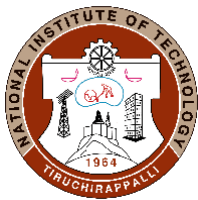




DEPARTMENT OF PRODUCTION ENGINEERING

COURSE PLAN – PART I			
Name of the programme and specialization	B Tech PRODUCTION ENGINEERING		
Course Title	COMPUTER AIDED DESIGN AND ENGINEERING (Theory & Lab)		
Course Code	PRPC26	No. of Credits	3
Course Code of Pre-requisite subject(s)	CSIR11 Basics of Programming (Theory & Lab)		
Session	January 2020	Section (if, applicable)	B
Name of Faculty	P.SENTHIL	Department	PRODUCTION ENGINEERING
Official Email	senthil@nitt.edu	Telephone No.	3513
Name of Course Coordinator(s) (if, applicable)	-		
Official E-mail		Telephone No.	
Course Type (please tick appropriately)	<input checked="" type="checkbox"/> Core course	<input type="checkbox"/> Elective course	
Syllabus (approved in BoS)			
<p>Fundamentals of computer - configurations - workstations - data communications - input/output devices, display technology, CAD software. Interactive graphics - point plotting techniques. Transformations techniques, viewing operations: window, viewport and clipping, visual realism Hidden line/surface removal, shading and colour models. Computer drafting through high level languages.</p> <p>Geometric modeling: Wireframe modeling, Surface modeling: Representation of curves and surfaces, design of curves: cubic splines, bezier curves and B spline, design of surfaces.</p> <p>Solid modeling: Constructive solid geometry (C-rep) and Boundary representation (B-rep). Graphics standards: GKS, DXF and IGES standards - Parametric design programmes.</p> <p>Finite element modeling and analysis: types of analysis, degrees of freedom, element and structure- stiffness equation, assembly procedure. Database concepts and data base management systems - SQL.</p>			
COURSE OBJECTIVES			
<ul style="list-style-type: none"> • To understand various hardware and software that serve as components of CAD system • To understand plotting, transformations techniques, geometric modeling • To understand graphic standards, finite element modeling and DBMS 			



MAPPING OF COs with POs	
Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)
1. Summarize the concepts and applications of CAD.	PO 1,4,6
2. Elaborate fundamental of computers, networks, transformations techniques, geometric modeling solid modeling and finite element modeling	PO 1,4,6
3. Distinguish various concepts and techniques used for Product design and to develop product design skills.	PO 1,4,6

COURSE PLAN – PART II			
COURSE OVERVIEW			
<p>Computer aided design and Engineering is an important tool used to create virtual 3D objects and perform analysis on 3D CAD model. This tool offers more design freedom to model the complicate shapes and provides brief introduction about finite element methods and its applications.</p> <p>This course enables students to understand various techniques used in CAD modelling and Finite element modelling.</p>			
COURSE TEACHING AND LEARNING ACTIVITIES			(Add more rows)
S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	1	Fundamentals of computer - configurations - workstations - data communications - input/output devices, display technology, CAD software and lab practice	Chalk and Talk / PPT
2	2	Interactive graphics - point plotting techniques and lab practice	Chalk and Talk / PPT
3	3	Transformations techniques and lab practice	Chalk and Talk / PPT
4	4	viewing operations: window, viewport and clipping, visual realism and lab practice	Chalk and Talk / PPT
		Assessment – 1	
5	5	Hidden line/surface removal, shading and colour models. Computer drafting through high level languages and lab practice	Chalk and Talk / PPT



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6	6	Geometric modeling: Wireframe modeling, Surface modeling: Representation of curves, design of curves cubic splines, bezier curves and B spline, Representation of curves and surfaces and lab practice	Chalk and Talk / PPT
7	7	Representation of surfaces and design of surfaces and lab practice	Chalk and Talk / PPT
8	8	Solid modeling: Constructive solid geometry (C-rep) and Boundary representation (B-rep) and lab practice	Chalk and Talk / PPT
9	9	Graphics standards: GKS, DXF and IGES standards - Parametric design programmes and lab practice	Chalk and Talk / PPT
		Assessment – 2	
10	10	Finite element modeling and analysis: types of analysis, degrees of freedom, element and structure-stiffness equation, assembly procedure and lab practice	Chalk and Talk / PPT
11	11	Database concepts and data base management systems – SQL and lab practice	Chalk and Talk / PPT
		Compensation Assessment	
		Final assessment (theory)	

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Assessment – 1	End of 4 Weeks	1 Hr	20%
2	Assessment – 2	End of 9 Weeks	1 Hr	20%
3	In class Assesment	During regular class		10%
4	Lab Practice	During Regular Lab Practice		20%



CPA	Compensation Assessment*	End of 11 Weeks	1 Hr	20%
5	Final Assessment *	End of Semester	3 Hrs	30%
*mandatory; refer to guidelines on page 4				
COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)				
Course Exit survey will be collected at the end of the semester before the start of semester examination. Students can give the feedback anytime to improve the teaching-learning process. Apart from this, students can share feedback during class committee meetings.				
COURSE POLICY (including compensation assessment to be specified)				
<u>MODE OF CORRESPONDENCE (email/ phone etc)</u>				
senthil@nitt.edu				
<u>COMPENSATION ASSESSMENT</u>				
If any student is not able to attend any of the assessments (1 or 2 or both) due to genuine reason, student is permitted to attend the compensation assessment with 20 % weightage				
<u>ATTENDANCE POLICY</u> (A uniform attendance policy as specified below shall be followed)				
<ul style="list-style-type: none"> ➤ At least 75% attendance in each course is mandatory. ➤ A maximum of 10% shall be allowed under On Duty (OD) / Medical Ground category. ➤ Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade. 				
<u>ACADEMIC DISHONESTY & PLAGIARISM</u>				
<ul style="list-style-type: none"> ➤ Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty. ➤ Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark. ➤ The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office. ➤ The above policy against academic dishonesty shall be applicable for all the programmes. 				



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ADDITIONAL INFORMATION, IF ANY		
The Course teacher is available for consultation in the department after class hours. Queries may also be emailed to the Course Coordinator directly at senthil@nitt.edu		
FOR APPROVAL		
Course Faculty <u><i>[Signature]</i></u>	CC- Chairperson <u><i>C. S. J. N. S.</i></u>	HOD <u><i>[Signature]</i></u> 22/11/20

Guidelines

- The number of assessments for any theory course shall range from 4 to 6.
- Every theory course shall have a final assessment on the entire syllabus with at least 30% weightage.
- One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered.
- The passing minimum shall be as per the regulations.

B.Tech. Admitted in			
2018	2017	2016	2015
35%	or (Class average/2) whichever is greater.	(Peak/3) or (Class Average/2) whichever is lower	or (Class average/2) whichever is greater.

- Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.
- Absolute grading policy shall be incorporated if the number of students per course is less than 10.
- Necessary care shall be taken to ensure that the course plan is reasonable and is objective.