Aided Design & Manufacturing (CAD/CAM) process – advanced CAD/CAM Technology – Flexible Manufacturing System (FMS).
4.	Rapid prototyping : Processes – Applications - Reverse Engineering – New generation cutting tools for Mould manufacturing.
5.	Computer Aided Engineering (CAE) : Finite Element Analysis(FEA) – Flow analysis–Thermal analysis – Warpage Analysis – Cooling Analysis - Shrinkage Analysis - Pressure Analysis – C Mould – Mould Flow – Analysis – Introduction and Application

Reference Books:

1. Mikell P. Grooves and Emary W. Zimmers, Jr. 'CAD/CAM Computer Aided Design and Manufacturing', Prentice Hall, Inc. 1995.
2. Groover, M.P., 'Automation, Production system and CIM', Prentice – Hall of India, 1998.
3. Dr.Khalil Taraman, Robert E. King, Rachel Subrin, 'CAD/CAM Intergration and Innovation' – Computer and Development Department Marketing Services Division – Dearborn, Michigan, 1985.
4. Peter Kennedy, 'Flow analysis of injection moulds' – Hanser Publishers, Munich Vienna, New York, 1995.

5. U. Rembald, B.O. Nnaji, A. Storr, 'Computer Integrated Manufacturing and Engineering', Addison – Wesley Publishing Company, New York. 1993,