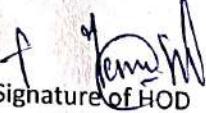


Govt. Polytechnic Talwar
Distt. Kangra H.P. 176096

Lesson Plan
(Labs/Workshop)

Name of Teacher:- Nemjel Choudhary		Designation:- Senior Lecturer(AS&H)	Group:- G2	
Name of Lab/Workshop:- Applied Physics-II Lab		Class/Branch:- Automobile Engg/ 2nd Semester		
Sr. No.	Description of Practical job		Date	Remarks
1	To verify Ohm's law by plotting graph between current and potential difference		28-01-2026 04-02-2026	
2	To verify laws of resistances in series and parallel combination		11-02-2026 18-02-2026	
3	To verify Kirchhoff's laws using electric circuits		25-02-2026 11-03-2026	
4	To draw V-I characteristics of a semiconductor diode (Ge, Si) and determine its knee voltage		18-03-2026 25-03-2026	
5	To find resistance of a galvanometer by half deflection method		01-04-2026 08-04-2026	
6	To convert a galvanometer into an ammeter		22-04-2026	
7	To convert a galvanometer into a voltmeter		29-04-2026	
8	To determine and verify the time period of a cantilever		13-05-2026 20-05-2026	


Signature of Teacher


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Govt. Polytechnic Talwar
Distt. Kangra H.P. 176096

Lesson Plan
(Labs/Workshop)

Name of Teacher:- Nemjel Choudhary		Designation:- Senior Lecturer(AS&H)	Group:- G1	
Name of Lab/Workshop:- Applied Physics-II Lab		Class/Branch:- Automobile Engg/ 2nd Semester		
Sr. No.	Description of Practical Job		Date	Remarks
1	To verify Ohm's law by plotting graph between current and potential difference		02-02-2026	
2	To verify laws of resistances in series and parallel combination		09-02-2026 16-02-2026	
3	To verify Kirchhoff's laws using electric circuits		23-02-2026 02-03-2026	
4	To draw V-I characteristics of a semiconductor diode (Ge, Si) and determine its knee voltage		09-03-2026 16-03-2026	
5	To find resistance of a galvanometer by half deflection method		23-03-2026 30-03-2026	
6	To convert a galvanometer into an ammeter		06-04-2026 13-04-2026	
7	To convert a galvanometer into a voltmeter		20-04-2026 27-04-2026	
8	To determine and verify the time period of a cantilever		11-05-2026 18-05-2026	

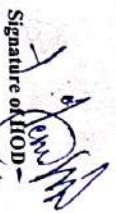

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LESSON PLAN
Name of Teacher :- Nemjel Choudhary Subject: Applied Physics -II Class: 2nd Semester Automobile Engg.

S. No.	Month	Week	Date	Name of Chapter	Contents to be taught	Remarks
1	Jan	5th Week	28.29	Wave motion and its applications	Introduction, Wave motion, transverse and longitudinal waves with examples, definitions of wave velocity, frequency and wave length	
2		1st week				
3		2nd week	2,3,4,5	Wave motion and its applications	Sound and light waves and their properties, wave equation ($y = r \sin(\omega t)$), amplitude, phase, phase difference, Principle of superposition of waves and beat formation	
4	Feb.	3rd week	9,10,11,12	Wave motion and its applications	Simple Harmonic Motion (SHM): definition, expression for displacement, velocity, acceleration, time period, frequency etc. Free, Forced and Resonant Vibrations and their Examples	
5		4th week	16,17,18,19	Wave motion and its applications and Optics	Acoustics of buildings – reverberation, reverberation time, echo, noise, coefficient of absorption of sound, methods to control reverberation time and their applications, and Ultrasonic wave, basic law of optics	
6		5th Week	23,24,25,26	Optics	reflection and refraction, refractive index, Images and image formation by mirrors, lens and thin lenses, lens formula, power of lens, magnification.	
7		1st week	2,3,5	Optics	Total internal reflection, Critical angle and conditions for total internal reflection, applications of total internal reflection in optical fibre	
8		2nd week	9,10,11,12	Optics	Optical Instruments- simple and compound microscope, astronomical telescope in normal adjustment and their magnifying powers	Class Test - I
9	March	3rd week	16,17,18,19	Optics & Electrostatics	astronomical telescope in normal adjustment and their magnifying powers, Coulomb's law, unit of charge.	
10		4th Week	23,24,25	Electrostatics	Electric field, Electric lines of force and their properties, Capacitor and its working.	
11		5th week	30,31	Electrostatics	Capacitance and its units, Capacitance of a parallel plate capacitor, Series and parallel combination of capacitors (related numerical), dielectric and its effect on capacitance, dielectric break down	

12	1st week	1,2	Current Electricity	Electric Current and its units, Direct and alternating current. Resistance and its units, Specific resistance, Conductance, Specific conductance, Series and parallel combination of resistances. Factors affecting resistance of a wire, carbon resistances and colour coding
13	2nd week	6,7,8,9	Current Electricity	Ohm's law and its verification, Kirchhoff's laws, Concept of terminal potential difference and Electro motive force (EMF), Heating effect of current, Electric power, Electric energy and its units (related numerical problems), Advantages of Electric Energy over other forms of energy
14	3rd week	13,16	Electromagnetism	Types of magnetic materials; dia, para and ferromagnetic with their properties. Magnetic field and its units, magnetic intensity, magnetic lines of force, magnetic flux and units, magnetization, Lorentz force (force on moving charge in magnetic field), Force on current carrying conductor
15	4th Week	20,21,22,23	Semiconductor Physics	Energy bands in solids, Types of materials (insulator, semi-conductor, conductor), intrinsic and extrinsic semiconductors, p-n junction, junction diode and V-I characteristics
16	5th week	27,28,29,30	Semiconductor Physics	Diode as rectifier – half wave and full wave rectifier (centre tapped), Photocells, Solar cells, working principle and engineering applications
17	1st week			
18	May	2nd week		House Test
19	3rd week	11,12,13,14	Modern Physics	Lasers: Energy levels, ionization and excitation potentials, spontaneous and stimulated emission, population inversion, pumping methods, optical feedback. Types of lasers, Ruby, He-Ne and semiconductor, laser characteristics, engineering and medical applications of lasers
20	4th Week	18,19,20,21	Modern Physics	Laser characteristics, engineering and medical applications of lasers, Fiber Optics: Introduction to optical fibers, light propagation, acceptance angle and numerical aperture, fiber types, applications in telecommunication
21	5th week	25,26	Modern Physics	Revision


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Govt. Polytechnic Talwar
Distt. Kangra H.P. 176096

Lesson Plan

Session: January 2026 - June 2026

Name of Teacher:- Nemjel Choudhary	Designation:-Senior Lecturer (AS&H)	Group:G1	
Name of Lab/Workshop:- Engineering Mechanics Lab	Class/Branch:- 2nd Sem/Auto Engg.		
Sr. No.	Name of Practical	Date	Remarks
1	To study various equipment related to Engineering Mechanics.	05-02-2026	
2	To find the M.A., V.R., Efficiency and law of machine for Differential Axle and Wheel.	19-02-2026	
3	To find the M.A., V.R., Efficiency and law of machine for Simple Screw Jack.	26-02-2026	
4	Derive Law of machine using Worm and worm wheel	05-03-2026	
5	Determine resultant of concurrent force system applying Law of Polygon of forces using force table.	12-03-2026	
6	Determine resultant of concurrent force system graphically.	19-03-2026	
7	Determine resultant of parallel force system graphically.	02-04-2026	
8	Verify Lami's theorem.	09-04-2026	
9	Study forces in various members of Jib crane.	16-04-2026	
10	Determine support reactions for simply supported beam.	23-04-2026	
11	Obtain support reactions of beam using graphical method.	30-04-2026	
12	Determine coefficient of friction for motion on horizontal and inclined plane.	07-05-2026	
13	Determine centroid of geometrical plane figure	14-05-2026	Revision- 21/5

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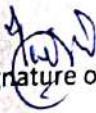
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Govt. Polytechnic Talwar
Distt. Kangra H.P. 176096

Lesson Plan

Session: January 2026 - June 2026

Name of Teacher:- Nemjel Choudhary	Designation:-Senior Lecturer (AS&H)	Group:G2	
Name of Lab/Workshop:- Engineering Mechanics Lab	Class/Branch:- 2nd Sem/Auto Engg.		
Sr. No.	Name of Practical	Date	Remarks
1	To study various equipment related to Engineering Mechanics.	07-02-2026	
2	To find the M.A., V.R., Efficiency and law of machine for Differential Axle and Wheel.	12-02-2026	
3	To find the M.A., V.R., Efficiency and law of machine for Simple Screw Jack.	21-02-2026	
4	Derive Law of machine using Worm and worm wheel	28-02-2026	
5	Determine resultant of concurrent force system applying Law of Polygon of forces using force table.	07-03-2026	
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8	Verify Lami's theorem.	25-04-2026	
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10	Determine support reactions for simply supported beam.	02-05-2026	
11	Obtain support reactions of beam using graphical method.	02-05-2026	
12	Determine coefficient of friction for motion on horizontal and inclined plane.	16-05-2026	
13	Determine centroid of geometrical plane figure	23-05-2026	


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LESSON PLAN

Name of Faculty	Rajni Sharma	
Department	Applied Science & Humanities	
Semester	2nd (Automobile Engg.)	
Subject	Mathematics - II	
Lesson Plan for the Duration	27 Jan. 2026 to 27 May 2026	
Week	Unit	Details
1st (27Jan. - 02Feb.)	Determinants	Determinants: Elementary properties of determinants upto 3rd order, consistency of equations, Crammer's rule.
2nd (03 Feb. - 09 Feb.)	Matrices	Matrix: Algebra of matrices, Inverse of a matrix, matrix
3rd(10 Feb.- 17 Feb.)	Matrices	Matrix: Matrix inverse Method to solve a system of linear equations in 3 variables.
4th (18 Feb. - 24Feb.)	Integral Calculus	Integration as inverse operation of differentiation.
5th (25 Feb. - 03 Mar.)	Integral Calculus	Simple integration by substitution, by parts and by partial fraction(for linear factors only).
6th(05 Mar. - 11 Mar.)	Integral Calculus	Use of formulas for solving problems. When m, n are positive integers.
7th (12 Mar. -19 Mar.)	Integral Calculus	Applications for: (i) simple problems on evaluation of area bounded by a curve and axis .
8th (20 Mar. - 28 Mar.)	Integral Calculus	Applications for: (ii) Calculation of volume of a solid formed by revolution of an area about axis.
9th (30 Mar. - 06 April)	Co-ordinate Geometry	Co-ordinate Geometry Equations of straight lines in various standard forms (without proof), intersection of two straight lines .
10th (07 April - 16 April)	Co-ordinate Geometry	Angle between two lines .Parallel and perpendicular lines, Perpendicular Distance formula
11th (17 April - 23 April)	Co-ordinate Geometry	General equation of a circle and its characteristics. To find the equation of a circle given: center and radius, Three points lying on it, coordinates of end points of a diameter.
12th (24 April - 30 May)	Co-ordinate Geometry	Definition of conics(parabola, Ellipse, Hyperbola) their standard equations without proof.
13th (02 May - 08 May)	Co-ordinate Geometry	Problems on conics when their foci, directrices or vertices are given.
House Test Second Week of May		
14th(18 May - 26 May)	Differential Equations	Solution of first order and first degree differential equation by variable separation


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Mar /4th	33	Unit V: A.C. Circuits:Introduction	4.Digital Electronics
	34	Cycle, Frequency, Periodic time, Amplitude, Angular velocity,	By: K S Jamwal
	35	RMS value, Average value, Form Factor, Peak Factor	
	36	Impedance, phase angle, and power factor	
April /1st	37	Mathematical and phasor representation of alternating emf and current	
	38	Voltage and Current relationship in Star and Delta connections	
	39	A.C in resistors, inductors and capacitors	
	40	A.C in R-L series, R-C series	
April /2nd	41	A.C in R-C series	5.Fundamentals of Operational Amplifiers & Applications
	42	A.C in R-L-C series .	By: Dr.K.R.Valluvan)
6	43	A.C in R-L-C parallel circuits.	
	44	Power in A. C. Circuits.	
April/3rd	45	Power in A, C. Circuits, power triangle.	
	46	Unit VI :Transformer and Machines:Introduction	6.Fundamental of Electrical and Electronics Engg.
April /4th	47	General construction and principle of core	By: Awnish Paul
	48	General construction and principle of shell type of transformers;	
May/1st	49	Emf equation and transformation ratio of transformers	
	50	Auto transformers	
	51	Basic principle of Electromechanical energy conversion.	7.Fundamental of Electrical and Electronics Engg.
May/2nd		House test	
May/3rd	53	Revision	By: R S Barwal and R.Choudhary
	54	Revision	
	55	Revision	
May/4th	56	Revision	



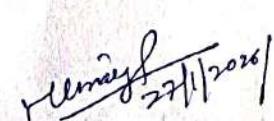
 Vijay Singh Raghwa
 Lecturer Electronics



 HOD

Name of Teacher :- Vinay Kumar Guleria Subject: Engg. Mechanics Class: 2nd sem Semester Auto Eng

S. No.	No. of Lectures	Name of Chapter	Contents to be taught	Remarks
1	12	Unit- 1 Basics of Mechanics & Force System	Significance and relevance of Mechanics, Applied mechanics, Statics, Dynamics. Space, time, mass, particle, flexible body and rigid body. Scalar and vector quantity, Units of measurement (SI units) - Fundamental units and derived units. Force – unit, representation as a vector and by Bow's notation, characteristics and effects of a force, Principle of transmissibility of force, Force system and its classification. Resolution of a force - Orthogonal components of a force, moment of a force, Varignon's Theorem. Composition of forces – Resultant, analytical method for determination of resultant for concurrent, non-concurrent and parallel co-planar force systems – Law of triangle, parallelogram and polygon of forces.	
2	11	Unit- 2 Equilibrium	Equilibrium and Equilibrant, Free body and Free body diagram, Analytical and graphical methods of analyzing equilibrium. Lami's Theorem – statement and explanation, Application for various engineering problems. Types of beam, supports (simple, hinged, roller and fixed) and loads acting on beam (vertical point load, uniformly distributed load), Beam reaction for cantilever, simply supported beam with or without overhang – subjected to combination of Point load and uniformly distributed load. Beam reaction graphically for simply supported beam subjected to vertical point loads only.	
3	11	Unit- 3 Friction	Friction and its relevance in engineering, types and laws of friction, limiting equilibrium, limiting friction, co-efficient of friction, angle of friction, angle of repose, relation between co-efficient of friction and angle of friction. Equilibrium of bodies on level surface subjected to force parallel and inclined to plane. Equilibrium of bodies on inclined plane subjected to force parallel to the plane only.	
4	11	Unit 4 - Centre of Gravity	Centroid of geometrical plane figures (square, rectangle, triangle, circle, semi-circle, quarter circle). Centroid of composite figures composed of not more than two geometrical figures. Centre of Gravity of simple solids (Cube, cuboid, cone, cylinder, sphere, hemisphere) Centre of Gravity of composite solids composed of not more than two simple solids.	
5	11	Unit- 5 Simple Lifting Machines	Simple lifting machine, load, effort, mechanical advantage, applications and advantages. Velocity ratio, efficiency of machines, law of machine. Ideal machine, friction in machine, maximum Mechanical advantage and efficiency, conditions for reversibility. Velocity ratios of Simple axle and wheel, Differential axle and wheel, Worm and worm wheel, Simple screw jack	



27/1/2026

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GOVT.POLYTECHNIC TALWAR
DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES

LESSON PLAN

S.N.	Month	Week	Date	Name of Chapter	Contents to be taught	Remarks
1	January	5th week	30		Structure of ecosystem, Biotic & Abiotic components Food chain and food web	
2		1st week	2,6	UNIT - I: Ecosystem	Aquatic (lentic and lotic) and terrestrial ecosystem, Carbon, Nitrogen, Sulphur, Phosphorus cycle.	
3		2nd Week	9,13		Global warming -Causes, effects, process, Green House Effect, Ozone depletion.	
4	February			3rd week	Definition of pollution and pollutant, Natural and manmade sources of air pollution (Refrigerants, ants, I.C. Boiler),	
5				4th week	Gaseous Pollution Control, Absorber, Catalytic Converter, Effects of air pollution due to Refrigerants, I.C. Boiler.	
6				1st week	Noise pollution: sources of pollution, measurement of pollution level, Effects of Noise pollution, Noise pollution (Regulation and Control) Rules, 2000	
7		2nd Week	2,5		Sources of water pollution, Types of water pollutants, Characteristics of water pollutants (Turbidity, pH, total suspended solids, total solids BOD and COD)	
8				3rd week	Definition, calculation, 6.2 Waste Water Treatment: Primary methods: sedimentation, float flocculation, Secondary meth- ods: Activated sludge treatment, Trickling filter, Bioreactor, Tertiary Method: Membrane separation technology, RO (reverse osmosis).	
9		4th week	23,27		Unit- 3 Water and Soil Pollution	
9		5th week	30		Causes, Effects and Preventive measures of Soil Pollution: Causes-Excessive use of Fertilizers, Pesticides and Insecticides, Irrigation, E-Waste.	
10				2nd Week	Solar Energy: Basics of Solar energy, Flat plate collector (Liquid & Air), Theory of flat plate col- lector.	Class Test - I
11		3rd week	13,17		Importance of coating, Advanced collector, Solar pond, Solar water heater, solar driver, Solar still, Biomass: Overview of biomass as energy source, Thermal characteristics of biomass as fuel, Anaerobic digestion.	
12	April	4th week	20,24	Unit- 4 Renewable sources of Energy	Biogas production mechanism, Utilization and storage of biogas, Wind energy: Current status and future prospects of wind energy, Wind energy in India, Environmental benefits and problem of wind energy.	
13		5th week	27		New Energy Sources: Need of new sources, Different types new energy sources, Applications of (Hydrogen energy, Ocean energy resources, Tidal energy conversion, Concept, origin and power plants of geothermal energy	
14		1st week	4,8		Solid waste generation, Sources and characteristics of : Municipal solid waste, E-waste, bio-medical waste, Metallic wastes and Non-Metallic wastes (lubricants, plastics, rubber) from industries.	
		2nd Week			Collection and disposal: MSW (3R principles, energy recovery, sanitary landfill), Hazardous, Waste Air quality act 2004, air pollution control act 1981 and water pollution and control act 1996, Structure and role of central and state pollution control board.	House Test
15	May	3rd week	18,22	Environmental Management	Concept of Carbon Credit, Carbon Footprint, Environmental management in fabrication industry, ISO14000: implementation in industries, Benefits.	
		4th week	25			

Nidhi Katoch

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J. V. S.

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