

AMPR22 AUTOMATED PRODUCTION AND COMPUTER INTEGRATED MANUFACTURING

UNIT-1 INTRODUCTION

- 1.1 Product design & CAD, CAM, CAD/CAM and CIM- CIM Hardware and software three step process for implementation
- 1.2 CIM- production concepts and mathematical models covering production rate, manufacturing lead time, capacity utilization, availability & WIP
- 1.3 Automation- Reason for Automation and Automation strategies- The future automated factory.

UNIT-2 AUTOMATED PRODUCTION SYSTEMS AND MATERIAL HANDLING AND STORAGE SYSTEM

- 2.1 Basic elements of an automated system- Advanced automated functions- Levels of Automation- Fundamentals of Automated Production Lines
- 2.2 Work part Transfer Mechanisms- Storage Buffers- Control of the Production Line- Application to Machining System.
- 2.3 Factors influencing material handling system- 10 principles of Material handling- Material transport system
- 2.4 Industrial Trucks, Mono-rails and other rail-guided vehicles, conveyors, cranes & Hoists- Automated guided vehicle system- Types.
- 2.5 Guidance technology, vehicle management, despatch rules and safety.
- 2.6 Storage systems- Performance, storage location strategies, conventional methods
- 2.7 Automated Storage and Retrieval systems- carousel storage systems.

UNIT-3 GROUP TECHNOLOGY AND CELLULAR MANUFACTURING

- 3.1 Part families- visual- parts classification and coding- case studies in coding- Production flow analysis- benefits of G.T.
- 3.2 Application of G.T. Cellular Manufacturing- Composite part concept- Machine cell design- Key machine concept- quantitative analysis in cellular manufacturing
- 3.3 Rank order clustering technique- Arranging machines in G.T. Cell- Hollier method 1 and 2.

Reference Books:

1. James A. Retrg and Henry W. Kraebher, "Computer Integrated Manufacturing", Pearson Education, Asia, 2001
2. Viswamathan.N and Narahari.Y, "Performance Modelling of Automated Manufacturing System", Prentice Hall of India Private Limited, 1994.