

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. Mechatronics (Branch Code - 47)

Year – II (Semester – IV) (W.E.F. January 2014)

Subject Name: Automation and Computer Integrated Manufacturing (744701)

Course Content:

Sr. No.	Content	Hours
1	Introduction Automation; Manufacturing operations and production facilities; production performance	5
2	Concurrent Engineering Serial versus concurrent engineering; benefits of concurrent engineering; characterization, difficulties and techniques of concurrent engineering	6
3	Computer Aided Process Planning Steps in developing process planning; process planning approaches; variant and generative process planning system	6
4	Statistical process control and Automated Inspection Quality cost; framework for quality improvement; automated inspection; automatic data capture	7
5	Assembly Lines Manual and Automated assembly lines; work station consideration; alternative assembly lines	5
6	Manufacturing Planning and Control System Demand management; Material requirement planning; MRP lot sizing problem; capacity planning; shop floor control	7
7	Just-in-Time Manufacturing System Pull versus push system; types of Kanban; Alternative JIT systems; Just – in-Time purchasing; barrier and benefits of JIT	7
8	Flexible Manufacturing Systems Types of flexibilities; components of FMS; Layout consideration; FMS benefits	7
9	Enterprise Integration and CIM Network communication and management system; Realizing CIM and future trends in manufacturing	5
10	Automated Material Handling System Analysis of automated storage and retrieval (AS/RS) system; automated guided vehicles (AGVs)	5

Reference Books

1. Systems Approach to Computer Integrated Design and Manufacturing
Nanua Singh, John Wiley & Sons, Inc. publication
2. Automation, Production System and Computer Integrated Manufacturing
M.P. Groover, PHI publication