

GANPAT UNIVERSITY										
FACULTY OF ENGINEERING & TECHNOLOGY										
Programme		Diploma Engineering				Branch		Mechatronics Engineering		
Semester		VI				Version		1.0.0.0		
Effective from Academic Year			2020-21			Effective for the batch Admitted in			July 2018	
Subject code		1MC2604		Subject Name		COMPUTER AIDED GRAPHICS				
Teaching scheme					Examination scheme (Marks)					
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total	
	L	TU	P	TW						
Credit	0	0	2	0	2	Theory	0	0	0	
Hours	0	0	4	0	4	Practical	60	40	100	

Pre-requisites:
Students must have knowledge of concepts of computer knowledge, engineering drawing, metrology and instrumentation.

Course Learning Outcomes:
The course content should be taught and implemented with an aim to develop different skills leading to the achievement of the following competencies and course learning outcomes: CO1. Select hardware and software for CAD workstation. CO2. Draw and modify 2D production drawings of mechanical components. CO3. Develop 3D models of machine parts and assemblies. CO4. Analyse 3D models of assemblies and simulate with given load condition. CO5. Develop 2d Drawings from 3d models

Course Content				
Name of UNIT	Unit Content	Unit Learning Outcomes	Marks	Hrs
<b>UNIT – 1 Fundamentals of CAD</b>	1.1 CAD – Concept and Need 1.2 Functional Areas of CAD 1.3 Specifications of CAD work station 1.4 Input- Output devices 1.5 Features of CAD software.	1a. Describe the use of CAD application 1b. Distinguish the hardware and software for CAD workstation	6	6
<b>UNIT – 2 Parametric Modeling</b>	2.1 Parametric and non-parametric modelling. 2.2 2D sketch environment of parametric software and non-parametric software. 2.3 Parametric software in industries and their features 2.4 Sketching and solid modelling tools (Any one from Solid works, Creo, Unigraphics, CATIA, Solid Edge, 2.5 Inventor etc)	2a. Differentiate parametric and 2b. non-parametric sketcher environments. 2c. Use various sketch tool and solid modeling tools of available parametric software.	14	14
<b>UNIT – 3 Advance Modeling techniques</b>	3.1 Advance tool and basic solid 3.2 3D modelling tools. 3.3 Various advance modelling tools (sweep, loft-blend, helical sweep, pattern, boundry, Standard holes	3a. Apply advance modelling tools to generate complex parts.	16	16

	wizard) 3.4 Error rectification.			
<b>UNIT – 4 Assembly Modeling and Drawing</b>	4.1 Basic Assembly constraints 4.2 Mechanical Assembly constraints 4.3 2D production drawing using drawing modules with various orthographic views (may have sectional views) 4.4 Generation of Bill Of Material with balloons 4.5 Plotting of assembly and drawing details on standard paper with title block mentioning scale of plot.	4a. Use assembly module. 4b. Apply various assembly constraints 4c. Animate assembly 4d. Apply drawing module to generate 2D production drawing 4e. Plot drawing on standard sheet	24	24
		Total	60	60

List of Practical			
No.	Unit	Name of Practical	
1	1	Demonstration of AutoCAD Mechanical environment and its commands.	
2	2	Demonstration of Parametric software environment and its commands.	
3	2	Prepare 2D drawing using parametric software (At least Four parts)	
4	2	Prepare 3D Solid Models using parametric softwares (includes base features like extrude, revolve, cut, shell, chamfer, rib, fillet etc) (At least Eight parts)	
5	3	Prepare 3D Solid Models using parametric softwares (Includes Advance features like sweep, blend (loft), pattern)	
6	4	Prepare 2D production drawing of given components prepared in exercise 5 and 6 and take print using plotter. (at least four components)	
7	4	Prepare 3D solid modeling of given Assembly and animate. (must have 4 to 6 components) (at least four assemblies)	
List of Instruments/Equipment/Trainer Board			
1	CAD work station (With latest compatible specification required for latest version of softwares.)		
2	Educational version of Solidworks, Inventor, Creo, Solid edge (any one)		
3	Plotter (A2 size)		
Link of Text Books			
No	Title of Books	Authors	Publication
1	Mastering SolidWorks	Matt Lombard	Wiley
2	Creo 2.0 for designer and engineers	Tickoo, Sham	Dreamtech press, New Delhi
List of Reference Books			
No	Title of Reference Books	Authors	Publication
1	Solidworks 2017 Black Book	Gaurav Verma	Matt Weber
2	Machine drawing including AutoCAD	Ajeet Singh	McGraw-hill
3	Learning Autodesk Inventor 2020	Randy H. Shih	SDC Publications

Link of Learning Web Resource	
1	<a href="http://www.cadcim.com/">http://www.cadcim.com/</a>
2	<a href="https://www.youtube.com/watch?v=6glpCzXvCbw">https://www.youtube.com/watch?v=6glpCzXvCbw</a>
3	<a href="https://www.youtube.com/watch?v=xMjUCq8kNf8">https://www.youtube.com/watch?v=xMjUCq8kNf8</a>
4	<a href="https://www.youtube.com/watch?v=SMVSSzAGyn">https://www.youtube.com/watch?v=SMVSSzAGyn</a>
5	<a href="https://www.youtube.com/watch?v=Smh5CjjeNxY">https://www.youtube.com/watch?v=Smh5CjjeNxY</a>
6	<a href="https://www.youtube.com/watch?v=zNDwvsU5Dko">https://www.youtube.com/watch?v=zNDwvsU5Dko</a>