

GOVT.POLYTECHNICMAYURBHANJLESSONPLAN-2026/27(Winter)

Discipline:		Semester:5th Sem		Name of theTeachingFaculty:THAKURA HANSDAH		
MEACHANICAL ENGG.						
Subject: DME		No.of Days/ Perweek classallotted:		SemesterFromdate:1.07.2026. ToDate:11.11.2026		
MONTH	Week	Day	Unit	Topics		
JULY	1st	1st	UNIT-1	1.Introduction:		
		2nd		Introduction to Machine Design		
		3rd		General Considerations in Machine Design;		
		5th		Fundamentals: Types of loads, concepts of stress		
	2nd	2nd		Strain, Stress – Strain Diagram for Ductile and Brittle Materials,		
		3rd		Strain, Stress – Strain Diagram for Ductile and Brittle Materials,		
		5th		Types of Stresses; Bearing pressure Intensity; Crushing; Bending and Torsion; Principal Stresses;		
	3rd	2nd		Simple Numericals; of Bending and Torsion;		
		3rd		Simple Numericals; of Bending and Torsion;		
		5th		Fatigue; S-N curve; Endurance Limit		
	4th	1st		Factor of Safety, Stress Concentration		
		2nd		Properties of Engineering materials; Designation of materials as per IS and introduction to International standards		
		3rd		advantages of standardization; Use of design data book; Use of standards in design and preferred numbers series		
		5th		Theories of Elastic Failures; Principal normal stress theory		
	5th	1st		Maximum shear stress theory & Maximum distortion energy theory.		
		2nd		Solve of simple problem.		
		3rd		Revision		
	1ST			UNIT-2	Design of simple machine parts:	

AUGUST

SEPTEMBER

2ND	1st
	2nd
	3rd
	5th
3rd	1st
	2nd
	3rd
	5th
4TH	1st
	2nd
	3rd
	5 TH
5TH	1st
	2nd
	5th
1ST	1st
	3rd
	5th
	2nd
	3rd
	5 TH
3rd	1st
	2nd
	3rd
	5th

UNIT-2

UNIT-3

Cotter Joint; Knuckle Joint
Turnbuckle; Design of Levers: Hand/Foot Lever & Bell Crank Lever;
Turnbuckle; Design of Levers: Hand/Foot Lever & Bell Crank Lever;
Design of C-Clamp; Off-set links
Overhang Crank; Arm of Pulley.
Antifriction Bearings: Classification of Bearings; Sliding contact & Rolling
contact; Terminology of Ball bearings
Life Load relationship, Basic static load rating and Basic dynamic load rating
CLASS TEST-1
Life Load relationship, Basic static load rating and Basic dynamic load rating
limiting speed; Selection of ball bearings using manufacturer's catalogue.
limiting speed; Selection of ball bearings using manufacturer's catalogue.
Solve numerical on Welded Joint and Riveted Joints
3.0 Design of Shafts, Keys, Couplings and Spur Gears:
Types of Shafts; Shaft materials; Standard Sizes
Design of Shafts (Hollow and Solid) using strength and rigidity criteria;
Design of Shafts (Hollow and Solid) using strength and rigidity criteria;
ASME code of design for line shafts supported between bearings with one or two
pulleys in between or one overhung pulley
Design of Sunk Keys; Effect of Key-ways on strength of shaft
Design of Sunk Keys; Effect of Key-ways on strength of shaft
Design of Couplings – Muff Coupling,
Protected type Flange Coupling, Bush-pin type
Spur gear design considerations; Lewis equation for static beam strength of spur
gear teeth;
Spur gear design considerations; Lewis equation for static beam strength of spur
gear teeth;.
Power transmission capacity of spur gears in bending
INTERNAL ASSESMENT

OCTOBER	4TH	1st	UNIT-4	Power transmission capacity of spur gears in bending
		2nd		Power transmission capacity of spur gears in bending
		3rd		Solve simple numerical on above
		5th		Solve simple numerical on above
	1ST	5th		4.0 Design of Power Screws::
	2ND	1st		Thread Profiles used for power Screws - Relative merits and demerits of each;
		2nd		Torque required to overcome thread friction
		3rd		Self-locking and overhauling property
	3rd	1st		Efficiency of power screws; Types of stresses induced; Design of Screw Jack;
		2nd		Efficiency of power screws; Types of stresses induced; Design of Screw Jack;
		3rd		Design of springs: Classification and Applications of Springs; Spring
		5th		Materials and Specifications; Stresses in springs; Wahl's correction factor;
	4TH	1 ST		Deflection of springs; Energy stored in springs
		2nd		Design of Helical, Tension and Compression springs subjected to uniform applied loads like I.C. engine valves, Weighing balance, Railway buffers and
		3rd		Design of Helical, Tension and Compression springs subjected to uniform applied loads like I.C. engine valves, Weighing balance, Railway buffers and
		5 TH		Governor springs; Leaf springs: Construction and Application.
	5TH	1 ST	UNIT-5	5.0 Design of Fasteners
		2nd		Stresses in Screwed fasteners; Bolts of Uniform Strength
		3rd		Design of Bolted Joints subjected to eccentric loading;
		5 TH		Design of Parallel and Transverse fillet welds;
NOVEMBER	2ND	1st		Axially loaded symmetrical section. Merits and demerits of screwed and welded joints.
		2nd		CLASS TEST-2
		3rd		Ergonomics of Design: Man-Machine relationship; Design of Equipment for control, environment & safety;
	3rd	1st		Aesthetic considerations regarding shape, size, color & surface finish.
		2nd		

subject expert
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