

कायालय प्राचाय, शासकीय पॉलीटेक्निक जशपुर (छ.ग.)

ग्राम-झरगाँव, पोस्ट- घोलेग, तह. जशपुर, जिला- जशपुर (छ.ग.) पिन कोड &496338

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LESSON PLAN SESSION JUL – DEC 2024-25

SUBJECT: Machine Drawing & CAD SEMESTER: 3RD

BRANCH: - MECHANICAL ENGINEERING

UNIT NUMBER	NAME OF THE TOPIC	NO OF CLASS REQUIRED	REMARK
Unit-1.0 Intersection of Solids	1.1 Curves of intersection of surfaces of the regular solids in the following cases: 1.2 Prism with prism (Triangular and square),	02	
	Cylinder with cylinder, Square Prism with Cylinder when : i. the axes are at 90° and intersecting	04	
	Cylinder with cylinder, Square Prism with Cylinder when ii. The axes are at 90° and Offset	03	
	1.3 Definition of primary and secondary standard used in measurement system Cylinder with Cone: when axis of cylinder is parallel to both the reference planes and cone resting on base on HP with axis intersecting and offset from axis of cylinder.	03	
Unit-2.0 Development of surfaces	2.1. Development of Lateral surfaces of objects cylinder	02	
	2.2 cone	02	
	2.3 pyramids	03	
	their applications such as funnel, Chimney, pipe bend.	01	
Unit-3.0 Conventional Representations	3.1 Standard convention as per BIS [SP-46(1988)] 3.2 Materials- C.I., M.S, Brass, Bronze, Aluminum, wood, Glass, Concrete and Rubber 3.3 Long and short break in pipe, rod and shaft. 3.4 Ball and Roller Bearings. 3.5 Pipe joints, cocks, valves. 3.6 Internal / external threads, Knurling 3.7 Serrated shafts, splined shafts, and keys and key ways	01	
	3.8 Springs with square and flat ends 3.9 Gears, sprocket wheel, chain wheels 3.10 Countersunk & counter bored holes 3.11 Tapers	01	
Unit-4.0 Limits-fits-tolerance, surface finish and welding symbols in Production drawing	4.1 Limits, fits and tolerances: Definitions, Introduction to ISO system of tolerances - unilateral and bilateral tolerance and its representation on drawing	01	
	4.2 dimensional tolerances, elements of interchangeable system, hole & shaft base systems, tolerance diagram,	01	
	4.3 Selection of fit (clearance, transition and interference) for engineering applications.	01	
	4.4 Geometrical tolerances Definitions, Tolerances of form and position and its geometric representation-tolerance frame, datum feature, magnitude of tolerance and symbol, interpretation of a given symbol on drawing, simple examples.	01	
	4.5 General welding symbols, length and size of weld, surface contour and finish of weld, all round and site weld, symbolic representation in Engineering practices and its interpretation.	01	
	4.6 Characteristics of surface roughness Indication of machining symbol showing direction of lay, roughness grades, machining allowances, manufacturing methods, using ISO code. Relation of surface roughness values with manufacturing processes.	01	
Unit-5.0 Assembly to Detail drawing	5.1 Introduction, types of assembly drawing, accepted norms to be observed for assembly drawings, sequence for preparing assembly drawing. Bill of Material.	01	
	5.2 Exploded view of : i. Flange coupling, ii. Bushed Bearing	04	
	iii. Plummer Block	04	
	iv. Lathe Square Tool Post,	04	
	v. Knuckle Joint	04	

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	vi. Cast Iron Pulley, vii. Any other assembly consisting of 6 -10 parts.		
Unit-6.0 Assembly to Details	6.1 Introduction, types of assembly drawing, accepted norms to be observed for assembly drawings, sequence for preparing assembly drawing. Bill of Material.	01	
	6.2 Flange coupling	02	
	6.3 Plummer Block	02	
	6.4 Lathe Square Tool Post	02	
	6.5 Knuckle Joint	02	
	6.6 Cast Iron Pulley	02	
Unit-7.0 Isometric and Orthographic Sectional views	7.1 Recall Isometric and orthographic projections. 7.2 Conversion of pictorial view into Orthographic views and Conversion of orthographic views into isometric View/projection.	03	
	7.3 Need for sectional views, Cutting plane and line, Sectioning conventions and section lines.	01	
	7.4 Types of sections: Full, Half, Broken, Removed, Revolved and Offset	01	
	7.5 Recall AutoCAD Draw, Modify, Edit and Plot commands. 7.6 Isometric and Orthogonal drawings using any computer aided drafting software (AutoCAD).	03	
Total Classes Required		60	


Subject I/C- PRANITA SORENG
LECTURER, Mechanical Engineering, GPJ

HOD
Department of Mechanical Engineering