COURSE PLAN

Subject: COMPUTER INTEGRATED MANUFACTURING SYSTEMS (6ME4A-02)

VISION & MISSION OF COLLEGE:

VISION: To become a renowned center of outcome based learning and work towards academics, professional, cultural and social enrichment of the lives of individuals and communities.

MISSION: M1: Focus on evaluation of learning outcomes and motivate students to inculcate research aptitude by poject based learning.

M2: Identify, based on informed perception of Indian, regional and global needs, areas of focus and provide plateform to gain knowledge and solutions.

M3: Offer opportunities for interaction between academia and industry.

M4: Develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a range of profession.

VISION & MISSION OF DEPARTMENT:

VISION: The Mechanical Engineering Department strives to be recognized globally for excellent technical knowledge and to produce quality human resource of high standard, who can manage the advance technologies and contribute to society through innovation, entrepreneurship and leadership.

MISSION: 1. To imparting highest quality technical knowledge to the learners to make them globally competitive mechanical engineers.

2. To provide the learners ethical guidelines along with excellent academic environment for a long productive career.

3. To promote industry-institute linkage.

S No.	Lecture No.	Topics to be discussed	Objective of Unit	Outcome of Lecture (After completion of this lecture students will be able to)	Book Refered	From page to
1	1	Introduction to CIM: Overview of Production Systems, the product cycle,	Students will able to identify the main elements in Computer Integrated Manufacturing Systems.	Understand overview of production	1	23
2	2	Automation in Production Systems, computer's role in manufacturing,		Gives computer role in manufacturing	1	28
3	3	sources and types of data used in manufacturing. The Beginning of CAM: Historical Background,		Understand Historical Background	1	31
4	4	Numerical Control (NC): Basic components of an NC system, coordinate system and motions control systems.		Explain NC system	1	111
5	5	Computer Numerical Control (CNC): features of CNC,		Explain CNC system	1	155

		machine control unit, CNC software.				
6	6	Direct Numerical Control and Distributed Numerical Control		Understand NC and DNC system	1	162
7	7	Applications, advantages and disadvantages of NC.		Gives advantages and disadvantages	1	238
8	8	Adaptive control of machining system.		uses of adaptive control machinin system	1	239
9	9	NC Part programming	Students will able to identify the main elements in Computer Integrated Manufacturing Systems.	Understand part programming	1	201
10	10	Manual and computer assisted part programming,		explain manual PP	1	208
11	11	Part programming with APT		Gives APT	1	208
12	12	NC part programming using CAD/CAM software		Understand Programming using CAD/CAM	1	228
13	13	NC part programming using CAD/CAM software		Understand Programming using CAD/CAM	1	228
14	14	NC cutter path verification		Path varification of NC cutter	1	298
15	15	NC cutter path verification		Path varification of NC cutter	1	298
16	16	**How Should you Organize Manufacturing(Beyond Curricula)**		Suggest points of manufacturing and Team organization	**NPTEL**	
17	17	Computer Aided Process Planning	Students will have the skill of applying knowledge of Computer Aided Process Planning (CAPP), features, Group Technology and data exchange in Manufacturing Processes.	Explains computer aided process planning	1	328
18	18	Traditional Process Planning, Retrieval process planning system,		Understand Explain process planning	1	329
19	19	Generative Process Planning, Machinability data systems		Gives machinability data systems	1	330
20	20	computer generated time standards.		Understand computer generated time standards		
21	21	Group Technology		Discussion of group technology	1	297
22	22	Introduction, part families		Understand Discussion on part families	1	298
23	23	Part classification and coding,		Miner discussion on part coding	1	301
24	24	Coding system and machining cells.		Understand coding system	1	303
25	25	Computer Aided Production Management Systems:	Students will have the skill of applying	Gives CAPM systems	1	328

26	26	Introduction to computer aided PPC,	knowledge of Computer Aided Process Planning (CAPP), features, Group Technology and data exchange in Manufacturing Processes.	Explains CAPPC	1	
27	27	Introduction to computer aided inventory management		Understand CAIM	1	360
28	28	manufacturing resource planning (MRPII),		Gives MR-II explaination	1	364
29	29	computer process monitoring and shop floor control, computer process control.		Explains shop floor control	1	365
30	30	Computer Aided Quality Control; Computer in quality control, contact inspection methods,		Understanding on CAQC	1	366
31	31	Non contact inspection methods, optical and non optical computer aided testing.		Discussion on non contact inspection methods	1	369
32	32	**Six Reasons to use Robust CAD Software (Beyond Curricula)**		Discussion on Robust manufacturing	**NPTEL**	
33	33	Computer Aided Material Handling; Computer control on material handling, conveying, picking.	Students will learn the process product models with CAM tools and CNC machines with Collaborative Engineering	Understand material handling through Computer	1	471
34	34	Ware house control, computerized material handling for automated inspection and assembly.		Explains computerized material handling	1	475
35	35	Computer Integrated Manufacturing Systems		Discussion on CIMS	1	465
36	36	Introduction, types special manufacturing systems, flexible manufacturing systems (FMS).		Discussion on Flexible manufacturing system	1	465
37	37	Collaborative Engineering; Introduction		Introduction on collaborative engineering	1	470
38	38	Faster Design throughput, Web based design,		Understanding web based design	1	479
39	39	Changing design approaches, extended enterprises		Discussion on changing design approaches	1	485
40	40	Concurrent engineering, Agile and lean manufacturing		Discussion on concurrent engineering	1	490

Book Refered,,

1. CAD/CAM: Principles and Applications, P.N. Rao, McGraw Hill