

**Lesson Plan**  
**Session: Jan.- June 2025**  
**Subject : Mathematics -II Class: Civil Engg.- Mech. Engg. & Elect. Engg. 2nd Sem.**  
**Name of the teacher: Parma Nand Sharma**

Sr. No.	Week	Name of the Chapter	Contents to be taught	Actual Date when content was taught	Remarks (if any)	
1	1 <sup>st</sup>	Determinants	Introduction, Definition of Determinant, Value of determinant of order 2x2 and concept of minors and cofactors. Problems of 2x2 determinants regarding finding the value minors and cofactors.			
2		Determinants	Value of determinant of order 3x3. Problems of 3x3 determinants regarding finding the value, minors and cofactors. Sarrus method to find the value of 3x3 determinant. Properties of Determinants			
3		Determinants	Problems to evaluate the value of determinants without expanding, i.e., by using properties of determinants. Application of Determinants in solving a system of non-homogenous & Non-homogenous linear equations in two and three variables, i.e., Cramer's Rule.			
4		Determinants	Application of Determinants in solving a system of homogenous linear equations in two and three variables, i.e., Cramer's rule. And problems of solving a system of homogenous linear equations.			
5	2 <sup>nd</sup>	Matrices	Introduction, Definition of Matrices, Order of a Matrix, Types of Matrices, i.e., Square Matrix, Row matrix, Column Matrix, Zero Matrix, Diagonal Matrix, Scalar Matrix and Unit Matrix. Equal Matrices and operation on Matrices, i.e., Addition and Subtraction of two Matrices. Problems related to Equal Matrices and operation on Matrices, i.e., Addition and Subtraction of two Matrices.			
6		Matrices	Construction of a Matrix whose ij <sup>th</sup> element is given, and problems related to commutativity, Associativity, existence of identity and existence of inverse over the operation addition.			
7		Matrices	Matrix Multiplication and problems of matrices related to matrix multiplication. Matrix Polynomial and also problems related to matrix polynomial.			
8		Matrices	Transpose of a matrix, Symmetric and Skew-Symmetric Matrices. Problems related to express a square matrix as sum of symmetric and skew-symmetric matrix.			
9		Matrices	Adjoint and Inverse of a Matrix, Problems related to find adjoint and inverse of a Matrix.			
10		Matrices	Matrix Method to solve a system of non-homogenous linear equations and problems related to matrix method.			
11		Matrices	Matrix Method to solve a system of homogenous linear equations and problems related to matrix method.			
12		3 <sup>rd</sup>	Matrices and Determinants	Miscellaneous Problems related to Matrices and Determinants.		
13			Matrices and Determinants	Revision of the unit.		
14			Integral Calculus	Introduction, Definition and basic formulae of integrations and simple problems		
15	4 <sup>th</sup>	Integral Calculus	Integration by the method substitution and problems based on this method.			
16		Integral Calculus	Integration by the method partial fraction (for linear factors only) and problems based on this method.			
18		Integral Calculus	Integration by the method by parts and problems based on this method.			
19		Integral Calculus	Revision to prepare the students for class test			
20		Integral Calculus	Problems of integration to be solved by the method integrating by parts			
21		Integral Calculus	Integration of Trigonometric functions by using trigonometric formulae.			
22		Integral Calculus	Various Problems of integration			
23		5 <sup>th</sup>	Integral Calculus	Some special methods of integrating trigonometric functions		
24			Integral Calculus	Definite integral, Definite integral as limit of a sum and simple problems related to definite integrals.		
25			Integral Calculus	Properties of Definite Integrals and problems based on properties of definite integrals.		
26	6 <sup>th</sup>	Integral Calculus	Problems to evaluate definite integrals			
27		Integral Calculus	Standard formulae to evaluate special type of trigonometric integrals.			
28		Integral Calculus	Various Problems of integration			
29		Integral Calculus	Various Problems of integration			
30		Integral Calculus	Application of integration to find the area under the curve and problems.			
31		Integral Calculus	Simple problems on evaluation of area bounded by a curve and axis.			
32	7 <sup>th</sup>	Integral Calculus	Application of integration to calculate volume of a solid formed by revolution of an area about axis.			
33		Integral Calculus	Mixed problems of application of integration.			
34		Integral Calculus	Revision of the chapter Application of Integration.			
35		Integral Calculus	Revision of the chapter Application of Integration.			
36	8 <sup>th</sup>	Integral Calculus	Revision of the chapter Application of Integration.			
37		Integral Calculus	Revision of the chapter Application of Integration.			
38		Straight Line	Introduction, Slope of a Straight line, Condition for Parallel and Perpendicular lines and equation of a straight line in different forms, i.e., point slope form, slope intercept form, intercept form and two points form, normal form. Simple problems related to write the equation of straight lines.			
39		Straight Line	Reduction of the general equation of a straight line to various standard lines and various related problems.			
40		Straight Line	Angle between two lines, condition of concurrency of three lines and related problems.			
41		Straight Line	Problems related to find the equation of a line which is parallel/perpendicular to the given line, problems related to find the point of intersection of two straight lines.			
42		Straight Line	Revision of the chapter			
43		9 <sup>th</sup>	Straight Line	Revision of the chapter		
44	Circle		Definition, equation of a circle in different forms, i.e., standard form, central form, general form, diameter form and related problems.			
45	Circle		Miscellaneous Problems related to Straight lines and circles. Revision of Straight lines and circles.			

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46	Circle	Definition, equation of a circle in different forms, i.e., standard form, central form, general form diameter form and related problems.		
47	Circle	Miscellaneous Problems related to Straight lines and circles .Revision of Straight lines and circles .		
48	10th Circle	Miscellaneous Problems related to Straight lines and circles .Revision of Straight lines and circles .		
49	Circle	Revision of the chapter		
50	Circle	Revision of the chapter		
51	Circle	Revision of the chapter		
52	Conics	Definition, Standard form and problems related to Parabola		
53	11th Conics	Definition, Standard form and problems related to Ellipse		
54	Conics	Definition, Standard form and problems related to Hyperbola.		
55	Conics	Miscellaneous Problems related to Parabola, Ellipse and Hyperbola .		
56	Conics	Revision of the unit(Parabola, Ellipse and Hyperbola).		
57	Conics	Revision of the chapter		
58	12th Conics	Revision of the chapter		
59	Conics	Revision of the chapter		
60	Differential Equations	Introduction , Definition and Type of differential equations. Order and Degree of a Differential Equation		
61	Differential Equations	Linear and Non-linear Differential Equations and related problems.		
62	Differential Equations	Formation of Differential equation and related problems.		
63	13th Differential Equations	Solution of first order and first degree differential equation by variable separable method.		
64	Differential Equations	Homogeneous equations and solution of homogenous equations.		
65		Revision to prepare the students for Final Examination		
66		Revision to prepare the students for Final Examination		
67		Revision to prepare the students for Final Examination		
68	14th	Revision to prepare the students for Final Examination		
69		Revision to prepare the students for Final Examination		
70		Revision to prepare the students for Final Examination		

Subject Teacher




HOD

Applied Sci. & Hum.

## LESSON PLAN

Program Name	COMPUTER ENGG / ELECTRICAL ENGG.
Course/Subject Name	Applied Physics-II
Course/Subject Code	BS-104 & BS-106
Course/Subject Coordinator Name	Bharti Choudhary

### Evaluation scheme

S.No.	Subject Name	Study scheme (Hrs/Week)	Marks in evaluation scheme			
			Internal Assessment		External Assessment	
			Theory	Practical	Theory	Practical
1.	Applied physics-II & Applied Physics-II lab	TH (3+1(DCS) + 2 (Lab)	40	40	60	60
Reference books			(i) Fundamental of Physics By Halliday/Resnick/Walker			
			(ii) New simplified Physics by S.L. Arora			
			(iii) Applied Physics, Vol. I and Vol. II. TTTI Publications, Tata McGraw Hill, Delhi			
			(iv) Engineering Physics by DK Bhattacharya & Poonam Tandan; Oxford University Press, New Delhi			

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

CO1	Describe waves and wave motion, periodic and simple harmonic motions and solve simple problems.
CO2	Explain ultrasonic waves and engineering, medical and industrial applications of Ultrasonic. Apply acoustics principles to various types of buildings for best sound effect.
CO3	Describe the refractive index of a liquid or a solid and will be able to explain conditions for total internal reflection.
CO4	Define capacitance and its unit, explain the function of capacitors in simple circuits, and solve simple problems.
CO5	Differentiate between insulators, conductors and semiconductors, and define the terms: potential, potential difference, electromotive force.
CO6	Express electric current as flow of charge, concept of resistance, measure of the parameters: electric current, potential difference, resistance.
CO7	Explain the operation of appliances like moving coil galvanometer, simple DC motors.
CO8	Illustrate the conditions for light amplification in various LASER and laser based instruments and optical devices.
CO9	Appreciate the potential of optical fiber in fields of medicine and communication.

### Teaching Plan:

Lecture No.	Topic Covered	Actual Date	Remarks
1	<b>UNIT - 1: Wave motion and its applications-</b> Wave motion, transverse and longitudinal waves with examples.		
2	Definitions of wave velocity, frequency and wavelength and their relationship		
3	Sound and light waves and their properties		
4	Wave equation ( $y = r \sin \omega t$ ) amplitude, phase, phase difference, Principle of superposition of waves and beat formation		
5	Simple Harmonic Motion (SHM): definition, expression for displacement, velocity		

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6	Acceleration, time period, frequency of SHM, Free, forced and resonant vibrations and their examples.		
7	Acoustics of buildings – reverberation, reverberation time, echo, noise, coefficient of absorption of sound		
8	Methods to control reverberation time and their applications.		
9	Ultrasonic waves – Introduction and properties, engineering and medical applications of ultrasonic.		
10	<b>UNIT - 2: Optics</b> -Basic optical laws- reflection and refraction		
11	Refractive index, Images and image formation by mirrors,		
12	Lens and thin lenses, lens formula, power of lens, magnification		
13	Total internal reflection, Critical angle and conditions for total internal reflection, applications of total internal reflection in optical fiber.		
14	Optical Instruments- simple and compound microscope		
15	Astronomical telescope in normal adjustment and their magnifying power		
16	<b>UNIT - 3: Electrostatics-</b> Coulomb's law, unit of charge.		
17	Electric field, Electric lines of force and their properties.		
18	Electric flux, Electric potential and potential difference		
19	Gauss's law		
20	Capacitor and its working, Capacitance and its units. Capacitance of a parallel plate capacitor		
21	Series and parallel combination of capacitors (related numerical)		
22	Dielectric and its effect on capacitance, dielectric break down		
23	<b>UNIT - 4: Current Electricity-</b> Electric Current and its units, Direct and alternating current.		
24	Resistance and its units, Specific resistance, Conductance, Specific conductance,		
25	Series and parallel combination of resistances.		
26	Factors affecting resistance of a wire, carbon resistances and colour coding.		
27	Ohm's law and its verification		
28	Kirchhoff's laws, Concept of terminal potential difference and Electromotive force (EMF)		
29	Heating effect of current, Electric power, Electric energy and its units (related numerical problems)		
30	Advantages of Electric Energy over other forms of energy.		
31	<b>UNIT - 5: Electromagnetism-</b> Types of magnetic materials: dia, para and ferromagnetic with their properties.		
32	Magnetic field and its units, magnetic intensity, magnetic lines of force, magnetic flux and units, magnetization		
33	Lorentz force (force on moving charge in magnetic field), Force on current carrying conductor.		
34	Moving coil galvanometer; principle, construction and working		
35	Conversion of a galvanometer into ammeter and voltmeter.		
36	<b>UNIT - 6: Semiconductor Physics-</b> Energy bands in solids, Types of materials (insulator, semiconductor, conductor)		
37	Intrinsic and Extrinsic semiconductors. p-n junction		
38	Junction diode and V-I characteristics		
39	Diode as rectifier – half wave and full wave rectifier (center taped).		
40	Photocells, Solar cells; working principle and engineering applications.		

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41	<b>UNIT - 7: Modern Physics-</b> Lasers: Energy levels, ionization and excitation potentials; spontaneous and stimulated emission		
42	Population inversion, pumping methods, optical feedback.		
43	Types of lasers; Ruby, He-Ne Laser		
44	Semiconductor laser and engineering and medical applications of lasers. laser characteristics		
45	Fiber Optics: Introduction to optical fibers, light propagation, acceptance angle and numerical aperture		
46	Fiber types, applications in; telecommunication, medical and sensors.		

**Assignments:**

Assignment serial	Contents of syllabus covered	Proposed date	Actual date	Remarks
A-1	Wave motion and its applications & Optics			
A-2	Electrostatics & Current electricity			
A-3	Semiconductor & Modern Physics			

**House Test/Class Test:**

House/Class Test	Contents of syllabus covered	Proposed date	Actual date	Remarks
CT-I	30% of the syllabus	3 <sup>rd</sup> week of March		
CT-II	Next 30% of the syllabus	3 <sup>rd</sup> week of April		
House Test	80% of the syllabus	2 <sup>nd</sup> week of May 2025		

**Lab Plan:**

Exp. No.	Name of experiment	Actual date		Remarks
		G-1	G-2	
1	To determine and verify the time period of cantilever.			
2	To verify laws of reflection from a plane mirror/ interface.			
3	To verify laws of refraction (Snell's law) using a glass slab.			
4	To verify Ohm's law by plotting graph between current and potential difference.			
5	To verify laws of resistances in series and parallel combination.			
6	To draw V-I characteristics of a semiconductor diode ( Ge.Si) & determine its knee voltage			
7	To find resistance of a galvanometer by half deflection method.			
8	To convert a galvanometer into an ammeter.			
9	To convert a galvanometer into a voltmeter.			

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(Signature of Teacher)

(Bharti Choudhary)

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(Signature of HOD)

ELECTRICAL ENGINEERING (SEMESTER - 2ND)

S.NO.	MONTH	WEEK	DATE	CONTENT (THEORY)	REMARKS
1	JAN.	5TH	27,28,30	<b>Unit - I Basics of mechanics and force system</b>	
2	FEB.	1st	1	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.	8(HOLIDAY)
		2nd	3,4,6,8	Resolution of a force - Orthogonal components of a force, moment of a force, Varignon's Theorem.	
		3rd	10,11,13,15	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	
		4th	17,18,20,22		
		5th	24,25,27	<b>Unit- II Equilibrium</b> Equilibrium and Equilibrant, Free body and Free body diagram, Analytical and graphical methods of analyzing equilibrium.	
3	MARCH	1st	1	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.	8(HOLIDAY)
		2nd	3,4,6,8	Beam reaction graphically for simply supported beam subjected to vertical point loads only.	
		3rd	10,11,13,15		CLASS TEST-I
		4th	17,18,20,22		
		5th	24,25,27,29	<b>Unit- III Friction</b> 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	APRIL	1st	1,3,5		
		2nd	7,8,10,12		12(HOLIDAY)
		3rd	14,15,17,19		14,15(HOLIDAY)& CLASS TEST-II
		4th	21,22,24,26	<b>Unit- IV Centroid and centre of gravity</b> 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.	
		5th	28,29	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.	29(HOLIDAY)
5	MAY	1st	1,3		
		2nd	5,6,8,10	<b>Unit - V Simple lifting machine</b> Simple lifting machine, load, effort, mechanical advantage, applications and advantages. Velocity ratio, efficiency of machines, law of machine.	10(HOLIDAY) & HOUSE TEST
		3rd	12,13,15,17	Ideal machine, friction in machine, maximum Mechanical advantage and efficiency, reversible and non-reversible machines, conditions for reversibility.	12(HOLIDAY)
		4th	19,20,22,24	Velocity ratios of Simple axle and wheel, Differential axle and wheel, Worm and worm wheel, Simple screw jack.	
		5th	26,27,29		29(HOLIDAY)

VISHAL CHANDEL

(Lect. Mech. Engg.)

HOD (ME)

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27/1/2025

24/1/2025

GOVT. POLYTECHNIC SUNDER NAGAR

LESSON PLAN : ENGINEERING MECHANICS LAB(G-1) (SESSION: JAN.-JULY. 2025)

ELECTRICAL ENGINEERING (SEMESTER - 2ND)

S.NO.	MONTH	WEEK	DATE	CONTENT (PRACTICAL)	REMARKS
1	JAN.	5TH	30	1. To study various equipments related to Engineering Mechanics.	
2	FEB.	1st	NIL	NIL	
		2nd	6	2. To find the M.A., V.R., Efficiency and law of machine for Differential Axle and Wheel	
		3rd	13	3. To find the M.A., V.R., Efficiency and law of machine for Simple Screw Jack.	
		4th	20	4. Derive Law of machine using Worm and worm wheel.	
		5th	27	5. Determine resultant of concurrent force system applying Law of Polygon of forces using forcetable.	
3	MARCH	1st	NIL	NIL	
		2nd	6	6. Determine resultant of concurrent force system graphically.	
		3rd	13	7. Determine resultant of parallel force system graphically.	
		4th	20	8. Verify Lami's theorem.	
		5th	27	9. Study forces in various members of Jib crane.	
4	APRIL	1st	3	10. Determine support reactions for simply supported beam.	
		2nd	10	11. Obtain support reactions of beam using graphical method.	
		3rd	17	12. Determine coefficient of friction for motion on horizontal and inclined plane.	
		4th	24	13. Determine centroid of geometrical plane figure.	
		5th	NIL	NIL	
5	MAY	1st	1	REPEAT IF ANY	
		2nd	8	REPEAT IF ANY	
		3rd	15	REPEAT IF ANY	
		4th	22	REPEAT IF ANY	
		5th	29		29(HOLIDAY)

VISHAL CHANDEL  
(Lect. Mech. Engg.)

24/9/2025

HOD (ME)

27/1/2025

LESSON PLAN : ENGINEERING MECHANICS LAB(G-II) (SESSION: JAN.-JULY, 2025)

ELECTRICAL ENGINEERING (SEMESTER - 2ND)

S.NO.	MONTH	WEEK	DATE	CONTENT (PRACTICAL)	REMARKS
1	JAN.	5TH	29	1. To study various equipments related to Engineering Mechanics	
2	FEB.	1st	NIL	NIL	
		2nd	5	2. To find the M.A., V.R., Efficiency and law of machine for Differential Axle and Wheel.	
		3rd	12	NIL	12(HOLIDAY)
		4th	19	3. To find the M.A., V.R., Efficiency and law of machine for Simple Screw Jack	
		5th	26	NIL	26(HOLIDAY)
3	MARCH	1st	NIL	NIL	
		2nd	5	4. Derive Law of machine using Worm and worm wheel.	
		3rd	12	5. Determine resultant of concurrent force system applying Law of Polygon of forces using forcetable.	
		4th	19	6. Determine resultant of concurrent force system graphically.	
		5th	26	7. Determine resultant of parallel force system graphically.	
4	APRIL	1st	2	8. Verify Lami's theorem.	
		2nd	9	9. Study forces in various members of Jib crane.	
		3rd	16	10. Determine support reactions for simply supported beam.	
		4th	23	11. Obtain support reactions of beam using graphical method.	
		5th	30	12. Determine coefficient of friction for motion on horizontal and inclined plane.	
	MAV	1st	NIL	NIL	
		2nd	7	13. Determine centroid of geometrical plane figure.	
		3rd	14	REPEAT IF ANY	
		4th	21	REPEAT IF ANY	
		5th	28	REPEAT IF ANY	

VISHAL CHANDEL  
(Lect. Mech. Engg.)

HOB (ME)

27/1/2025



	51	A.C in resistors, inductors and capacitors	
	52	A.C in resistors, inductors and capacitors	
	53	A.C in R-L series, R-C series, R-L-C series and parallel circuits	
	54	A.C in R-L series, R-C series, R-L-C series and parallel circuits	
	55	A.C in R-L series, R-C series, R-L-C series and parallel circuits	
	56	Power in A. C. Circuits, power triangle.	
6	57	General construction and principle of core type of transformers	
	58	General construction and principle of shell type of transformers	
	59	Emf equation	
	60	transformation ratio of transformer	
	61	Auto transformers	
	62	Basic principle of Electromechanical energy conversion.	
	63	Revision	
	64	Revision	

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Teacher

  
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## Lesson Plan : Jan-Jun 2025

Sub: FEEE

2nd Semester

Branch: ELECTRICAL

Unit	Lecture	Topic	Remarks
1	1	Passive Active Components	
	2	Resistances	
	3	Capacitors	
	4	Inductors	
	5	Diodes, Transistors	
	6	FET, MOS and CMOS and their Applications	
	7	Signals: DC/AC, voltage/current, periodic/non- periodic signals	
	8	average, rms, peak values	
	9	different types of signal waveforms	
	10	Ideal/non-ideal voltage/current sources	
	11	independent/dependent voltage sources	
	12	independent/dependent current sources	
2	13	Operational Amplifiers-Ideal Op-Amp	
	14	Practical op amp	
	15	Open loop and closed loop configurations	
	16	Open loop and closed loop configurations	
	17	Application of Op-Amp as amplifier	
	18	Application of Op-Amp as adder	
	19	Application of Op-Amp as differentiator	
	20	Application of Op-Amp as integrator.	
3	21	Introduction to Boolean Algebra	
	22	Electronic Implementation of Boolean Operations	
	23	Gates-Functional Block Approach	
	24	Gates-Functional Block Approach	
	25	Storage elements-Flip Flops-A Functional block approach	
	26	Storage elements-Flip Flops-A Functional block approach	
	27	Counters	
	28	Counters	
	29	Introduction to digital IC Gates (of TTL Type)	
30	Introduction to digital IC Gates (of TTL Type)		
4	31	EMF, Current	
	32	Potential Difference, Power and Energy	
	33	M.M.F, magnetic force	
	34	permeability, hysteresis loop	
	35	reluctance, leakage factor	
	36	BH curve	
	37	Electromagnetic induction, Faraday's laws of electromagnetic induction	
	38	Lenz's law	
	39	Dynamically induced emf	
	40	Statically induced emf	
	41	Equations of self and mutual inductance	
	42	Analogy between electric and magnetic circuits	
5	43	Cycle, Frequency, Periodic time	
	44	Amplitude, Angular velocity, RMS value	
	45	Average value, Form Factor Peak Factor, impedance	
	46	phase angle, and power factor	
	47	Mathematical and phasor representation of alternating emf and current	
	48	Mathematical and phasor representation of alternating emf and current	
	49	Voltage and Current relationship in Star and Delta connections	
	50	Voltage and Current relationship in Star and Delta connections	

## LESSON PLAN

Program Name	Diploma (Auto Engg., Archi Asst., Civil Engg., Computer Engg. & Electrical Engg)
Course/Subject Name	Environmental Science
Course/Subject Code	AU102(Theory)
Course/Subject Coordinator Name	Mrs. Puja Verma

### Evaluation scheme

S.No.	Subject Name	Study Scheme (Hrs/Week)	Marks in evaluation scheme			
			Internal Assessment		External Assessment	
			Theory	Practical	Theory	Practical
1.	Environmental Science	2(Theory)	40	-	60	-
Reference books			(i)	S.C Sharma & M.P. Poonia, Environmental Studies, Khanna Publishing House, New Delhi		
			(ii)	C.N.R Rao, Understanding Chemistry, University Press (India) Pvt. Ltd. 2011		
			(iii)	Nazaroff, William, Cohen, Lisa, Envir Engi. Sci. Willy New York, 2000, ISBN10: 0471144940		
			(iv)	OP Gupta, Elements of Environmental Pollution Control, Khanna Publishing House New Delhi		
			(v)	Keshav Kant, Air Pollution and Control, Khanna Publishing House, New Delhi (2018)		
Open Source Software and Website Address			(i)	<a href="http://www.eco-prayer.org">www.eco-prayer.org</a>		
			(ii)	<a href="http://www.cpcp.nic.in">www.cpcp.nic.in</a>		
			(iii)	<a href="http://www.indianenvironmentalportal.org.in">www.indianenvironmentalportal.org.in</a>		

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

CO1	Understand the ecosystem and terminology and solve various engineering problems by applying ecosystem knowledge to produce eco friendly products.
CO2	Understand the suitable air, extent of noise pollution, and control measure and acts.
CO3	Understand the water and soil pollution, and control measure and acts.
CO4	Understand different renewable energy resources and use efficient process of harvesting.
CO5	Understand solid waste management, ISO 140000 & environmental management.

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Teaching Plan:

LESSON PLAN

Lecture No.	Name of topic	Actual date	Remarks
1	<b>Unit-1 Ecosystem:</b> Structure of ecosystem, biotic and abiotic component.		
2	Food chain and food web, Aquatic and terrestrial ecosystem (lentic and lotic)		
3	Carbon, nitrogen, sulphur and phosphorus cycle.		
4	Global warming (cause, effect and process), green house effect and ozone depletion.		
5	<b>Unit-2 Air and Noise Pollution:</b> Pollution and pollutant (definition), source of air pollution (natural and man made. Air pollutant (types).		
6	Particulate pollutants: Effects and control (Bag filter, cyclone separator & electrostatic precipitator).		
7	Gaseous pollution control (Absorber, catalytic converter).		
8	Effects of air pollution due to refrigerants, I.C, Boiler. Noise Pollution (Source).		
9	Noise Pollution (Measurement and effects), Noise Pollution Rules 2000 (Regulation and control)		
10	<b>Unit-3 Water and Soil Pollution:</b> Water pollution (Source), water pollutants types & Characteristics (turbidity, pH, total suspended solids (definition and calculation)).		
11	Water pollutants Characteristics BOD and COD (definition and calculation)).		
12	Waste water treatment ( Primary methods: sedimentation & froth floatation).		
13	Secondary methods: Activated Sludge treatment, trickling filter and bioreactor)		
14	Waste water treatment ( Tertiary methods: membrane separation technology and RO (reverse osmosis))		
15	Soil pollution ( Causes, effect and preventive measure), causes: excessive use of fertiliser, pesticide and insecticide, irrigation and e-waste.		
16	<b>Unit-4 Renewable Source of energy:</b> Solar energy (basics). Theory of Flat plate collector (liquid & air).		
17	Importance of coating, advanced collector, solar ( pond, water heater, dryer & stills)		
18	Biomass (as energy source, thermal characteristics as fuel, anaerobic digestion). Biogas ( production mechanism & utilization and storage).		
19	Wind energy (current status and future prospects, environmental benefits and problems), Wind energy in India.		
20	New energy sources (Need, types), Applications (Hydrogen energy, ocean energy, tidal energy).		
21	Geothermal energy ( Concept, origin and power plants)		

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22	<b>Unit-5 Solid waste management, ISO 14000 &amp; environmental management:</b> Solid waste source & characteristics (Municipal, e waste, biomedical).		
23	Industries metallic and non metallic waste( lubricants, plastic and rubber).		
24	Collection & disposal : MSW(3R, principles, energy recovery, sanitary landfill), Hazardous Waste.		
25	Air quality act 2004, air pollution control act 1981. Water pollution & control act 1996.		
26	Structure and role of central and state pollution control board. Carbon credit concept, carbon footprint.		
27	Environmental management in fabrication industry.		
28	ISO 14000: Implementation in industry and benefits.		

**Assignments:**

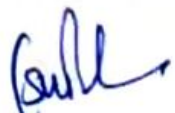
Assignment serial	Contents of syllabus covered	Proposed	Actual date	Remarks
A-1	Ecosystem, Air and noise Pollution	2 <sup>nd</sup> week of March 2025		
A-2	Water and Soil Pollution, Renewable Source of Energy	2 <sup>nd</sup> Week of April 2025		
A-3	Solid Waste Management, ISO 14000 & Environmental management	1 <sup>st</sup> Week of May		

**House Test/Class Test:**

House/Class Test	Contents of syllabus covered	Proposed/ Academic Calander	Actual date	Remarks
CT-I	30% of the syllabus	3 <sup>rd</sup> Week of March 2025		
CT-II	Next 30% of the syllabus	3 <sup>rd</sup> Week of April 2025		
House Test	80% of the syllabus	2 <sup>nd</sup> Week of May 2025		

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Signature of Teacher  
27/1/2025  
(PUJA VERMA)

  
HOD(AS&H)  
(Sh. Sushil Patral)

**Government Polytechnic Sundernagar**  
**Lesson Plan for the Session January 2025 - June 2025**  
**(2<sup>nd</sup> Semester Electrical Engg.)**

**Subject Name: Introduction to IT Systems (ES102) Subject Teacher: Dr. Rigzin Angmo**

**ASSIGNMENTS:**

Assignment serial	Contents (Syllabus covered)	Date of Assignment	Remarks
A-1	Unit-1, unit-2	3 <sup>rd</sup> week of February	
A-2	Unit-3, unit-4	3 <sup>rd</sup> week of March	
A-3	Unit-5, unit-6	3 <sup>rd</sup> week of April	

**CLASS / HOUSE TEST:**

House/class test	Contents (Syllabus covered)	Proposed Date	Actual Date	Remarks
CT-I	30% of syllabus	3 <sup>rd</sup> week of March 2025		
CT-II	Next 30% of syllabus	3 <sup>rd</sup> week of April 2024		
HT	80% of syllabus	2 <sup>nd</sup> week of May 2024		

**Lab Plan:**

Exp. No.	Name of Experiment	Actual Date		Remarks
		G-I	G-II	
1	To identify the various hardware components of computer system.			
2	To assemble hardware components of Computer System.			
3	To install Windows OS on computer system.			
4	To study the various features offered on the desktop, creating new folder and new file on the desktop.			

5	To work on different web browsers (Google chrome, internet explorer), setting up default homepage on browser and study the various settings available.			
6	To open search engines (google and yahoo) and search different information using the search engines. Creating an e-mail Account.			
7	Visit various e-governance/digital India Portals and understanding the services offered.			
8	Opening, creating and saving a document, locating files, copying contents in some different file(s), protecting files, giving password protection for a file, Setting margins, tab setting, ruler, indenting, Entering text, cut, copy, paste using tool- bars.			
9	Formatting a document, Creating and editing tables, mail-merge.			
10	Working on MS – EXCEL- Creating a worksheet in Excel. Copy, Move and Merge the cells and Use various Formatting features.			
11	Using formula and functions prepare worksheet for storing subject marks of ten students and perform the following: <ul style="list-style-type: none"> <li>• Calculate the student wise total and average.</li> <li>• Calculate the subject wise total and average.</li> <li>• Calculate the overall percentage and also individual percentage of the student.</li> <li>• Create a chart for the above.</li> </ul>			



Subject Teacher

(Dr. Rigzin Angmo)



H.O.D.

Subject Teacher

(Dr. Rigzin Angmo)

H.O.D.

# Government Polytechnic Sundernagar

## Lesson Plan for the Session January 2025- may 2025

Subject Name : Introduction to IT Systems

Subject Teacher: Dr. Rigzin Angmo

Sr no	Month	Week	Date	Name of Chapter	Contents to be taught	Remar	
1	January	1	31-01-25	UNIT 1: Basics of Computer System	Block Diagram of Computer System,		
2			01-02-25		General Understanding of various hardware components- CPU, Memory,		
3	2	07-02-25	Display Devices (CRT and LCD Monitors), Keyboard				
4		14-02-25	Mouse, HDD				
5	Feburary	3	15-02-25	UNIT 2: Software Concepts	Software and its types, Operating System: Definition,		
6			21-02-25		types and function of Operating System		
7			22-02-25		Booting the system (Cold and warm)		
8			28-02-25		Discussion regarding class test 1		
9	March	5	01-03-25	UNIT 3: Internet Skills	Understanding the terminology of internet-web browser, search engine, world wide web		
10			07-03-25		Types of Networks.		
11		7	15-02-25		Awareness about the government portals (state portals and national portals) and institute portals.		
12			21-03-25		Class test 1		
13		8	22-03-25	UNIT 4: Working with MS- Word	File Management (Creating new document, saving a document, printing a document)		
14			9		28-03-25	Editing a document, use of Home toolbar	
15					29-03-25	Insert, Design Layout ribbons.	



16	April	10	04-04-25	UNIT 5: Working with MS- Excel	Working with spread sheets, entering data into the cells	
17			05-04-25		merging cells	
18		11	11-04-25		formula bar, usage of simple functions such as sum, average, min, max,	
19		12	19-04-25		Class test 2	
20		13	25-04-25		percentage, round	
21			26-04-25		floor, ceiling, conditional formatting of cells.	
22	May	14	02-05-25	UNIT 6: Information Security	Concept of online frauds,	
23			03-05-25		threats of online crime,	
24		15	09-05-25		virus attacks and	
25		16	16-05-25		use of antivirus	
26			17-05-25	Revision		
27		17	23-05-25	Revision test		
27			24-05-25	Revision		



Subject Teacher



H.O.D  
Computer Eng

H.O.D  
Computer Eng