Program : **Diploma in Mechanical Engineering / Manufacturing Technology**	
Course Code : **6027**	Course Title: **Production Software Lab**
Semester : **6**	Credits: **1.5**
Course Category: **Program Core**	
Periods per week: **3 (L:0, T:0, P:3)**	Periods per semester: **45**

Course Objectives:

- To deliver the power and potential of CAD (SOLIDWORKS) through a structured program built upon the industry best practice.
- To teach how to use SOLIDWORKS mechanical design software to build parametric models of parts and assemblies and make drawings of those parts and assemblies.

Course Prerequisites:

Topic	Course Code	Course Name	Semester
Basic Engineering Graphics		Engineering Graphics	1
Basic knowledge on commands and construction of 2D drawings using AutoCAD		Basic CAD Lab	2
3D Modelling		CAD Lab II	4

Course Outcomes:

On completion of the course,the student will be able to:

COn	Description	Duration (Hours)	Cognitive Level
CO1	Demonstrate the key characteristics and Interface of SOLIDWORKS software.	12	Understanding
CO2	Explain about Designing tools and Essentials of SOLIDWORKS software.	10	Understanding

CO3	Illustrate the Assembly concept and building the virtual components.	11	Understanding
CO4	Buildthe 2D Drawings with industry Standard & Annotation.	10	Applying
	Lab Exam	2	

CO – PO Mapping:

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3						
CO2	3						
CO3	3						
CO4	3			2			2

3-Strongly mapped, 2-Moderately mapped, 1-Weakly mapped

Course Outline

Module Outcomes	Description	Duration (Hours)	Cognitive Level
CO1	**Demonstrate the key characteristics and Interface of SOLIDWORKS software.**		
M1.01	Outline the key characteristics of a SOLIDWORKS	2	Understanding
M1.02	Understanding about user interface of the software	2	Understanding
M1.03	Interpret the file formats, file extensions, Neutral file formats.	2	Understanding
M1.04	Make use of Short cut keys, customization of the software	3	Understanding
M1.05	Define the of standard, Annotations, Unit system….	3	Remembering
Contents: Describe the key characteristics of a SOLIDWORKS, understanding about user interface of the software, Understanding about file formats, file extensions, Neutral file formats. Utilization of Short cut keys, customization of the software, Understanding of standard, Annotations, Unit system			

CO2	**Explain about Designing tools and Essentials of SOLIDWORKS software.**		
M2.01	Explain the key characteristics of a feature-based, Parametric solid modeler	2	Understanding
M2.02	Develop the fully associated 3D solid models with constrains or user defined relations to capture design intent.	2	Understanding
M2.03	Utilize all available tools to edit and make changes to a part.	2	Understanding
M2.04	Apply the ramification of making changes to part that have configurations.	2	Understanding
M2.05	Inserting components into an assembly using all available techniques.	2	Understanding
	Lab Exam – I	1	
Contents: Describe the key characteristics of a feature-based, Parametric solid modeler, develop fully associated 3D solid models with constrains or user defined relations to capture design intent.Utilize all available tools to edit and make changes to a part, Understand the ramification of making changes to part that have configurations. Inserting components into an assembly using all available techniques.			
CO3	**Illustrate the Assembly concept and building the virtual components.**		
M3.01	Advance part modeling techniques, including splines, Multi-body parts, Sweep, Lofts and curves.	3	Understanding
M3.02	Assembly modeling techniques including top-down assembly, assembly editing & about Large assembly…	3	Understanding
M3.03	Solid & Surface hybrid modeling…	3	Understanding
M3.04	About using & creation of design library…	2	Understanding
Contents: Advance part modeling techniques, including splines, Multibody parts, Sweep, Lofts and curves, Assembly modeling techniques including top-down assembly, assembly editing & about Large assembly, Solid & Surface hybrid modeling, about using & creation of design library.			
CO4	**Build the 2D Drawings with industry Standard & Annotation.**		
M4.01	How to create engineering drawing of Parts & Assemblies	2	Remembering

M4.02	Construct Basics Drawing views, Model views, Section views, Detail Views etc	3	Applying
M4.03	List the different types of Dimensioning schemes….	1	Remembering
M4.04	Develop basics annotations like: welding symbols, center mark, center line, surface symbols etc.….	2	Applying
M4.05	Build the assembly drawing, BOM, cut list, Hole Table etc.…	2	Applying
	Lab exam – II	1	

Contents:
How to create engineering drawing of Parts & Assemblies, Creating Basics Drawing views, Model views, Section views, Detail Views etc. Different types of Dimensioning schemes, Creating basics annotations like: welding symbols, center mark, center line, surface symbols etc. Creating of assembly drawing, BOM, cut list, Hole Table etc.

Text / Reference

T/R	Book Title/Author
T1	Learn Solid Works 2020 by Tayseer Almattar
T2	Solid Works for Beginners- Arsath Natheem
T3	Solid Works Exercises- by CAD artifex
T4	Engineering Drawing, N.D.Bhatt
R1	Dr. Branoff , Engineering graphics & computer-aided design,
R2	Machine Design, K. Venugopal

Online Resources

Sl.No	Website Link
1	https://www.my.solidworks.com/
2	https://www.youtube.com/solidworks