



SRI VIDYA COLLEGE OF ENGINEERING & TECHNOLOGY
COURSE PLAN (THEORY)



Subject Code	ME 6703	ACADEMIC YEAR: 2017-2018			
Subject Title	Computer Integrated Manufacturing Systems	L	P	T	C
Year / Dept / Sem	IV A / Mechanical Engineering / VII	3	0	0	3
Faculty Name/Deng/Dept	Mr. S. Senthil Kumar / Assistant Professor / Mechanical Engineering	Regulation Year		2013	
Course Prerequisite	Simple concepts regarding interfacing of computers with manufacturing machines				

Attach the copy of syllabus

Course Objectives (CO)	CO1: To understand the application of computers in various aspects of Manufacturing CO 2: To learn about the application of computers in proper planning of plant layout CO 3: To understand the application of computers in various aspects of design, manufacturing cost and material handling systems
Expected Course Outcomes (ECO)	At the end of the course, the students should be: ECO1: Able to understand the use of computers in process planning ECO2: Able to know the use of FMS and Robotics in CIM. ECO3: Familiar with different applications involved in CIM

Mapping of CO & PO (Specify the PO's) - (Fill the cols with the legend given below)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	B,E							G				
CO2	B,E					C						
CO3	B,E											H

Bridging the Curriculum Gap (Additional Topics beyond syllabus / Seminars / Assignments)	BCG 1: Implementation of Plant layout using CIM BCG 2: Applications of CAM BCG 3: Industrial Visit to industries
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Related Website URLs	W1: http://www.me.nchu.edu.tw/lab/CIM/www/courses/Computer%20Integrated%20Manufacturing/Chapter2%20-CIM-introduction.pdf W2: http://www.nptel.ac.in/courses/112107142/23 W3: http://nptel.ac.in/courses/Webcourse-contents/IIT-Delhi/Computer%20Aided%20Design%20&%20ManufacturingII/Module%20G/Module%20G(5)/p3.htm W4: http://nptel.ac.in/courses/Webcourse-contents/IIT-Delhi/Computer%20Aided%20Design%20&%20ManufacturingII/Module%20G/Module%20G(5)/p1.htm
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Related Video Course Materials (min. 3 no.s)	V1: https://www.youtube.com/watch?v=tiarTIYS-IM V2: https://www.youtube.com/watch?v=toTYb7Sirm0 V3 : https://www.youtube.com/watch?v=G5eJZcY_R3g V4: https://www.youtube.com/watch?v=yYIVumq6sVM
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Text books	T1: Mikell P. Groover "Automation, Production Systems and Computer Integrated Manufacturing", Prentice Hall of India, 2008. T2. Radhakrishnan P, Subramanyan S. and Raju V., "CAD/CAM/CIM", 2nd
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Edition, New Age International (P) Ltd, New Delhi, 2000.

Reference Books

- R1. Kant Vengur S, "Principles of Computer Integrated manufacturing", Prentice Hall India, 2003.
- R2. Gilson Halevi and Roland Weill, "Principles of Process Planning - A Logical Approach" Chapman & Hall, London, 1993.
- R3. Rao, P. N Tewari & T.K. Kundra, "Computer Aided Manufacturing", Tata McGraw Hill Publishing Company, 2000



S. No	Topic Name	Book Title - P. No	Teaching Aids	No of hrs	Cumulative hrs
UNIT - 1 INTRODUCTION					
1.	Brief introduction to CAD, CAM & CIM	702-707	BB	1	1
2.	Manufacturing Planning, Manufacturing control	708-709	BB	1	2
3.	Concurrent Engineering-CIM concept Computerized elements of CIM system	743-744	BB/LCD	1	3
4.	Types of production - Manufacturing models and Metrics, Mathematical models of Production Performance - Simple problems -	48-56	BB/LCD	2	5
5.	Manufacturing Control - Simple Problems	57-62	BB	2	7
6.	Basic Elements of an Automated system - Levels of Automation	72-87	BB/LCD	2	9
7.	Lean Production and Just-In-Time Production	43-45	BB/LCD	1	10
UNIT - 2 PRODUCTION PLANNING AND CONTROL AND COMPUTERISED PROCESS PLANNING					
8.	Process planning - Computer Aided Process Planning (CAPP)	735-741	BB/LCD	1	11
9.	Logical steps in Computer Aided Process Planning	741-743	BB/LCD	1	12
10.	Aggregate Production Planning and the Master Production Schedule	755-756	BB/LCD	1	13
11.	- Material Requirement planning - Capacity Planning- Control Systems-Shop Floor Control-Inventory Control	756-777	BB/LCD	3	16
12.	Brief on Manufacturing Resource Planning-II (MRP-II)	777-778	BB/LCD	2	18
13.	Enterprise Resource Planning (ERP) - Simple Problems.	778-780	BB	2	20
UNIT - 3 CELLULAR MANUFACTURING					
14.	Group Technology(GT), Part Families - Parts Classification and coding - Simple Problems in Opitz Part Coding system - Production flow Analysis	518-529	BB/LCD	2	22
15.	Cellular Manufacturing - Composite part concept	529-531	BB/LCD	2	24
16.	Machine cell design and layout - Quantitative analysis in Cellular Manufacturing	531-537	BB/LCD	2	26
17.	Rank Order Clustering Method - Arranging Machines in a GT cell - Holler Method - Simple Problems	537-540	BB	3	29
UNIT - 4 FLEXIBLE MANUFACTURING SYSTEM (FMS) AND AUTOMATED GUIDED					

VEHICLE SYSTEM (AGVS)

23	Types of Flexibility - FMS - FMS Components - FMS Application & Benefits - FMS Planning and Control	272-273	BB/LCD	3	32
24	Quantitative analysis in FMS - Simple Problems	273-288	BB	2	34
25	Automated Guided Vehicle System (AGVS) - AGVS Application	283-289	BB/LCD	1	35
26	Vehicle Condition Technology - Vehicle Management & Safety	289-293	BB/LCD	2	37

UNIT V INDUSTRIAL ROBOTICS

27	Robot Anatomy and External Structure	214-224	BB/LCD	1	38
28	Classification of Robots: Robot Control systems	228-233	BB/LCD	2	40
29	End Effectors - Sensors in Robotics	236-238	BB/LCD	1	41
30	Industrial Robot Applications	238-243	BB/LCD	2	43
31	Robot Path Programming - Robot Accuracy and Imprecision - Simple Problems	246-248	BB	2	45

	<i>Prepared by</i>	<i>Approved by</i>
Signature		
Name	Mr. S. Senthil Kumar	Dr. G. Sudarshan
Designation	Assistant Professor - Mech	Professor & HOD (Mech)
Signed date	02.05.2017	02.05.2017

LEGEND:

METHODOLOGY TO MAP OBJECTIVE WITH OUTCOME

Course outcomes are achieved through

A	Formative Assessment	E	Weekly, monthly and model exams
B	Class room teaching	F	Brain storming
C	Assignments	G	Group discussion and role play
D	Tutorials	H	Seminars

(Endorsed)
[Signature]
(P.T.)