GANPAT UNIVERSITY

FACULTY OF ENGINEERING& TECHNOLOGY

Programme	Bachelor of Technology		Branch/Spec	Mechatronics Engineering	
Semester	III		Version	2.0.0.0.	
Effective from Academic Year	2025-26		Effective form the batch Admitted in		July 2025
Subject code	2ME3101	Subject Name	SOLID MODELLING		

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	0	0	1	0	1	Theory	00	00	00
Hours	0	0	2	0	2	Practical	30	20	50

Pre-requisites:

- Knowledge of Engineering Graphics
- Ability to visualize different views of the object

Course Outcomes:

CO 1	Understand the basics of engineering drafting or engineering drawing.
CO 2	Create models using various drafting commands of software
CO 3	Implement the practical applications of various concepts of engineering drawing standards in industry.
CO 4	Components and assembly analysis can be done

Theory syllabus:

Unit	Content	Hrs
1	**Introduction to modeling software:** System requirements, important terms and definitions, file menu options, managing files, the function of mouse, various toolbars.	1
2	**Sketcher:** Configuring for sketcher, Setting sketching environment, Creating sketcher geometry, Modifying sketcher geometry, Dimensioning sketcher geometry, Constraining geometry, To study different entities : line, circle, rectangle, arc, ellipse, text, plane, point, fillet, polygon, straight slot, trim entity, convert entity, offset entity, mirror entity, linear sketch pattern, move entity, rapid sketch, quick sketch, repair sketch, Display the delete relation.	6
3	**Part modeling:** Basic (parent-child relationship), Base feature, Create datum's features, Edit features, Engineering features, Advanced features, Creating drawings, Working model views, Dimensioning and detailing your models, Controlling drawing details with layers, Importing and exporting data, Features: extrude boss/base, revolved boss/base, swept boss, lofted boss, boundary boss, extrude cut, hole wizard, revolve cut, swept cut, lofted cut, boundary cut, fillet, pattern, rib, draft, dome, mirror, reference geometry, curves, instant 3D	20
4	**Assembly:** Reading top-down assemblies, creating bottom-up assemblies, Placement constraints, Assembly datum planes, assembling the components, redefining the components of the assembly, reordering the components, modifying the components of the assembly, the bill of material, Mechanism & animations: Motor, Spring , Contact, Gravity, Animation wizard, Motion study properties, Save animation, playback mode. Edit component, insert component, mate, smart fasteners, move component, show hidden component, assembly features, reference geometry, Linear component pattern, bill of materials, exploded view, Interference detection, clearance verification, hole alignment, mass property, section property, sensor, assembly visualization, and symmetry check.	8

5	**Drawing:** View layout, model view, projected view, auxiliary view, and section view, detail view, broken out section, break, and crop view. Annotation : smart dimension, model items, spell checker, format painter, note, balloon, surface finish, weld symbol, hole callout, geometric tolerances, datum features, datum target, area hatch/fill, blocks, center mark, center line, revision symbol, and tables.	10

Practical content:	
The term work shall be based on experimental and analytical work on topics mentioned above	
Text Books:	
1	Bible, Matt Lombard, "Solidworks 2010", Wiley Publishing, Inc. Manual from the solid works web site.
Reference Books:	
1	Sham Tikoo, "Solid works for engineers & designers".
2	Sham Tikoo, "Pro/Engineer PTC Creo Parametric 3.0 for Engineers and Designers" .
ICT/MOOCs References:	
1	https://nptel.ac.in/courses/112102101/37
2	https://www.youtube.com/watch?v=6c852zSMrSs&list=PLBHPr-24ac73ScwMuQfgToQobHtsBZILe (INTRODUCTION TO MODELING SOFTWARE)
3	https://www.youtube.com/watch?v=DsqCEPlxVek&list=PL8MELgWj0RxP-DAUJ25h9Nwp_gKAQEK2w (SKETCHER)
4	https://www.youtube.com/watch?v=6c852zSMrSs&list=PLBHPr-24ac73ScwMuQfgToQobHtsBZILe (PART MODELING)
5	https://www.youtube.com/watch?v=pCDyFsBugsE (ASSEMBLY)
6	https://www.youtube.com/watch?v=KJdldN4UekQ (DRAWING)

Mapping of CO with PO and PSO:

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	2	2	3	3	2	0	0	0	0	0	0	1	2	2	1
CO2	2	2	3	3	2	0	0	0	0	0	0	2	2	1	2
CO3	3	3	3	2	2	0	1	0	2	0	2	0	2	2	2
CO4	3	2	3	2	3	0	0	0	2	0	2	0	1	1	1