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## MT 423 COMPUTER AIDED MANUFACTURING AND CONTROL

***Course Description & Objectives:***

*This course imparts the students an understanding of different numerical control systems, a host of computer aided systems for process planning, production planning, material requirements planning, shop floor control and cellular manufacturing systems.*

***Course Outcomes:***

1. *To understand different numerical control systems*
2. *To learn computer aided systems for process planning and production planning.*
3. *To learn computer aided systems for shop floor control and cellular manufacturing systems.*

**UNIT I: Numerical Control:**

Computer Numerical Control, Direct Numerical Control and their role in flexible manufacturing systems, Elements of CNC systems, CNC part programming, Computer assisted part programming, NC program generation from CAD models, Tool path generation and verification, recent developments in CNC machine tools

**UNIT II: Computer Aided Process Planning:**

Advantages of CAPPS, variant type CAPP system, generative approach, hybrid approach, geometric modeling for process planning, computer programming languages for CAPP.

**UNIT III: Computer Integrated Manufacturing:**

Computer aided shop floor control, Computer aided production planning and control, computer aided material requirements planning, factory data collection system, computer process monitoring, and computer aided quality control.

**UNIT IV: Group Technology:**

Introduction to group technology and its benefits, part families, part classification and coding, product flow analysis, virtual cell system, quantitative analysis in cellular manufacturing.

**UNIT V: Flexible Manufacturing Systems:**

Building blocks of FMS, applications, benefits, FMS layout, FMS planning and implementation issues, quantitative analysis of FMS, Computer aided material handling systems, computer control system

**TEXT BOOKS:**

1. Mikell Grover, “Automation, Production Systems and Computer-Integrated Manufacturing”, Pearson Education, New Delhi.
2. R Radha Krishnan, “CAD/CAM/CIM”, Willey Eastern Limited, New Delhi.

**REFERENCES:**

1. Michael Fitzpatrick, “Machining and CNC Technology”, Tata McGraw Hill.
2. David Bedworth, “Computer Integrated Design and Manufacturing”, Tata McGraw Hill, New Delhi