GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. Semester: III

Mechanical (Production Engineering)

Subject Name: **Flexible Manufacturing Systems**
Subject Code: **732801**

Sr No.	Course Content
1	**Group Technology:** Introduction, objectives, part families, algorithms and models for G.T. - Rank order clustering, Bond energy, mathematical model for machine – component cell formation. Design and manufacturing attributes. Parts classification and coding, concept of composite job machine group, cell group tooling, design rationalization.
2	**Computer Aided Process Planning:** Generative and variant types, backward and forward approach, feature based and CAD based CAPP.
3	Introduction to FMS - concepts, advantages, components of FMS and their integration in the data processing systems, FMS scheduling - examples of FMS installations.
4	Distributed data processing in FMS –DBMS and their applications in CAD/CAM and FMS – distributed systems in FMS -Integration of CAD and CAM - Part programming in FMS, tool data base - Clamping devices and fixtures data base.
5	**Material Handling systems:** conveyors - AGVs – industrial robots in material handling - AS/RS.
6	**Interfacing of computers - machine tool controllers and handling systems:** communications standards - programmable Logic Controllers (PLC's) – Interfacing - Computer aided Project planning – dynamic part scheduling.

Reference Books:

1. Paul Ranky., "The design and operation of FMS", IFS publication, 1983.
2. Mikell P Groover, "Automation Production systems, Computer Integrated Manufacturing", Prentice Hall, 1987.
3. David J.Parrish, "Flexible Manufacturing" Butterworth-Heinemann, 1990.
4. Computer Aided Manufacture by Chien Chang and Richard A Wysk, Prentice HALL
5. G.T. in the engineering industry Burbridge.
6. CAD / CAM / CIM by P. Radhakrishnan, S. Subramanyan, New Age International.
7. Global Manufacturing, YORAM KORAM