AMME23 AUTOMATED PRODUCTION & 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.