LESSON PLAN

Class: T.E Production
Academic Term: July-Dec 2018
Course: CAD/CAM/CIM
Course Code: PEC504
Credit:04
Faculty Member: Prof. Dipali Kisan Bhise

Prerequisites: None

Course Objectives:

CO1	Use computer graphics in design.
CO2	Identify proper modeling techniques for geometric modeling.
CO3	Develop expertise in computer-aided manufacturing.
CO4	Illustrate basic concepts of control systems.
CO5	Write the appropriate code for performing particular tasks in a CNC.
CO6	Solve real life engineering problems using FEA.

Course Outcomes:

**(Preferably should the CO's mentioned in University Curriculum)*

PO1 Engineering Knowledge –
PO2 Problem Analysis –
PO3 Design / Development of Solutions –
PO4 Investigations of complex problems –
PO5 Modern Tool Usage –
PO6 Engineer and Society –
PO7 Environment & Sustainability –
PO8 Ethics
PO9 Individual and Team Work
PO10 Communication
PO11 Project Mgmt & Finance
PO12 Life-Long Learning –

Periods (Hours) per week:

Lecture:4 Hr **Practical:**2 Hr **Tutorial:**Nil

University Evaluation Method:

Theory examination: 80 Marks (3 Hrs)
Internal Assessment: 20 Marks (Avg. of Test1 and Test2)
Practical Examination: 25
Term work: 25
Total: 150

Mapping of CO's to PO's:

CO# / PO#	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2
PEC504.1	3	3	3	-	-	-	-	-	-	-	-	-
PEC504.2	3	3	3	-	-	-	-	-	-	-	-	-
PEC504.3	3	3	3	-	-	-	-	-	-	-	-	-
PEC504.4	3	3	3	-	-	-	-	-	-	-	-	-
PEC504.5	3	3	3									
PEC504.6	3	3	3									

CO# / PSO#	PSO 1	PSO 2
PEC504.1	2	-
PEC504.2	2	-
PEC504.3	2	-
PEC504.4	2	-
PEC504.5	2	-
PEC504.6	2	-

CO Attainment Scheme:

	Target for Assessment Tools		
	Unit Test	**End Semester Exam**	**Course Exit Survey**
PEC504.1	50%	50%	60%
PEC504.2	50%	50%	60%
PEC504.3	50%	50%	60%
PEC504.4	50%	50%	60%
PEC504.5	50%	50%	60%
PEC504.6	50%	50%	60%

Lesson Plan:

Week	Duration (Hrs.)	Topic	Module
Week 1 (2.07.18 - 8.07.18)	**1**	Introduction to CAD/CAM/CIM	**1**
	1	I**ntroduction** to computer aided design	
	1	Product Cycle	
	1	CAD Hardware	
Week 2 (9.07.18 - 15.07.18)	**1**	DDA Line Algorithm	**2**
	1	DDA Line Algorithm	
	1	Bresenham Line Algorithm	
	1	Bresenham Line Algorithm,Cirlcle Algorithm	
Week 3 (16.07.18 - 22.07.18)	**1**	2-D Transformation	**2**
	1	2-D Transformation	
	1	2-D Transformation	
	1	3-D Transformation	
Week 4 (23.07.18 - 29.07.18)	**1**	2D Viewing and clipping	**2**
	1	Parallel Projection, Elementary treatment of Hidden lines and surfaces.	
	1	Elementary treatment of Hidden lines and surfaces.	
	1	Cubic spines Bezier curves & B- spines, Animation and Color models.	
Week 5 (30.07.18 - 5.08.18)	**1**	Types of representation of solid models, interactive tools available with solid modeling software's. Introduction to surface modeling	**3**
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	1	CAD DATA Exchange	
	1	CAD DATA Exchange	
Week 6 (6.08.18 - 12.08.18)	**1**	**Introduction :** Elements of CAM system Introduction to CNC,DNC	**4**
	1	Basics of control systems :Motion controller, Interpolation-Linear & Circular, Positioning & contouring control loops	
	1	Basics of control systems :Incremental & Absolute system, DNC & CNC systems and Adaptive control system.	
	1	CNC Hardware Basics:	
Week 7 (13.08.18 - 19.08.18)		**Unit Test 1**	
Week 8 (20.08.18 - 26.08.18)	**1**	**CNC Programming : Milling: Explanation of G/ Mcodes**	**5**
	1	**CNC Programming : Milling: Explanation of G /Mcodes**	
	1	**CNC Programming : Milling: CANNED CYCLE,SUB Programming**	
	1	**CNC Programming : Milling:Macros,Do-Loop**	
Week 9 (27.08.18 – 2-09.18)	**1**	Examples on CNC Milling	**5**
	1		
	1		
	1		
Week 10 (3.09.18 - 9.09.18)	**1**	**CNC Programming : Lathe: Explanation of G/ Mcodes**	**5**
	1	Examples on CNC Lathe Programming.	
	1	APT Programming	
	1	APT Programming	
Week 11 (10.09.18 – 16.09.18)	**1**	APT Programming	**5**
	1	APT Programming	
	1	Introduction To CIM	**6**
	1	Computer applications in manufacturing, Automation and Integrated Production management systems.	
Week 12 (17.09.18 - 23.09.18)	**1**	Automated Material handling systems, Conveyors, AVG, AS/RS, GT, FMS,	**6**
	1	Automated inspection procedure, Distributed Numerical control & Benefits of CIM and implementation & computer aided shop floor control system,Concept of “Ghost” factory.	
	1	Introduction To FEA	
	1	1-D Problems on beam	

Week 13 (24.09.18 - 30.9.18)	**4**	1-D Problems on spring	6
Week 14 (1.10.18 - 7.10.18)	**4**	2-D Problems on truss	6

Reference Books:

1. CAD / CAM by P.N. Rao (Tata-Mcgraw- Hill)
2. Computer Graphics By A.P Godse
3. CAD/ CAM And Automation By Haidary