

AMIE23 FLEXIBLE MANUFACTURING SYSTEM

UNIT-1 GROUP TECHNOLOGY

- 1.1 Introduction, objectives, part families, algorithms and models for G.T.
- 1.2 Rank order clustering, Bond energy, mathematical model for machine- component cell formation.

UNIT-2 DESIGN AND MANUFACTURING ATTRIBUTES

- 2.1 Parts classification and coding, concept of composite job machine group, cell group tooling, design rationalization.

UNIT-3 COMPUTER AIDED PROCESS PLANNING

- 3.1 Generative and variant types, backward and forward approach,
- 3.2 Feature based and CAD based CAPP.

UNIT-4 INTRODUCTION TO FMS

- 4.1 Concepts, advantages, components of FMS and their integration in the data processing systems, FMS scheduling - examples of FMS installations.

UNIT-5 DISTRIBUTED DATA PROCESSING IN FMS

- 5.1 DBMS and their applications in CAD/CAM and FMS
- 5.2 Distributed systems in FMS- Integration of CAD and CAM

UNIT-6 PART PROGRAMMING IN FMS, TOOL DATA BASE

- 6.1 Clamping devices and fixtures data base.

UNIT-7 MATERIAL HANDLING SYSTEMS

- 7.1 Conveyors - AGVs – industrial robots in material handling - AS/RS.

UNIT-8 INTERFACING OF COMPUTERS MACHINE TOOL CONTROLLERS AND HANDLING SYSTEMS:

- 5.1 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.