

**Department of Applied Sciences & Humanity, 2nd Semester**

**FUNDAMENTALS OF ELECTRICAL & ELECTRONICS ENGINEERING :- Lesson plan for the Session Jan-May, 2025**

Lecture No.	Topics	Date
<b>Unit-1: Overview of Electronic Components &amp; Signals (12 Hrs) 15 Marks</b>		
1	Basic Introduction	30/01/2025
2	Introduction of Passive Components: R,L,C	31/01/2025
3	Introduction of Active Components: Diodes, Transistors, FET	3/02/2025
4	MOS and CMOS and their Applications	6/02/2025
5	Signals: DC/AC	7/02/2025
6	Voltage/current	10/02/2025
7	Periodic/nonperiodic signals	13/02/2025
8	Average, rms, peak values	14/02/2025
9	Different types of signal waveforms	15/02/2025
10	Ideal/non-ideal voltage/current sources	17/02/2025
11	Independent/dependent voltage sources	20/02/2025
12	Independent/dependent current sources	21/02/2025
<b>Unit-2 : Overview of Analog Circuits (08 Hrs) 10 marks</b>		
13	Introduction to Operational Amplifiers	22/02/2025
14	Ideal Op-Amp	24/02/2025
15	Practical op amp	27/02/2025
16	Open loop and closed loop configurations	28/02/2025
17	Application of Op-Amp as amplifier	3/03/2025
18	Adder	6/03/2025
19	Differentiator	7/03/2025
20	Integrator	10/03/2025
<b>Unit-3: Overview of Digital Electronics (10 Hrs) 20 Marks</b>		
21	Introduction to Boolean Algebra	13/03/2025
22	Electronic Implementation of Boolean Operations	15/03/2025
23	Gates-Functional Block Approach	
24	Storage elements-Flip Flops-A	17/03/2025
25	Functional block approach	20/03/2025
26	Counters	21/03/2025
27	Ripple	22/03/2025
28	Up/down and decade	
29	Introduction to digital IC Gates	24/03/2025
30	Digital IC Gates of TTL Type	27/03/2025

Unit-4: Electric and Magnetic Circuits (12 Hrs) 20 marks		Date
31	EMF, Current, Potential Difference	28/03/2025
32	Power and Energy	29/03/2025
33	M M F, magnetic force	] 03/04/2025
34	Permeability, hysteresis loop	
35	Reluctance, leakage factor	04/04/2025
36	BH curve	05/04/2025
37	Electromagnetic induction	7/04/2025
38	Faraday's laws of electromagnetic induction, Lenz's law	10/04/2025
39	Dynamically induced emf	11/04/2025
40	Statically induced emf	] 17/04/2025
41	Equations of self and mutual inductance	
42	Analogy between electric and magnetic circuits	21/04/2025
Unit-5: A.C. Circuits (14 Hrs) 25 marks		
43	Cycle, Frequency	24/04/2025
44	Periodic time	25/04/2025
45	Amplitude, Angular velocity	26/04/2025
46	RMS value, Average value	28/04/2025
47	Form Factor, Peak Factor	] 01/05/2025
48	Impedance, phase angle	
49	Power factor	02/05/2025
50	Mathematical and phasor representation of alternating emf and current	] 03/05/2025
51	Voltage and Current relationship in Star and Delta connections	
52	A.C in resistors	05/05/2025
53	Inductors and capacitors	] 8/5/2025
54	A.C in R-L series, R-C series	
55	R-L-C series and parallel circuits	15/5/2025
56	Power in A. C. Circuits, power triangle	] 16/5/2025
Unit-6: Transformer and Machines (08 Hrs) 10 marks		
57	Introduction to Machine	] 17/5/2025
58	General construction and principle of core type of transformers	
59	General construction and principle of shell type of transformers	19/5/2025
60	Emf equation	] 22/5/2025
61	Transformation ratio of transformers	
62	Auto transformers	] 24/5/2025
63	Basic principle of Electromechanical energy conversion	
64	Applications	26/5/2025

Subject Teacher  
Nemjel Choudhary

HOD (AS&H)

Lesson Plan For FEEE Lab for the session Jan-May 2025

Sr. No.	Name of the Experiment	Date
1	Determine the permeability of magnetic material by plotting its B-H curve.	02/14/2025
2	Measure voltage, current and power in 1-phase circuit with resistive load.	02/21/2025
3	Measure voltage, current and power in R-L series circuit.	03/07/2025
4	Determine the transformation ratio (K) of 1-phase transformer.	03/15/2025
5	Connect single phase transformer and measure input and output quantities.	03/21/2025
6	Identify various passive electronic components in the given circuit.	03/29/2025
7	Identify various active electronic components in the given circuit.	04/04/2025
8	Use multimeter to measure the value of given resistor.	04/05/2025
9	Use LCR-Q tester to measure the value of given capacitor.	04/11/2025
10	Test the PN-junction diodes using digital multimeter.	04/19/2025
11	Test the performance of PN-junction diode.	04/25/2025
12	Test the performance of Zener diode.	05/02/2025
13	Test the performance of LED.	05/09/2025
14	Test the performance of transistor switch circuit.	05/16/2025

Subject Teacher

Nehal Chaudhary

HOD(A/E)

**LESSON PLAN**

Name of Teacher: Nidhi Katoch Subject: Environmental Science Class: 7th Semester Automobile Engg.

S. No.	Month	Week	Date	Name of Chapter	Contents to be taught	Remarks
1	January	1st week	27	UNIT - 1: Ecosystem	Introduction of syllabus	
2		2nd week	3,7		Structure of ecosystem	
3		3rd week	10,14		Biotic & Abiotic components Food chain and food web	
4		4th week	17,21		Energy (flow) and life) and terrestrial ecosystem Carbon, Nitrogen, Sulphur, Phosphorus cycle	
5	March	1st week	24,28	UNIT - 2 Air and Noise Pollution	Global warming - Causes, effects, process, Green House Effect, Ozone depletion.	
6		2nd week	3,7		Definition of pollution and pollutants, Natural and manmade sources of air pollution (Biogenic, auto, EE, Boiler).	
7		3rd week	10		Common Pollution Control: Absorption, Catalytic Converter, Effects of air pollution due to Pesticides, I.C., Boiler.	Class Test - 1
8		4th week	17,21		Air pollution, sources of pollution, seriousness of pollution level, Effects of noise pollution, Noise pollution (Regulation and Control Act, 2002)	
9	April	1st week	24,28	UNIT - 3 Water and Soil Pollution	Sources of water pollution, Types of water pollutants, Characteristics of water pollutants Turbidity, pH, total suspended solids, total solids BOD and COD	
10		2nd week	3		Definition, calculation, B2 Waste Water Treatment: Primary methods: sedimentation, float separation, Secondary methods: Activated sludge process, Trickling filter, Biofilter, Tertiary method: Membrane separation technology, RO (Reverse osmosis).	
11		3rd week	10,14		Causes, Effects and Preventive measures of soil pollution: Causes: Excessive use of Fertilizers, Pesticides and Insecticides, Irrigation, S-Waste.	Class - Test - 2
12		4th week	21,25			
13	May	1st week	28	UNIT - 4 Renewable sources of energy	Solar Energy: Basics of Solar energy, Flat plate collector (Equation 5.445), Theory of flat plate collector, Importance of coating, Advanced collector, Solar pond, Solar water heater, solar dryer Solar cells.	
14		2nd week	2,6		Biomass: Overview of biomass as energy source, Theory characteristics of biomass as fuel, Anaerobic digestion, 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 problems of wind energy.	Home Test
15		3rd week	9		New Energy Sources: Field of new sources (Different types, new energy sources, Applications of Hydrogen energy, Green energy resources, Total energy conversion) Concept, advantages and power plants of geothermal energy.	
16	May	1st week	16	UNIT - 5 Solid Waste Management, ISO 14000 & Environmental Management	Solid waste generation: Sources and characteristics of: Municipal solid waste, E-waste, biomedical waste, Metallic wastes and non-metallic wastes (substances, plastics, rubber) from industries.	
17		2nd week	23,27		Collection and disposal: MSW (MS), principle, energy recovery, sanitary landfill, Hazardous.	
18		3rd week	30,34		Waste Air quality act 2004, air pollution control act 1986 and water pollution and control act 1986 Structure and role of Central and state pollution control board, Concept of Carbon Credit, Carbon Footprint, Environmental management in fabrication industry ISO 14000, Implementation in Industries, Benefits.	

*Nidhi Katoch*  
Signature of HOD

*Nidhi Katoch*  
Signature of Teacher

Applied Sciences Department 2nd Semester  
Applied Physics-II Subject plan for the Session Jan -May 2025

Sr. No.	Topic	Date	Remarks
<b>Unit-1 : Waves motion and its applications</b>			
1	Wave motion with examples, generation of waves by vibrating particles	28,29,30,31/01/2025	
2	Types of wave motion - transverse and longitudinal wave motion, velocity, frequency and wave length of a wave.		
3	Relationship between wave velocity, frequency and wave length. Simple harmonic motion: definition		
4	DCS	4,5,6,7/02/2025	
5	Principle of superposition of waves and beats formation.		
6	expression for displacement, velocity, acceleration, time period, frequency in S.H.M.		
7	Free, forced and resonant vibrations with examples	11,13,14/02/2025	
8	DCS		
9	Acoustics of buildings - reverberation, reverberation time, echo, noise, coefficient of absorption of sound,	18,19,20,21/02/2025	
10	methods to control reverberation time. Simple numerical on reverberation time		
11	DCS		
12	Ultrasonic waves- Introduction and properties and their engineering applications		
<b>Unit-2 : Optics</b>			
13	Laws of reflection and refraction, Refractive index, power of lens. Magnification of a lens	25,27,28/02/2025	
14	DCS		
15	Images and image formation by mirrors, lens and thin lenses, lens formula	4,5,6,7/03/2025	
16	Total internal reflection and its applications, Critical angle and conditions for total internal reflection.		
17	DCS	11,13,14/03/2025	
18	Simple and compound microscope, astronomical telescope. Magnifying power of telescope.		
<b>Unit-3 : Electrostatics</b>			
19	Coulombs law, unit charge, Electric flux	18,19,20,21/03/2025	
20	DCS		
21	Electric field intensity and electric potential and potential difference, Gauss's Law		
22	Capacitance, Principle of capacitor, capacitance of parallel plate capacitor, series and parallel combination of capacitors	25,27,28/03/2025	
23	DCS		
24	dielectric and its effect on capacitance, dielectric break down		

Unit-4 : Current Electricity		
25	Electric Current and its units, Direct and alternating current.	8,9,10,11/04/2025
26	Resistance and its units, Specific resistance, Conductance, Specific conductance, Series and parallel combination of resistances	
27	DCS	16,17/04/2025
28	Factors affecting resistance of a wire, carbon resistances and colour coding, Ohm's law and its verification, Kirchhoff's laws	
29	Concept of terminal potential difference and Electro motive force (EMF)	22,23,24/04/2025
30	Heating effect of current, Electric power, Electric energy and its units (related numerical problems)	
31	DCS	
Unit-5 : Electromagnetism		
32	Types of magnetic materials: dia, para and ferromagnetic with their properties.	22,23,24/04/2025
33	Magnetic field and its units, magnetic intensity, magnetic lines of force, magnetic flux and units, magnetization	
34	DCS	25,30/04/2025
35	Lorentz force (force on moving charge in magnetic field), Force on current carrying conductor.	
36	Moving coil galvanometer; principle, construction and working, Conversion of a galvanometer into ammeter and voltmeter.	
37	DCS	
Unit-6 : Semiconductor Physics		
38	Energy bands, definition of conductor, semiconductor & insulator on the basis of band theory, intrinsic and extrinsic semiconductors	1,2/05/2025
39	p-n junction diode and its characteristics	13,14,15/05/2025
40	DCS	
41	Diode as rectifier – half wave and full wave rectifier	
42	Photocells, Solar cells; working principle and engineering applications.	
Unit-7 : Modern Physics		
43	DCS	16,20/05/2025
44	Lasers: Concept of energy levels, ionization, excitation and de-excitation of laser;	21,22,23/05/2025
45	Spontaneous and stimulated emission, pumping scheme, population inversion, Ruby laser.	
46	DCS	
47	He-Ne and semiconductor lasers, Applications of Laser	27,28/05/2025
48	Fiber Optics: introduction to optical fibers, light propagation, acceptance angle and numerical aperture, fiber types	
49	applications in; telecommunication, medical and sensors	
50	DCS	

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Lesson Plan For Applied Physics-II Lab for the session Jan-May 2025

Sr. No.	Name of the Experiment	Date
1	To determine and verify the time period of a cantilever.	02/11/2025
2	To determine velocity of ultrasonic in different liquids using ultrasonic interferometer.	02/25/2025
3	To verify laws of reflection from a plane mirror/ interface.	03/11/2025
4	To verify laws of refraction (Snell's law) using a glass slab.	03/18/2025
5	To determine focal length and magnifying power of a convex lens.	04/01/2025
6	To verify Ohm's law by plotting graph between current and potential difference.	04/22/2025
7	To verify laws of resistances in series and parallel combination.	05/06/2025
8	To verify Kirchhoff's laws using electric circuits.	05/13/2025

Subject Teacher

Nenjat Chandhorg

HOB(AS&H)

### LESSON PLAN

Name of Teacher :- Kumari Indu      Subject: FEEE Class: 2nd Semester Automobile Engg.

S. No.	Month	Week	Date	Name of Chapter	Contents to be taught	Remarks
1	Jan	5th Week	27,28,29	Overview of Electronic Components & Signals	Passive Active	
2	Feb.	1st week	1	Overview of Electronic Components & Signals	Component: Resistances, Capacitors, Inductors, Diodes, Transistors, FET, MOS and	
3		2nd week	3,4,5	Overview of Electronic Components & Signals	CMOS and their Applications. Signals: DC/AC, voltage/current, periodic/non-periodic	
4		3rd week	10,11,15	Overview of Electronic Components & Signals	signals, average, rms, peak values, different types of signal waveforms, Ideal/non-ideal	
5		4th week	17,18,19,22	Overview of Electronic Components & Signals & Overview of Analog Circuits	voltage/current sources, independent/dependent voltage current sources.	
6		5th Week	24,25	Overview of Analog Circuits	Operational Amplifiers-Ideal Op-Amp.	
7	March	1st week	1	Overview of Analog Circuits	Practical op amp, Open loop and closed loop configurations, Application of Op-Amp	
8		2nd week	3,4,5	Overview of Analog Circuits	as amplifier, adder, differentiator and integrator.	
9		3rd week	10,11,12,15	Overview of Digital Electronics	Introduction to Boolean Algebra, Electronic Implementation of Boolean Operations, Gates-Functional Block Approach.	<b>Class Test - I</b>
10		4th Week	17,18,19,22	Overview of Digital Electronics	Storage elements-Flip Flops-A Functional block approach, Counters: Ripple, Up/down and decade, Introduction to digital IC Gates (of TTL Type)	
11		5th week	24,25,26,29	Electric and Magnetic Circuits	EMF, Current, Potential Difference, Power	



12	April	1st week	1,2,5	Electric and Magnetic Circuits	and Energy; M.M.F, magnetic flux, permeability, hysteresis loop, reluctance, leakage factor and BH curve; Electromagnetic induction; Faraday's laws of electromagnetic		
13		2nd week	7,8,9	Electric and Magnetic Circuits	induction; Lenz's law; Dynamically induced emf; Statically induced emf; Equations of self and mutual inductance; Analogy between electric and magnetic circuits		
14		3rd week	16,19	A.C. Circuits:	Cycle, Frequency, Periodic time, Amplitude, Angular velocity.	Class Test - II	
15		4th Week	21,22,23,26	A.C. Circuits:	RMS value, Average value, Form Factor Peak Factor, impedance, phase angle, and		
16		5th week	28,30	A.C. Circuits:	power factor; Mathematical and phasor representation of alternating emf		
17	May	1st week	3	A.C. Circuits:	current; Voltage and Current relationship in Star and Delta connections; A.C in		
18		2nd week	<b>House Test</b>				
19		3rd week	13,14,17	A.C. Circuits:	resistors, inductors and capacitors; A.C in R-L series, R-C series, R-L-C series and parallel circuits; Power in A. C. Circuits, power triangle.		
20		4th Week	19,20,21,24	Transformer and Machines:	General construction and principle of core and shell type of transformers; Emf equation and transformation ratio of transformers; Auto		
21		5th week	26,27,28	Transformer and Machines:	transformers; Basic principle of Electromechanical energy conversion		

  
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**Lesson Plan  
(Labs/Workshop)**

Name of Teacher:- Kumari Indu		Designation:- Lecturer in Physics	Group	Remarks
Name of Lab/Workshop:- FEEL		Class/Branch:- 2nd/ Automobile Engg.		
Sr. No.	Description of Practical job	Date		
1	Determine the permeability of magnetic material by plotting its B-H curve	29-1-2025 & 5-2-2025		
2	Measure voltage, current and power in 1- phase circuit with resistive load			
3	Measure voltage, current and power in R-L series circuit			
4	Determine the transformation (K) of 1-phase transformer.	19-02-2025 & 5-3-2025		
5	Connect single phase transformer and measure input and output quantities			
6	Make Star and Delta connection in induction motor starters measure the line and phase values.	12-03-2025 & 19-3-2025		
7	Identify various passive electronic components in given circuits.			
8	Connect resistors in series and parallel combination on			
9	Connect capacitors in series and parallel combination on breadboard and measure its value using multimeter	26-03-2025 & 02-4-2025		
10	Identify various active electronic components in given circuits			
11	Use multimeter to measure the value of given resistor			
12	Use LCR- Q tester to measure the value of given capacitor			
13	Determine the value of given resistor using digital multimeter to confirm with colour code	9-04-2025 & 16-4-2025		
14	Test PN junction diodes using digital multimeter.			
15	Test the performance of P- N junction Diode			
16	Test the performance of Zener Diode	23-04-2025 & 30-4-2025		
17	Test the performance of LED			
18	Identify three terminal of transistor using Digital Multimeter			
19	Test a performance of NPN Transistor			
20	Determine the current gain of CE Transistor configuration	7-05-2025 & 14-5-2025		
21	Test a performance of Transistor switch circuit.			
22	Test a performance of Transistor amplifier circuit.	21-05-2025 & 28-5-2025		
23	Test Op Amp as amplifier and integrator.			

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II<sup>nd</sup> Sem

Lesson Plan  
(Labs/Workshop)

Name of Teacher:- Vikram Chaud		Designation:- W.S.I Electronics	Group I, II	Remarks
Name of Lab/Workshop:- Electrical		Class/Branch:- Auto Eng.		
Sr. No.	Description of Practical job		Date	
1)	Name and use of Raw Material used in the Electrical workshop	January	30, 31	
2)	Specification of tools used in the workshop	February	1, 6, 7, 13 14, 15	
3)	First Job Practice	March	20, 21, 22, 1, 6, 7, 13 15, 20, 21	
4)	II <sup>nd</sup> Job Practice	March <del>3</del> April	22, 27, 28 29, 30, 31 5, 10, 11	
5)	III <sup>rd</sup> Job Practice	April	17, 19 24, 25, 26	
6)	Forth Job Practice	May	1, 2, 3, 8 9, 15, 16 17, 22, 23 24	

Revision

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Distt. Kangra H.P. 176096

II<sup>nd</sup> Sem.

Lesson Plan  
(Labs/Workshop)

Name of Teacher:-		Designation:-	Group	Remarks
Vikram Chand		W.S.I. Electronic	I, II <sup>nd</sup>	
Name of Lab/Workshop:-		Class/Branch:-		
Electrical W/s		Civil Engg.		
Sr. No.	Description of Practical job		Date	
1	Name and Use of Raw Material Used in the Electricity workshop	January February	<del>27, 28, 29</del> 3, 4, 5, 10 11, 17	
(2)	Specifications of Tools used in Electrical			
(3)	First Job Practice	February March	18, 19, 24 25, 3, 4, 5	
(4)	II <sup>nd</sup> Job Practice	March	10, 11, 12 17, 18, 19 24, 25, 26	
5	III <sup>rd</sup> Job Practice	April	1, 2, 7, 8 9, 16, 21 22, 28, 30	
(6)	IV <sup>th</sup> Job Practice	May	5, 6, 7 13, 14, 19 20, 21	
			26, 27 28	
Revision				

  
Signature of Teacher

  
Signature

**Govt. Polytechnic, Talwar**  
**Department of Applied sciences and Humanities**  
**LESSON PLAN**

Name of Teacher :- Poojapraj Sharma Subject: Engg. Mechanics Class: 2nd year Semester Auto Engg

S. No	Month	Week	Date	Name of Chapter	Contents to be taught	Remarks
1	January	5th week	27,28,29	<b>Unit - 1 Basics of Mechanics &amp; Force System</b>	Significance and importance of Mechanics, applied mechanics, Statics, Dynamics, force, force mass relation, Newton's body and rigid body, scalar and vector quantity.	
2	February	1st week	1,3,4,5		Units of measurement (SI unit) - Fundamental units and derived units, force - unit representation and vector, and by force's addition, subtraction and effects of a force, Principle of transmissibility of force, force system and its classification.	
3		2nd week	10,11,15		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 vector, non concurrent and parallel coplanar force systems - Law of triangle, parallelogram and polygon of forces.	
4	March	3rd week	17,18,19,22	<b>Unit - 2 Equilibrium</b>	Equilibrium and Equilibrium, Free body and free body diagram, Analytical and graphical methods of analyzing equilibrium, Lami's theorem - statement and explanation.	1st Assignment
5		4th week	24,25		Application for various engineering problems - Types of beams, supports (pin, fixed, roller and fixed) and loads acting on beam (point load, uniformly distributed load).	
6		1st week	1,3,4,5		Beam reaction for equilibrium, simply supported beam with or without overhang - calculated by combination of point load and uniformly distributed load.	2nd assignment
7		2nd week	10,11,12,15		Beam reaction graphing for simply supported beam subjected to vertical point loads only.	class test 1
8	April	3rd week	17,18,19,22	<b>Unit - 3 Friction</b>	Friction and its relevance in engineering, types and laws of friction, limiting equilibrium, limiting friction, coefficient of friction, angle of friction, angle of repose.	
9		4th week	24,25,26,29		Relation between coefficient of friction and angle of friction.	
10		1st week	1,2,5		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.	
11	April	2nd week	7,8,9	<b>Unit 4 - Centre of Gravity</b>	Centroid of geometrical plane figures (square, rectangle, triangle, circle, semi circle, quarter circle).	
12		3rd week	16,19		Centroid of composite figures composed of not more than two geometrical figures.	2nd class test
13		4th week	21,22,23,26		Centre of Gravity of simple solids (Cube, cuboid, cone, cylinder, sphere, hemi sphere). Centre of gravity of composite solids composed of not more than two simple solids.	
14	May	5th week	28,30	<b>Unit-5 Simple Lifting Machines</b>	Simple lifting machines, load, effort, mechanical advantage, applications and efficiencies.	3rd Assignment
15		1st week	3,		Velocity ratio, efficiency of machines, law of machine, ideal machine, friction in machine, maximum Mechanical advantage and efficiency.	PTM
16		2nd week		<b>Unit-5 Simple Lifting Machines</b>	House Test	
17		3rd week	13,14,17,19,20		Conditions for reversibility, Velocity ratio of Simple axle and wheel, Differential axle and wheel.	
18	4th week	21,24,26,27,28		Worm and worm wheel, Simple screw jack.		

  
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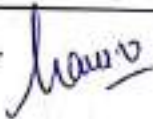
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**Lesson Plan**

**Session: January 2025 - June 2025**

<b>Name of Teacher:- Gaurav Puwari</b>		<b>Designation:-Lecturer (Auto. Engg.)</b>		<b>Group:- All</b>
<b>Name of Lab/Workshop:- Engineering Mechanics</b>		<b>Class/Branch:- 2nd Sem/Auto Engg.</b>		
<b>Sr. No.</b>	<b>Name of Practical</b>	<b>Date</b>	<b>Remarks</b>	
1	To study various equipment related to Engineering Mechanics.	27/1,3/2		
2	To find the M.A., V.R., Efficiency and law of machine for Differential Axle and Wheel.	2/10/2025		
3	To find the M.A., V.R., Efficiency and law of machine for Simple Screw Jack.	2/17/2025		
4	Derive Law of machine using Worm and worm wheel	2/24/2025		
5	Determine resultant of concurrent force system applying Law of Polygon of forces using forcetable.	3/3/2025		
6	Determine resultant of concurrent force system graphically.	3/10/2025		
7	Determine resultant of parallel force system graphically.	3/17/2025		
8	Verify Lami's theorem.	24-Mar		
9	Study forces in various members of Jib crane.	7-Apr		
10	Determine support reactions for simply supported beam.	21-Apr		
11	Obtain support reactions of beam using graphical method.	28-Apr		
12	Determine coefficient of friction for motion on horizontal and inclined plane.	19-May		
13	Determine centroid of geometrical plane figure	26-May		

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### LESSON PLAN

Program Name	AUTOMOBILE. ENGG.
Course/Subject Name	Applied Mathematics-II
Course/Subject Code	BS102
Course Subject / Co-ordinator Name	Kharatti Lal
Course Category	BS
Number of Credits	L- 4, DCS – 1, P - 0

### Evaluation scheme

S.No.	Subject Name	Study scheme (Hrs/Week)	Marks in evaluation scheme			
			Internal Assessment		External Assessment	
			Theory	Practical	Theory	Practical
1.	Applied Mathematics-II	5	40	00	60	00
<u>Reference books</u>			Elementary Engineering Mathematics by BS Grewal			
			Applied mathematics by Dr. RD Sharma			
			Engineering Mathematics by Dass Gupta			
			Applied Mathematics, vol I & II by SS Sabharwal & Sunita Jain			

Applied mathematics by S. K. Sharma

**Course Outcomes:** After the completion of the course the student will be able to

<b>CO1</b>	Understand the determinants and their uses.
<b>CO2</b>	Understand the matrices and their uses.
<b>CO3</b>	Understand the concept of Integration

<b>CO4</b>	Application of integration
<b>CO5</b>	Understand the coordinate geometry.
<b>CO6</b>	Understand the concept of differential equation..
<b>CO7</b>	Able to solve the questions of Integrations and its application.

**Teaching Plan;**

S. No.	Name of topic	Proposed date	Actual date	Remarks
<b>UNIT - I</b>	Determinants: Elementary properties of determinants up to 3rd order,	27/01/2025,		
	Consistency of equations & Properties of Determinants .	28,29,30,		
	Cramer's rule.	31,		
	Matrix:	03/02/2025		
	Algebra of matrices,	04,05,06,		
	Inverse of a matrix,	07,10,11,		
	Matrix inverse method to solve a system of linear equations in 3 variables .	12,13,14,		
	Adjoint of square Matrix.	17,18,19,		
	Inverse of a square matrix.Properties of the inverse of a Matrix.	20,21,24,		
	Solution of system of Linear Equations by Matrices.	25,27,28,		
		03/03/2025/		
		04,05,06,07,		



<p><b>UNIT - II</b></p>	<p>Integral calculus:  Simple Integration by substitution method, by parts, by partial fractions (for linear factors only). Use of formulas  <math>\int_0^{\frac{\pi}{2}} \sin^n x dx</math>, <math>\int_0^{\frac{\pi}{2}} \cos^n x dx</math> &amp;  <math>\int_0^{\frac{\pi}{2}} \sin^n x \cos^m x dx</math>  Applications of integration: Simple problem on evaluation of area bounded by a curve and axes.  Calculation of  Volume of a solid formed by revolution of an area about a curve</p>	<p>10/03/2025  ,11,12,  13,17,18,  19,20,21  24,25,26  27,28,  01/04/2025,  02, 03,  04, 07,  08, 09,  09/04/2025, ,  11,14,15,16,</p>		
<p><b>UNIT - III</b></p>	<p>Co-Ordinate Geometry:  Equations of straight line in various standard forms (without proof), intersection of two straight lines, angle between two lines, Perpendicular distance formula.  General equation of a circle and its characteristics, To find the equation of a circle, given: * Centre and radius,  Three points lying on it,  Coordinates of end points of diameter.  Definition of conics (Parabola, Ellipse, Hyperbola) their standard Equations without proof. Problems on conics when their foci, directrices and vertices are given</p>	<p>17/04/2025,  21, 22,  23, 24,  25, 26,  27,28,29,30,  01/05/2025,  02,05,06,  07,08,09,  13/05/2025  14/05/2025  15,16,</p>		
<p><b>UNIT - IV</b></p>	<p>Differential Equations:  Solution of first order and first degree differential equation by variable</p>	<p>19,20, 21,  22,23,26,  27,28,29,</p>		

**Assignments:**

Assignment serial	Contents of syllabus covered	Proposed date	Actual date	Remarks
<u>A-1</u>	Determinants & Matrices	01/03/2025		
<u>A-2</u>	Integration	01/04/2025		
<u>A-3</u>	Differential Equation /Co-ordinate Geometry	01/05/2025		

**House Test / Class Test: between :(27<sup>th</sup> JAN To 29<sup>th</sup> May – 2025)**

House/Class Test	Contents of syllabus covered	Proposed date	Actual date	Remarks
CT-1	30% of the syllabus	05/03/2025, 4th week of February		
CT-2	Next 30% of the syllabus	05/04/2025, 1 <sup>st</sup> week of April		
House Test	80% of the syllabus	05/05/2025, 1 <sup>st</sup> week of May		

  
Teacher's signature

  
HOD signature