



GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering

Subject Code: 3140112

Semester –IV

Subject Name: Geometrical Modeling

Type of course: Professional Core Course

Prerequisite: Basic knowledge of Engineering Graphics

Rationale: Students should know about past and present scenario of their profession, Governing bodies, and rules and regulations regarding civil and military aviation structure. This subject has been introduced for the same purpose.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
0	0	2	1	0	0	80	20	100

Content:

Sr. No.	Content	Total Hrs	Weightage
1	Introduction to CAD: Introduction of Computer Aided Design using modeling software, Various modeling softwares available in the market, their capabilities.	2	6%
2	Sketcher: Introduction to basic sketching tools, Creating 2D sketches in CAD software, Dimensioning of geometry.	4	12%
3	Part Design: Introduction to geometric modeling, Basic commands used for creating solid primitives, Advanced modeling commands, Creation of 3D models using solid modeling software, Introduction to assembly modeling.	10	34%
4	Surface Design: Introduction to wireframe and surface models, Various commands used for creating surface models.	10	34%
5	Drafting: Creating different 2D views from a solid model, Creating manufacturing drawings with dimensions and tolerances.	4	14%

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10%	20%	30%	20%	10%	10%

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers.



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Reference Books:

1. CATIA V5R21 for Engineers and Designers by Prof. Sham Tickoo, Gaganjeet Singh Sethi, Publisher: CADCIM Technologies
2. Creo Parametric 2.0 for Engineers and Designers by Prof. Sham Tickoo, Dreamtech Publication
3. Autodesk Inventor for Designers by Prof. Sham Tickoo, Publisher: CAD CIM Technologies

Course Outcomes:

After completion of this course students shall be able to

Sr. No.	CO statement	Marks % weightage
1.	Understand and appreciate use of computers/software in product development.	15
2.	Demonstrate the basic sketching tools in CAD software.	15
3.	Analyze real world problems with the use of modeling tools.	35
4.	Apply the knowledge/skills acquired to make three dimensional geometrical models.	35

List of practicals:-

1. An Introduction to 3D modeling software
2. Prepare a layout of two dimensional sketch I
3. Prepare a layout of two dimensional sketch II
4. Exercise for 3D modeling
5. Exercise for advanced 3D modeling I
6. Exercise for advanced 3D modeling II
7. Exercise for assembly modeling
8. Exercise for surface modeling
9. Exercise for advanced surface modeling I
10. Exercise for advanced surface modeling II
11. Exercise for Drafting

Major equipment:

CAD software with required hardware and peripherals.

List of Open Source Software/learning website: <https://nptel.ac.in/course.php>, www.3ds.com