

**AUTOMATION IN MANUFACTURING**  
(Professional Elective - V)

**B.Tech. IV Year II Sem.**  
**Course Code: ME851PE**

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**UNIT – I**

Introduction Types and strategies of automation, pneumatic and hydraulic components circuits, Automation in machine tools. Mechanical feeding and tool changing and machine tool control transfer the automaton.

**UNIT – II**

**Automated flow lines:** Methods or work part transport transfer Mechanical buffer storage control function, design and fabrication consideration.

**Analysis of Automated flow lines:** General terminology and analysis of transfer lines without and with buffer storage, partial automation, implementation of automated flow lines.

**UNIT – III**

**Assembly system and line balancing:** Assembly process and systems assembly line, line balancing methods, ways of improving line balance, flexible assembly lines.

**Automated material handling:** Types of equipment, functions, analysis and design of material handling systems conveyor systems, automated guided vehicle systems.

**UNIT - IV**

Automated storage systems, automated storage and retrieval systems, work in process storage, interfacing handling and storage with manufacturing.

**Adaptive control systems:** Introduction, adaptive control with optimization, Adaptive control with constraints, Application of A.C. in machining operations. Use of various parameters such as cutting force, Temperatures, vibration and acoustic emission.

**UNIT – V**

**Business process Re-engineering:** Introduction to BPE logistics, ERP, Software configuration of BPE, concurrent Engineering, Techniques of Rapid Proto typing.

**TEXT BOOKS:**

1. Automation, Production Systems and Computer Integrated Manufacturing/M.P. Groover. / Pearson
2. Computer control of Manufacturing Systems by Yoram Coreom / Mc Graw Hill

**REFERENCE BOOKS:**

1. CAD / CAM/ CIM / Radhakrishnan / New Age
2. Advanced Manufacturing Technology/ K Vara Prasada Rao / Kanna Publications