Ramgarhia Polytechnic College, Phagwara

Mechanical Engineering Department

Head of Department:	Er. Gaurav Kumar
Name of the Faulty:	Er. Jaspreet Singh Sekhon
Discipline:	Mechanical Engineering Department
Semester:	5th
Subject:	COMPUTER AIDED DRAFTING AND MODELING
Lesson Plan Duration:	16 Weeks

Learning Outcomes

On completion of this course, students will be able to:
CO1. Know the advantages of using CAD in comparison with conventional method.
CO2. Draw and interpret CAD drawings using drawing, editing and viewing in CAD software.
CO3. Create easy and complex solids and assemblies using various tools in Solid works software.

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CO1								
CO2								
CO3								

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Syllabus Foundry Shop

Units	Details	Hours
1.	Introduction to AutoCAD commands	6 drawing sheets
2.	Detail and assembly drawing of the following using AUTOCAD.	4 sheets
3.	Isometric Drawing by CAD using Auto CAD	one sheet
4.	Introduction to Solidworks. Introduction to Sketcher: Sketch Entities, Sketch Tools, Blocks, Dimensioning	
5.	Assembly	2 models

Course Outcome:

Delivery/Instructional Methodologies

Sr.No.	Description
1.	Chalk,Talk and Description
2.	Practical Demonstration

Assessment Methodologies

Sr. No.	Description	Type
1.	Practical File	Direct
2.	Viva/Practical Notebook	Direct
3.	Board Practical	Direct
4.	Student Feedback	Direct

Gaps in the syllabus - to meet industry/profession requirements

S.NO.	DESCRIPTION	PROPOSED ACTIONS	PO MAPPING
	N/A	N/A	N/A

Topics beyond syllabus/advanced topics

Units	Details	Hours
N/A	N/A	N/A

Web Source References

Sr. No.	URL
1.	https://nptel.ac.in/

Lesson Plan

Week	Practical	
	Practical Day	**Drawing Sheets & Models (8 hours/week)**
1st	1	1.1 Concept of AutoCAD, Tool bars in Auto CAD, coordinate system, snap, grid, and ortho mode (Absolute, Relative and Polar)
	2	1.2 Drawing commands – point, line, arc, circle, ellipse, 1.3 Editing commands – scale, erase, copy, stretch, lengthen and explode
2nd	1	1.4 Dimensioning and placing text in drawing area. 1.5 Sectioning and hatching
	2	1.6 Inquiry for different parameters of drawing entity 1.7 Create layers within a drawing

3rd	1	1.8 Specifying Geometrical Dimensioning & tolerancing (GD&T) parameters in drawing
	2	2.1 Plummer Block
4th	1	2.2 Wall Bracket
	2	2.3 Stepped pulley, V-belt pulley
5th	1	2.4 Flanged coupling
	2	2.5 Machine tool Holder (Three views)

6th	1	
	2	2.6 Screw jack or knuckle joint
7th	1	
	2	- Cone - Cylinder - Isometric view of objects
8th		**PTM**
		Revision, Viva

9th	1	4.1.1 Creating reference planes 4.1.2 Creating Extrude features Creating Revolve Creating Swept features-
	2	4.1.3 Creating Loft features 4.1.4 Creating Reference - points, axis, coordinates
10th	1	4.1.5 Creating curves 4.1.6 Creating Fillet features 4.1.7 Inserting Hole types
	2	4.1.8 Creating Chamfer 4.1.9 Creating Shell 4.1.10 Creating Rib
11th	1	4.1.11 Creating Pattern Advanced Modeling Tools

	2	
12th	1	4.1.12 Inserting Fastening features,
	2	
13th	1	4.1.13 Environment& Utilities - Working with views and manipulating views,
	2	
14th	1	Introduction to Assembly Modeling & Approaches – Top down and Bottom up approach, Applying Standard Mates- Coincident, Parallel, Perpendicular, Tangent, Concentric, Lock, Distance, Angle

	2	Applying Advanced Mates – Symmetric, Width, Path Mate, Linear/Linear Coupler, Limit Mate. Applying Mechanical Mates – Cam, Hinge, Gear, Rack Pinion, Screw, and Universal Joint
15th	1	Manipulating Components - Replacing Components, Rotating Components, Move Components, Collision Detection, Physical Dynamics, Dynamic Clearance, Detecting Interference
	2	Creating Pattern - Assembly Pattern, Mirror, Creating Explode Views
16th		**PTM**
		Revision, Viva

Reference Books:

1. Engineering Drawing with AutoCAD 2000 by T. Jeyapooran; Vikas Publishing House, Delhi.
2. AutoCAD for Engineering Drawing Made Easy by P. Nageswara Rao; Tata McGraw Hill, New Delhi.

3. AutoCAD 2000 for you by Umesh Shettigar and Abdul Khader; Janatha Publishers, Udupi.
4. Auto CAD 2000 by Ajit Singh, TMH, New Delhi.
5. Designing with Pro Engineer, Sham Tickoo by Dream Tech Publications, New Delhi.

6. Designing with CATIA, by Sham Tickoo, Dream Tech. Publications, New Delhi