GOVT. POLYTECHNIC SUNDER NAGAR

LESSON PLAN : STRENGTH OF MATERIALS

(SESSION W.E.F.: 08FEB.-01 JUNE 2024)

MECHANICAL ENGINEERING (SEMESTER - 4TH)

S.NO.	MONTH	WEEK	DATE	CONTENT (THEORY)	REMARKS
1	FEB.	1st	-	**UNIT-1:**	
		2nd	8,10	**Simple Stresses and Strains:** Types of forces; Stress, Strain and their nature; Mechanical properties of common engineering materials; Significance of various points on stress – strain diagram for M.S. and C.I.	HOLIDAY(10)
		3rd	12,13,15,17	specimens; Significance of factor of safety; Relation between elastic constants (Formula without proof);Stress and strain values in bodies of uniform section and of composite section under the influence of	
		4th	19,20,21,23	normal forces; Thermal stresses in body of uniform section; Simple numerical problems on the above topics. **Strain Energy:** Strain energy or resilience, proof resilience and modulus of resilience; Formula without	
		5th	25,26,28,30	derivation of strain energy for the following cases: i) Gradually applied load, ii) Suddenly applied load, iii)Impact/shock load; Simple numerical problems	HOLIDAY(25)
2	MARCH	1st	2		
		2nd	4,5,7,9	**Unit-II: Shear Force & Bending Moment Diagrams:** Types of beams with examples: a) Cantilever beam, b) Simply supported beam, c) Over hanging beam, d) Continuous beam, e) Fixed beam; Types of Loads – Point load, UDL	HOLIDAY(09)
		3rd	11,12,14,16	and UVL; Definition and explanation of shear force and bending moment; Calculation of shear force and bending moment and drawing the S.F and B.M. diagrams by the analytical method only for the following cases:	
		4th	18,19,21,23	a)Cantilever with point loads, b) Cantilever with uniformly distributed load, c)Simply supported beam with	C.T-I
		5th	25,26,28,30	point loads, d)Simply supported beam with UDL, e) Over hanging beam with point loads, at the centre and at free ends, f) Over hanging beam with UDL throughout,g)Combination of point and UDL for the above; Related simple numerical problems.	HOLIDAY(25)
3	APRIL	1st	1,2,4,6	**Unit-III: Theory of Simple Bending and Deflection of Beams:** Explanation of terms : Neutral layer, Neutral Axis, Modulus of Section, Moment of Resistance, Bending stress, Radius of curvature; Assumptions in theory of	
		2nd	8,9,11,13	simple bending; Bending Equation $M/I = \sigma/Y = E/R$; Simple Problems involving calculations of bending stress, modulus of section and moment of resistance; Definition and explanation of deflection as applied to beams;	HOLIDAY(11,13)
		3rd	15,16,18,20	Deflection formulae without proof for cantilever and simply supported beams with point load andUDL only (Standard cases only); Related simple numerical problems	HOLIDAY(15)
		4th	22,23,25,27	**Unit-IV: Torsion in Shafts and Springs:** Definition and function of shaft; Calculation of polar M.I. for solid and hollow shafts; Assumptions in simple torsion; Torsion equation $T/J = fs/R = G\theta/L$; Simple Problems on design of shaft	C.T-II
		5th	29,30	based on strength and rigidity; Numerical Problems related to comparison of strength and weight of solid and hollow shafts; Classification of springs; Nomenclature of closed coil helical spring; Deflection formula for	
4	MAY	1st	2,4	closedcoil helical spring (without derivation);stiffness of spring; Simple Numerical problems on closed coil helical spring to find safe load, deflection, size of coil and number of coils.	
		2nd	6,7,9,11		HOLIDAY(11)
		3rd	13,14,17,18		H.T
		4th	20,21,23,25	**Unit-V: Thin Cylindrical Shells:** Explanation of longitudinal and hoop stresses in the light of circumferential and longitudinal failure of shell; Derivation of expressions for the longitudinal and hoop stress; Related numerical	HOLIDAY(23)
		5th	27,28,30	Problems.	
5	JUNE	1st	1		

VISHAL CHANDEL

(Lect. Mech. Engg.)

24/1/24

HOD(ME)
27/01/24

GOVT. POLYTECHNIC SUNDER NAGAR (LESSON PLAN)

SUBJECT : THERMAL ENGINEERING - II				SESSION:-FEB.2024 - JUNE 2024	
TRADE: MECHANICAL ENGINEERING				SEMESTER :- 4TH	
S.NO.	MONTH	WEEK	DATE	CONTENT	REMARKS
1	FEB.	2nd	9,10	**1.Gas Turbines (Problems omitted):** Air-standard Brayton cycle; Brief description along with derivation of efficiency of Air standard Brayton Cycle with P- V and T-S diagrams, Gas turbines Classification: open cycle gas turbines and closed cycle gas turbines; comparison of gas turbine with reciprocating I.C. engines and steam turbines. Applications and limitations of gas turbines; General layout of Open cycle constant pressure gas turbine; P-V and T-S diagrams and working; General layout of Closed cycle gas turbine; P-V and T-S diagrams and working. Jet Propulsion (derivations and Problems omitted): Principle of jet propulsion; Fuels used for jet propulsion; Applications of jet propulsion; Working of a turbo jet engine;Principle of Ram effect; Working of a Ramjet engine; Principle of Rocket propulsion; Working principle of a rocket engine; Applications of rocket propulsion; Comparison of jet and rocket propulsions.	
		3rd	12,13,16,17		
		4th	19,20,23,24		
		5th	26,27		
2	MARCH	1st	1,2		
		2nd	4,5,8,9	**2. Properties of Steam:** Formation of steam under constant pressure; Industrial uses of steam; Basic definitions: saturated liquid line, saturated vapour line, liquid region, vapour region, wet region, super heat region, critical point, saturated liquid, saturated vapour, saturation temperature, sensible heat, latent heat, wet steam, dryness fraction, wetness fraction, saturated steam, superheated steam, degree of superheat; Determination of enthalpy, volume and entropy of wet, dry and super heated steam using steam tables and Mollier chart, Throttling process, Simple direct problems on the above using steam tables and Mollier charts.	1st CLASS TEST
		3rd	11,12,15,16		
		4th	18,19,22,23		
		5th	25,26,29,30	**3. Steam Generators:** Function and use of steam boilers; Classification of steam boilers with examples; Brief explanation with line sketches of Cochran, Babcock and Wilcox Boilers; Comparison of water tube and fire tube boilers; Description with line sketches and working of modern high pressure boilers Lamont and Benson boilers; Boiler mountings: Pressure gauge, water level indicator, fusible plug, blow down cock, stop valve, safety valve, (dead weight type, spring loaded type); Boiler accessories: economizer, super heater and air pre-heater; Study of steam traps & separators; Concept of the terms: Actual evaporation, equivalent evaporation, factor of evaporation, boiler horse power and boiler efficiency; Formula for the above terms without proof; Simple direct problems on the above terms.	
3	APRIL	1st	1,2,5,6		
		2nd	8,9,12,13		
		3rd	15,16		
		3rd	19,20	**4. Steam Nozzles :** Type of steam nozzles; Flow of steam through nozzle; Velocity of steam at the exit of nozzle in terms of heat drop using analytical method; Simple direct problems on the above only using analytical method, Discharge of steam through nozzles; Critical pressure ratio; Methods of calculation of crosssectional areas at throat and exit for maximum discharge.	2nd CLASS TEST
		4th	22,23,26,27		
		5th	29,30		
4	MAY	1st	3,4		
		2nd	6,7		
		2nd	10,11	**5. Steam Turbines (Problems omitted):** Classification of steam turbines with examples; Difference between impulse & reaction turbines; Principle of working of a simple De-lavel turbine with line diagrams- Velocity diagrams (Diagrammatic representation only); Methods of reducing rotor speed; compounding for velocity, for pressure or both pressure and velocity; Working principle with line diagram of a Parson's Reaction turbine–velocity diagrams(Diagrammatic representation only);Bleeding, re-heating and re-heating factors; Governing of steam turbines: Throttle, By-pass & Nozzle control governing.	HOUSE TEST
		3rd	13,14,17,18		
		4th	20,21,24,25		
		5th	27,28,		
		5th	31	**Revision**	
5	JUNE	1st	1	**Revision**	

LOVE KISHORE

WORKSHOP SUPDT

H.O.D
27/01/2024

Session : Jan 2024 - May 2024
Branch: Mechanical Engineering
Year/Semester : 2nd /4th
Subject : Tool Engineering

S.No.	Month	Weeks	Date	Name of the chapter	Contents to be taught	Remarks
1	Feb.	3rd	12,13 &14	Metal Cutting:	Mechanics of Metal cutting; requirements of tools; cutting forces; types of chips; chip thickness ratio; shear angle ; simple numericals only;	
		4th	19,20&21		types of metal cutting process; orthogonal; oblique cutting Cutting fluids: types ; characteristics and applications.	
		5th	26,27&28		Tool wear: Types of wear; Tool life; Tool life equations.	
2	March	1st	4,5&6	Machinability:	definition; factors affecting machinability; machinability index.	
		2nd	11,12 &13		Tool materials: Types; characteristics; applications;Heat treatment of tool steels; Types of ceramic coatings. Cutting Tool	
		3rd	18,19 &20		Geometry: Single point cutting tool; drills ;reamers; milling; cutters.	
		4th	25,26 &27	Types of dies and construction	Simple Die; Compound Die;	Class Test I
3	April	1st	1,2 &3		Progressive Die; CombinationDie.	
		2nd	8,9 &10		Punch & Die mountings : pilots; strippers ;miss feed detectors; Pressure Pads; Knockouts; stockguide; FeedStop; guide bush; guide pins.	
		3rd	15,16 &17	Die Design Fundamentals:	Die Operations; blanking; piercing; shearing; trimming; notching; lancing; coining; embossing; stamping; curling; drawing; bending; forming;	
		4th	22,23 &24		Die set; Die shoe; Die area; clearances on die and punch for blanking and piercing dies; Strip layout;	Class Test II
		5th	29 &30		Calculation of material utilization factor	
4	May	1st	1	Forming Dies	Bending methods;	
		2nd	6,7 &8		Bending Dies; bend allowance; spring back; spanking; bendingpressure; pressure pads; development of blank length (Concept only).	
		3rd	13,14&15		Drawing: operations; Metal flow during drawing; Calculation of Drawing blank size;	House Test
		4th	20,21 &22		variables affecting metal flow during drawing; single action and double action dies; combination dies. Fundamentals of other Tools:	
		5th	27,28 &29		Constructional features of-Pressure Die casting dies; metal extrusion dies; injection molding dies; forging dies; plastic extrusion dies.	

TEJENDER .

27/01/2024.

LESSON PLAN FOR - POWER PLANT ENGINEERING (SESSION :- JAN- JUN 2024)
MECHANICAL ENGINEERING (SEMESTER - 4TH)

S.NO.	MONTH	WEEK	DATE	CONTENT	REMARKS
1	FEB	1st	~	~	
		2nd	9	Introduction to Power plant: Introduction to power plant;	
		3rd	12,15,16	Indian Energy scenario in India; Location of power plant;	
		4th	19,22,23	Choice of Power plant; Classification of power plants.	
		5th	26,29	Diesel and Gas turbine plant: The layout of diesel power plant; Components and the working of diesel power plant; Advantages and disadvantages of diesel power plant;	
2	MAR	1st	1	Gas turbine power Plant-Schematic diagram, components and its working;	
		2nd	4,7	Combined cycle power generation- Combined gas and steam turbine power plant operation Economics of power plant:	
		3rd	11,14,15	Terminology used in power plant: Peak load, Base load factor (Introduction only); Various factor affecting the operation of power plant;	
		4th	18,21,22	Methods of meeting the fluctuating load in power plant; Performance and operating characteristics of power plant. (Theoretical concept only)	
		5th	28	Hydro power plant: Introduction to Hydroelectric power plant;	Class Test 1
3	APR	1st	1,4,5	Rainfall, Runoff and its measurement, Hydrograph, flow duration curve; Selection of sites for hydroelectric power plant;	
		2nd	8,12	General layout of Hydroelectric power plant and its working; Classification of the Plant- Run off river plant, storage river plant, pumped storage plant; Advantages and disadvantages of hydroelectric power plant.	
		3rd	18,19	(only flow diagram). Nuclear power plant: Introduction; Nuclear Power-Radio activity-Radioactive charge-types of reactions;	
		4th	22,25,26	Working of a nuclear power plant;	
		5th	29	Thermal fission Reactors- PWR, BWR	Class Test 1
4	MAY	1st	2,3	and gas cooled reactors; Advantages and Disadvantages of Nuclear power plant.	
		2nd	6,9	Environmental impact of Power plant: Social and Economical issues of power plant; Green house effect;	
		3rd	13,16,17	Acid precipitation-Acid rain, Acid snow, Dry deposition, Acid fog;	House Test
		4th	20,24	Air, water, Thermal pollution from power plants; Radiations from nuclear power plant effluents.	
		5th	27,30,31	Power plant safety: Plant safety concept; Safety policy to be observed in power plants; Safety practices to be observed in boiler operation; Safety in oil handling system; Safety in Chemical handling system; Statutory provision related to boiler operation.	
5	JUN	1st	~	~	

Course Objectives:

To understand the present scenario of power in India.

To recognize various load terminologies used in power plants.

To understand hydro working principles

To understand working of Diesel, Gas and Nuclear power plants.

To understand the issues and safety precautions in power plants.

Avinash Kumar
(Sr. Lecturer Mech. Engg.)

HOD
Mechanical Engineering
27/1/2024

GOVT. POLYTECHNIC SUNDER NAGAR

LESSON PLAN : STRENGTH OF MATERIALS   (SESSION W.E.F.: 08FEB.-01 JUNE 2024)

MECHANICAL ENGINEERING (SEMESTER - 4TH)

S.NO	MONTH	WEEK	DATE	CONTENT (PRACTICAL) (G1)	REMARKS
1	FEB.	1st	-	--	
		2nd	10	--	HOLIDAY(10)
		3rd	17	Prepare a specimen and examine the microstructure of the Ferrous andNon-ferrousmetals using the Metallurgical Microscope	
		4th	24	Detect the cracks in the specimen using (i)Visual inspection and ring test (ii)Die penetration test (iii) Magnetic particle test.	
		5th	-	--	
2	MARCH	1st	2	Detect the cracks in the specimen using (i)Visual inspection and ring test (ii)Die penetration test (iii) Magnetic particle test.	
		2nd	9	--	HOLIDAY(09)
		3rd	16	Determination of Rockwell's Hardness Number for various materials like mild steel, highcarbon steel, brass, copper and aluminum.	
		4th	23	Determination of Rockwell's Hardness Number for various materials like mild steel, highcarbon steel, brass, copper and aluminum.	C·T-I
		5th	30	Finding the resistance of materials to impact loads by Izod test and Charpy test	
3	APRIL	1st	6	Torsion test on mild steel–relation between torque and angle of twist determination ofshear modulus and shear stress.	
		2nd	13	--	HOLIDAY(11,13)
		3rd	20	Finding Young's Modulus of Elasticity, yield points, percentage elongation and percentagereduction in area, stress strain diagram plotting, tests on mild steel.	
		4th	27	Finding Young's Modulus of Elasticity, yield points, percentage elongation and percentagereduction in area, stress strain diagram plotting, tests on mild steel.	C·T-II
		5th	-	--	
4	MAY	1st	4	Determination of modulus of rigidity, strain energy, shear stress and stiffness by load deflection method (Open &Closed coil spring)	
		2nd	11	--	HOLIDAY(11)
		3rd	18	Determination of modulus of rigidity, strain energy, shear stress and stiffness by load deflection method (Open &Closed coil spring)	H·T
		4th	25	Single or double Shear test on M.S. bar to finding the resistance of material to shear load.	
		5th	-	--	
5	JUNE	1st	1	Single or double Shear test on M.S. bar to finding the resistance of material to shear load.	

VISHAL CHANDEL
(Lect. Mech. Engg.)   27/11/24

HOD (ME)   27/01/2024

GOVT. POLYTECHNIC SUNDER NAGAR

LESSON PLAN : STRENGTH OF MATERIALS (SESSION W.E.F.: 08FEB.-01 JUNE 2024)

MECHANICAL ENGINEERING (SEMESTER - 4TH)

S.NO	MONTH	WEEK	DATE	CONTENT (PRACTICAL) (G2)	REMARKS
1	FEB.	1st	-		
		2nd	9	Prepare a specimen and examine the microstructure of the Ferrous and Non-ferrousmetals using the Metallurgical Microscope	
		3rd	16	Detect the cracks in the specimen using (i)Visual inspection and ring test (ii)Die penetration test (iii) Magnetic particle test.	
		4th	23	Detect the cracks in the specimen using (i)Visual inspection and ring test (ii)Die penetration test (iii) Magnetic particle test.	
		5th	-		
2	MARCH	1st	1	Determination of Rockwell's Hardness Number for various materials like mild steel, highcarbon steel, brass, copper and aluminum.	
		2nd	8		HOLIDAY(08)
		3rd	15	Determination of Rockwell's Hardness Number for various materials like mild steel, highcarbon steel, brass, copper and aluminum.	C·T-I
		4th	22	Finding the resistance of materials to impact loads by Izod test and Charpy test	HOLIDAY(29)
		5th	29		
3	APRIL	1st	5	Torsion test on mild steel–relation between torque and angle of twist determination ofshear modulus and shear stress.	
		2nd	12	Finding Young's Modulus of Elasticity, yield points, percentage elongation and percentagereduction in area, stress strain diagram plotting, tests on mild steel.	
		3rd	19	Finding Young's Modulus of Elasticity, yield points, percentage elongation and percentagereduction in area, stress strain diagram plotting, tests on mild steel.	C· T-II
		4th	26	Determination of modulus of rigidity, strain energy, shear stress and stiffness by load deflection method (Open &Closed coil spring)	
		5th	-		
4	MAY	1st	3	Determination of modulus of rigidity, strain energy, shear stress and stiffness by load deflection method (Open &Closed coil spring)	HOLIDAY(10)
		2nd	10		h·T
		3rd	17	Single or double Shear test on M.S. bar to finding the resistance of material to shear load.	
		4th	24	Single or double Shear test on M.S. bar to finding the resistance of material to shear load.	
		5th	31	Repeat if any	
5	JUNE	1st	-		

VISHAL CHANDEL 24/11/24
(Lect. Mech. Engg.)

HOD (ME) 27/01/2024

LESSON PLAN FOR : COMPUTER AIDED MACHINE DRAWING PRACTICE

MECHANICAL ENGINEERING (SEMESTER - IV)

(SESSION: FEB-JUN. 2024)

S.NO.	MONTH	WEEK	DATE	CONTENT	SHEETS	GROUPS
1	FEB	2nd	9	Introduction to CAD software.		
		3rd	12,13,16,17	Introduction to CAD software.(G2) Drawing aids and editing commands.		G1
		4th	19,20,23			G1,G2
		5th	26,27	Basic dimensioning, hatching, blocks and views.		G1,G2
2	MAR	1st	1,2			
		2nd	4,5	Isometric drawing, printing and plotting		G1,G2
		3rd	11,12,15,16			
		4th	18,19,22,23	Machine Drawing practice using Auto CAD: Sleeve & Cotter Joint	SHEET 1	G1,G2
		5th	26,30	Spigot & Cotter Joint	SHEET 2	
3	APR	1st	1,2,5,6	Knuckle Joint	SHEET 3	G1,G2
		2nd	8,9,12			G1,G2
		3rd	16,19,20	ScrewJack	SHEET 4	
		4th	22,23,26,27	Connecting Rod	SHEET 5	G1,G2
		5th	29,30	Foot Step Bearing	SHEET 6	G1,G2
4	MAY	1st	3,4			G1,G2
		2nd	6,7	Universal Coupling	SHEET 7	
		3rd	13,14,17,18	Plummer Block	SHEET 8	G1,G2
		4th	20,21,24,25	Machine Vice	SHEET 9	G1,G2
		5th	27,28,31	Protected Type Flanged Coupling	SHEET 10	G1,G2
4	JUNE	1st	1			G1,G2

AMAN
(LECT. M.E)

H.O.D
(M.E)
27/01/2024

GOVT. POLYTECHNIC SUNDER NAGAR

LESSON PLAN

SUBJECT : THERMAL ENGINEERING - II (LAB)

SESSION :- FEB. 2024 - JUNE 2024

SEMESTER :- 4TH

TRADE: MECHANICAL ENGINEERING

S. NO.	MONTH	WEEK	DATE G-II	DATE G-I	CONTENT	REMARKS
1	FEB	3rd	12	13	Introduction	
		4th	19	20	I. Study of Cochran, Babcock and Wilcox boiler with model	
		5th	26	27	I. Study of Cochran, Babcock and Wilcox boiler with model	
2	MARCH	2nd	4	5	II Study of boiler mountings and accessories	
		3rd	11	12	II Study of boiler mountings and accessories	
		4th	18	19	III Conduct performance test on VCR test rig to determine COP of the refrigerator.	
		5th	25	26	III Conduct performance test on VCR test rig to determine COP of the refrigerator.	1st CLASS TEST
3	APRIL	1st	1	2	IV Conduct performance test on reciprocating compressor.	
		2nd	8	9	V Conduct Morse test to determine the indicated power of individual cylinders .	
		3rd	15	16	V Conduct Morse test to determine the indicated power of individual cylinders .	
		4th	22	23	VI Conduct Performance test on 2/4-Stroke CI/SI engine.	
		5th	29	30	VII Conduct Heat balance test on CI/SI engine.	2nd CLASS
4	MAY	2nd	6	7	VII Conduct Heat balance test on CI/SI engine.	
		3rd	13	14	VIII Study of steam turbine through models.	
		4th	20	21	IX Thermal conductivity test on Thick slab/Thick cylinder .	HOUSE TEST
		5th	27	28	X Leak detection of refrigeration equipment.	
5	JUNE	1st	1	-	X Leak detection of refrigeration equipment.	

LOVE KISHORE
WORKSHOP SUPDT

H.O.D
(M.E)
27/01/2024

LESSON PLAN FOR : Essence of Indian Knowledge & Tradition (SESSION: JAN - JUN 2024)
MECHANICAL ENGINEERING (SEMESTER - 4)

Course Outcomes

After completing this course the students will be able to:

CO-1. Identify the concept of Indian Knowledge System (IKS).
CO-2. Understand the need and importance of protecting traditional knowledge.
CO-3. Compare the Indian traditional knowledge and modern science.
CO-4. Understand the use of Yoga in stress management, mental health, mindfulness, healthy eating, weight loss and quality sleep.
CO-5. Aware of the general knowledge of Himachal Pradesh.

S.NO.	MONTH	DATE	CONTENT	REMARKS
1	FEB-March	13,14,20,21, 27,28,5,6	Unit1: Introduction and Function of Indian Knowledge System(IKS). ■ The Basic Structure of Indian Knowledge System(IKS) (only Introduction) 1. The 4 Vedas, Namly ऋग्वेद (Rigveda) ,यजुर्वेद (Yajurveda),सामर्वेद (Samaveda) ,अर्थर्ववेद, (Atharvaveda) . 2. The 4 UpVedas, Namely आयुर्वेद (Ayurveda (health-care)), धनुर्वेद (Dhanurveda (archery)), गंधर्ववर्वेद (Gandharva-veda (dance, music etc.)) and स्थापत्यर्वेद (Sthapatyaveda (architecture)). 3. The 6 Vedagangs ,namely Shiksha (शिक्षा), Kalpa (कल्प), Vykarana (व्याकरण), Chhandas छं दस), Nirukta (शनरुक्त), and Jyotisha(ज्योशिष). 4. Itihasa (इशिहास) (Ramayana रामायण and Mahabharata महाभारि) and Purana पुराण (Vishnupurana शर्वष्णुपुराण , Bhagavata Purana (भागर्वि पुराण) etc.) 5. Dharmashatraधर्मविास्त (Manusmriti मनुस्मृशि, Yajnavalkya-smriti याझर्वल्क्यस्मृशि, etc.). 6. Darshan दिवन (आस्तिक िथा नास्तिक). 7. Nyaya न्याय (Logic िकव िाास्त and Epistemology ज्ञानमीमांसा)	
2	March	12,13,19,20, 26,27	Unit 2 : Modern Science ● Modern science: Introduction, Characteristics, importance and Example ● Difference between modern Science and Indian knowledge system ● Role of IKS in modern science	
3	April	2,3,9,10,16	Unit 3 : Traditional knowledge ● Traditional knowledge: Definition, nature, characteristics, scope and importance ● Indigenous Knowledge (IK): characteristics ● Traditional knowledge vis-a-vis Indigenous knowledge ● Traditional knowledge Vs western knowledge ● The need for protecting traditional knowledge	
4	APR-May	23,24,30,1,7 ,8,14,15	Unit 4 : Yoga and Holistic Health Care ● Yoga: Meaning and Importance of Yoga ● Yoga and physical health, Yoga and psychological health, Yoga and intellectual health, Yoga and spiritual health, Yoga and social approach. ● Introduction to Ashtanga Yoga, Yogic Kriyas (Shat Karma) ● Pranayama and its types; Active lifestyle and stress management through Yoga ● Physical Fitness, Health and wellness: Meaning and Importance of Wellness, ● Components of Wellness, Health and physical Fitness; ● Traditional sports & Regional Games for promoting wellness: ● Leadership through Physical Activity and Sports; Introduction to First Aid.	
		21,22,28,29	UNIT-5 Himachal Pradesh: A Basic Information • History, Culture, Heritage/ Tradition, Customs & Manners, • Regional Knowledge, Geographical Features, Constitutional History • Tourism Place & Scope	

Virender Paul
(Lect. Mech. Engg.)

HOD (ME)

27/01/2024

S.NO.	MONTH	WEEK	DATE	CONTENT	REMARKS
				LESSON PLAN FOR - STUDENT CENTERED ACTIVITIES (SESSION :- JAN- JUN 2024)	
				MECHANICAL ENGINEERING (SEMESTER - 4TH)	
1	FEB	1st	~	~	
		2nd	9	Quiz	
		3rd	16,17	Quiz	
		4th	23	Group Discussion	
		5th	~	~	
2	MAR	1st	1,2	Group Discussion	
		2nd	~	~	
		3rd	15,16	Essay Writing	
		4th	22,23	Essay Writing	
		5th	30	Campus Cleaning	
3	APR	1st	5,6	Poster Making	
		2nd	12	Poster Making	
		3rd	19,20	Poster Making	
		4th	26,27	Running	
		5th	~	~	
4	MAY	1st	3,4	~	
		2nd	~	~	
		3rd	17,18	Volleyball	
		4th	24,25	Volleyball	
		5th	31	Cultural Activity / Natti	
5	JUN	1st	~	~	

Avinash Kumar
(Sr. Lecturer Mech. Engg.)

HOD(ME)
27/01/2024

LESSON PLAN

Session : Jan 2024 - May 2024
Branch: Mechanical Engineering
Year/Semester : 2nd /4th
Subject : Tool Engineering

S.No.	Month	Weeks	Date	Name of the chapter	Contents to be taught	Remarks
1	Feb.	3rd	12,13 &14	Metal Cutting:	Mechanics of Metal cutting; requirements of tools; cutting forces; types of chips; chip thickness ratio; shear angle ; simple numericals only;	
		4th	19,20&21		types of metal cutting process; orthogonal; oblique cutting Cutting fluids: types ; characteristics and applications.	
		5th	26,27&28		Tool wear: Types of wear; Tool life; Tool life equations.	
2	March	1st	4,5&6	Machinability:	definition; factors affecting machinability; machinability index.	
		2nd	11,12 &13		Tool materials: Types; characteristics; applications;Heat treatment of tool steels; Types of ceramic coatings. Cutting Tool	
		3rd	18,19 &20		Geometry: Single point cutting tool; drills ;reamers; milling; cutters.	
		4th	25,26 &27	Types of dies and construction	Simple Die; Compound Die;	Class Test I
3	April	1st	1,2 &3		Progressive Die; CombinationDie.	
		2nd	8,9 &10		Punch & Die mountings : pilots; strippers ;miss feed detectors; Pressure Pads; Knockouts; stockguide; FeedStop; guide bush; guide pins.	
		3rd	15,16 &17	Die Design Fundamentals:	Die Operations; blanking; piercing; shearing; trimming; notching; lancing; coining; embossing; stamping; curling; drawing; bending; forming;	
		4th	22,23 &24		Die set; Die shoe; Die area; clearances on die and punch for blanking and piercing dies; Strip layout; .	Class Test II
		5th	29 &30		Calculation of material utilization factor	
4	May	1st	1	Forming Dies	Bending methods;	
		2nd	6,7 &8		Bending Dies; bend allowance; spring back; spanking; bendingpressure; pressure pads; development of blank length (Concept only).	
		3rd	13,14&15		Drawing: operations; Metal flow during drawing; Calculation of Drawing blank size;	House Test
		4th	20,21 &22		variables affecting metal flow during drawing; single action and double action dies; combination dies. Fundamentals of other Tools:	
		5th	27,28 &29		Constructional features of-Pressure Die casting dies; metal extrusion dies; injection molding dies; forging dies; plastic extrusion dies.	

TEJENDER .

27/01/2024.

GOVT. POLYTECHNIC SUNDER NAGAR

(SESSION: FEB-JUN. 2024)

LESSON PLAN FOR : COMPUTER AIDED MACHINE DRAWING PRACTICE
MECHANICAL ENGINEERING (SEMESTER - IV)

	MONTH	WEEK	DATE	CONTENT	SHEETS	GROUPS
						G1
	FEB	2nd	9	Introduction to CAD software.		G1,G2
		3rd	12,13,16,17	Introduction to CAD software.**(G2)** Drawing aids and editing commands.		G1,G2
		4th	19,20,23	Basic dimensioning, hatching, blocks and views.		G1,G2
		5th	26,27			
2	MAR	1st	1,2	Isometric drawing, printing and plotting		G1,G2
		2nd	4,5			
		3rd	11,12,15,16	Machine Drawing practice using Auto CAD: Sleeve & Cotter Joint	SHEET 1	G1,G2
		4th	18,19,22,23			
		5th	26,30	Spigot & Cotter Joint	SHEET 2	G1,G2
3	APR	1st	1,2,5,6	Knuckle Joint	SHEET 3	G1,G2
		2nd	8,9,12			
		3rd	16,19,20	ScrewJack	SHEET 4	G1,G2
		4th	22,23,26,27	Connecting Rod	SHEET 5	G1,G2
		5th	29,30	Foot Step Bearing	SHEET 6	G1,G2
4	MAY	1st	3,4			
		2nd	6,7	Universal Coupling	SHEET 7	G1,G2
		3rd	13,14,17,18	Plummer Block	SHEET 8	G1,G2
		4th	20,21,24,25	Machine Vice	SHEET 9	G1,G2
		5th	27,28,31	Protected Type Flanged Coupling	SHEET 10	G1,G2
4	JUNE	1st	1			

AMAN
(LECT. M.E)

H.O.D
(M.E)
27/01/2024