

Dr. B. R. Ambedkar Govt. Polytechnic Ambota
Distt. – Una (H.P.)

LESSON PLAN

Program Name	Electronics & Communication Engineering
Subject Name	Applied Mathematics-I
Subject Code	BS101
Semester	I st
Subject Teacher Name	Sandeep Kumar

Evaluation Scheme

Sr. No.	Subject Name	Study scheme (Hrs/Week)		Marks in Evaluation Scheme					
				Internal Assessment			External Assessment		
		Th	T	Th	Pr	Total	Th	Pr	Total
1.	Applied Mathematics-I	3	1	50	-	50	100	-	100
Reference Books		(i) B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, New Delhi, 40th Edition, 2007							
		(ii) S.S. Sabharwal, Sunita Jain, Eagle Parkashan, Applied Mathematics, Vol. I & II, Jalandhar.							

Course Outcomes (COs)

CO – 1	Apply the fundamental concepts of trigonometry to solve mathematical problems.
CO – 2	Analyze mathematical functions and evaluate limits using standard limits and methods such as factorization, substitution, and rationalization.
CO – 3	Apply differentiation techniques, including first principles and rules of differentiation, to solve problems involving algebraic, trigonometric, and inverse trigonometric functions.
CO – 4	Solve algebraic operations on complex numbers; represent them geometrically using the Argand diagram, and use partial fraction decomposition to simplify rational expressions.
CO – 5	Apply the concepts of permutations, combinations, and the binomial theorem to solve counting problems.

Teaching Plan

	Name of Topic	Proposed Date	Actual Date	Remarks
UNIT-1 Basic Trigonometry	Concept of angles.	10/08/2026		
	Measurement of angles in degrees, grades and radians and their conversions	12/08/2026 13/08/2026		
	radian measure formula (Arc Length Formula in radians) and simple related	14/08/2026 17/08/2026 19/08/2026		

	problems.			
	T-Ratios of Allied angles (without proof).	20/08/2026 21/08/2026		
	Sum, difference formulae and their applications (without proof).	24/08/2026 26/08/2026		
	Product formulae (Transformation of product to sum, difference and vice versa).	27/08/2026 28/08/2026		
	Graphs of $\sin x$, $\cos x$.	31/08/2026		
UNIT-II	Definition of function, Value of a function, Even and Odd Function.	02/09/2026		
Functions and Limits	Function of a function. Limit of a function. Standard limits (with proof) $\lim_{x \rightarrow a} \frac{x^n - a^n}{x - a} = n a^{n-1}$ & $\lim_{x \rightarrow 0} \frac{a^x - 1}{x} = \log_e a$ and related questions.	03/09/2026 07/09/2026		
	Problems related to find the limit of an algebraic function by using factorization method,	09/09/2026		
	substitution method and rationalization method.	10/09/2026		
	Class Test-1 (As per HPTSB schedule)	11/09/2026		
	Differentiation by first principle ($\sin x$ & $\cos x$).	14/09/2026 16/09/2026 17/09/2026		
UNIT-III Differentiation	Rules of differentiation (sum, product, quotient, chain rule (Differentiation of function of a function).	18/09/2026 21/09/2026 23/09/2026 24/09/2026		
	Differentiation of trigonometric and inverse trigonometric functions,	25/09/2026 28/09/2026 30/09/2026		
	Logarithmic differentiation.	01/10/2026 05/10/2026 07/10/2026		
	Class Test-2 (As per HPTSB schedule)	08/10/2026		

SS

UNIT-IV Complex Numbers and Partial Fractions	Complex Numbers: Definition, real and imaginary parts	09/10/2026 12/10/2026		
	conjugate of a complex number, algebra of complex numbers (Addition, Subtraction, Multiplication and Division),	14/10/2026 15/10/2026		
	Additive and multiplicative inverse,	16/10/2026		
	solution of a quadratic equation having , Discriminant < 0 , Geometrical Representation of a Complex Number - Argand Diagram, m	19/10/2026 21/10/2026		
	modulus & amplitude of a complex number, Polar form of a complex number.	22/10/2026 23/10/2026		
	Partial fractions: Definition of polynomial fraction (proper, improper fractions) and definition of partial fractions.	28/10/2026 29/10/2026		
	Problems related to resolve a fraction (proper & improper fractions) into partial fraction with denominator containing non-repeated linear factors.	30/10/2026		
	House Test	02/11/2026 To 04/11/2026		
UNIT-V Permutations, Combinations and Binomial Theorem	Definition of $n!$, Special case: $0! = 1$.	05/11/2026		
	Simplification of factorial expressions.	06/11/2026 11/11/2026		
	Permutation: Meaning, formula nPr and simple numerical problems.	12/11/2026 13/11/2026		
	Combination: Meaning, formula nCr and simple numerical problems.	16/11/2026 18/11/2026 19/11/2026		
	Binomial theorem (without proof) for positive integral index (expansion and general form);	20/11/2026 23/11/2026		
	binomial theorem for any index (expansion without	25/11/2026 26/11/2026		

SS

	proof) first and second binomial approximation with applications to engineering problems.	27/11/2026		
--	---	------------	--	--

Assignments

Assignment No	Contents of Syllabus Covered	Proposed Date	Actual Date	Remarks
A-1	Unit-1 & Unit-2	07/09/2026		
A-2	Unit-3 & Unit-4	12/10/2026		
A-3	Unit-5	06/11/2026		

House Test/Class Test

Name of test	Syllabus for Tests	Proposed Date	Actual Date	Remarks
Class Test -1	Unit-1 & Unit-2	As per HPTSB Academic Schedule		
Class Test -2	Unit-3			
House Test -1	Unit-1, Unit-2, Unit-3 and Unit-4			

(Signature of Teacher)

(Signature of HOD)

Department of Applied Sciences & Humanities
Dr. B. R. Ambedkar Govt. Polytechnic Ambota
Distt. – Una (H.P.)

LESSON PLAN

Program Name	ECE
Subject Name	Applied Physics-I
Subject Code	BSI03
Semester	1 st
Subject Teacher Name	Pritam Singh Dogra

Study and Evaluation Scheme:

Sr. No.	Name of Subject	Th.		Pr.	Credits	Internal Assessment			External Assessment					Total Marks
		L	T			Th.	Pr.	Total	Th.	Hrs.	Pr.	Hrs.	Total	
2	Applied Physics-I	03	-	02	03	50	50	100	100	3	100	3	200	300

Course Objectives:

Applied Physics covers a wide range of topics that are closely connected to the phenomena occurring in our surroundings. The subject seeks to develop an understanding of the physical world through observation as well as by predicting the behaviour of objects under different conditions. Emphasis is placed on the practical application of physical laws and analytical methods in various technical and engineering fields, high lighting their relevance in real-world situations.

	Name of Topic	Proposed Date	Actual Date
Unit-1	Physical world, Units and Measurements		
	Physical Quantities (Physical Quantities: Fundamental & Derived Quantities)	10-08-26	
	Systems of Units (CGS, FPS, MKS, SI)	11-08-26	
	Units (SI Units)	14-08-26	
	Dimensions and Dimensional Formulae (Definition) and Dimensional Formulae of Physical Quantities)	17-08-26	
	Dimensions and Dimensional Formulae	28-08-26	
	Principle of Homogeneity	21-08-26	
	Dimensional analysis	24-08-26	
	Errors (Instrumental, Systematic, Random & Gross Errors)	25-08-26	
	Errors (Instrumental, Systematic, Random & Gross Errors)	28-08-26	
	Force and Motion	01-09-26	
		07-09-26	
	Scalar and Vector Quantities (Definition and Examples)		
	CLASS TEST-1		
	Vectors (Representation of Vectors and Types of Vectors)	08-09-26	
	Linear Momentum (Linear Momentum and its SI Unit)	11-09-26	
	Linear Momentum (Linear Momentum and its SI Unit)	15-09-26	

Unit-2	Angular Displacement, Angular Velocity and Angular Acceleration	18-09-26	
	Circular Motion	21-09-26	
	Relation between Linear and Angular Velocity	22-09-26	
	Angular Momentum (Law of Conservation of Angular Momentum and Applications)	25-09-26	
	Moment of Inertia (Physical Significance + Numerical Problems/ Revision)	05-10-26	
Unit-3	Work, Power and Energy		
	Work (Work and Types of Work)	06-10-26	
	Energy (Energy and Its Forms) , Transformation of Energy	09-10-26	
	Kinetic Energy: Definition and Formula	12-10-26	
	Derivation of Kinetic Energy	13-10-26	
	CLASS TEST-II		
	Potential Energy: Definition and Formula	16-10-26	
	Conservation of Mechanical Energy,	23-10-26	
	Power (Power and Numerical Problems)	27-10-26	
Unit-4	Properties of matter		
	Elasticity and Plasticity (Elasticity and Plasticity, Stress and Strain)	02-11-26	
	House test	24-11-26	
	Hooke's Law and Modulus of Elasticity	06-11-26	
	Types of Modulus of Elasticity (Youngs Modulus, Bulk Modulus and Modulus of Rigidity)	10-11-26	
	Pressure (Pressure, Atmospheric Pressure , Gauge Pressure and Absolute Pressure)	13-11-26	
	Types of Stress, Types of Strain	16-11-26	
Unit-5	Heat & Temperature	05-11-26	
	Heat & Temperature (Definition of heat and temperature (on the basis of kinetic theory), Difference between heat and temperature	17-11-26	
	Modes of transfer of heat- conduction, convection and radiation with examples	18-11-26	
	Different scales of temperature and their relationship	20-11-26	
	Temperature (Numerical Problems on Temperature Conversion	23-11-26	
	Numerical Problems on Temperature Conversion	27-11-26	

Prescribed Books	Name of Book	Author Name	Publication
	Concepts of Physics	H. C. Verma	BharatiBhawan
	Principles of Physics	Jearl Walker, David Halliday and Robert Resnic	Wiley
	Text book of Physics for Class XII	A.W. Joshi	NCERT

Assignment No	Contents of Syllabus Covered	Proposed Date	Actual Date	Remarks
A-1	Unit-1& 2	10/09/2026		
A-2	Unit-3& 4	08/10/2026		

House Test/Class Test

Name of test	Syllabus for Tests	Proposed Date	Actual Date	Remarks
Class Test -1	Unit-1&2	As per HPTSB Academic Schedule		
Class Test -2	Unit-3&4			
House Test - 1	Unit-1, 2,3,4&5			

(Signature of Teacher)

(Preetam Singh Dogra.)

(Signature of HOD)

G-1 (Civil Engg.) (Mon)

Ex p. No.	Name of experiment	Proposed Date	Ac da
1	Laboratory Safety and Familiarization: To acquaint students with laboratory safety rules and the construction, least count, handling, and reading of common measuring instruments such as the Vernier Calliper, Screw Gauge, Spherometer and Thermometer. (Compulsory for all students.)	10/08/26	
2	To find the diameter of a solid cylinder using a Vernier Calliper.	17/08/26	
3	To find the internal diameter and depth of a beaker using a Vernier Calliper and hence find its volume.	24/08/26	
4	To find the diameter of wire & thickness of cardboard by using a screw gauge	31/08/26	
5	To determine the thickness of the glass strip using a spherometer	07/09/26	
6	To determine the radius of curvature of a given spherical surface by a spherometer.	21/09/26	
7	To determine the force constant of spring using Hooke's law	28/09/26	
8	To measure room temperature using a thermometer and convert it into different temperature scales.	05/10/26	
9	To verify the law of conservation of mechanical energy (PE to KE).	12/10/26	
10	To find the moment of inertia of a flywheel.	02/11/26	

G-II (Civil Engg.) (Thu)

Exp No.	Name of experiment	Proposed Date	Ac da
1	Laboratory Safety and Familiarization: To acquaint students with laboratory safety rules and the construction, least count, handling, and reading of common measuring instruments such as the Vernier Calliper, Screw Gauge, Spherometer and Thermometer. (Compulsory for all students.)	13/08/26	
2	To find the diameter of a solid cylinder using a Vernier Calliper.	20/08/26	
3	To find the internal diameter and depth of a beaker using a Vernier Calliper and hence find its volume.	27/08/26	

4	To find the diameter of wire & thickness of cardboard by using a screw gauge	03/09/26
5	To determine the thickness of the glass strip using a spherometer	10/09/26
6	To determine the radius of curvature of a given spherical surface by a spherometer.	17/09/26
7	To determine the force constant of spring using Hooke's law	08/10/26
8	To measure room temperature using a thermometer and convert it into different temperature scales.	15/10/26
9	To verify the law of conservation of mechanical energy (PE to KE).	22/10/26
10	To find the moment of inertia of a flywheel.	05/11/26

(Signature of teacher)

(Pritam Singh Dogra)

G-1 (Computer Engg.)(Sat)

(Signature of HOD)

Exp. No.	Name of experiment	Proposed Date	Actual Date
1	Laboratory Safety and Familiarization: To acquaint students with laboratory safety rules and the construction, least count, handling, and reading of common measuring instruments such as the Vernier Calliper, Screw Gauge, Spherometer and Thermometer. (Compulsory for all students.)	22/08/26	
2	To find the diameter of a solid cylinder using a Vernier Calliper.	29/08/26	
3	To find the internal diameter and depth of a beaker using a Vernier Calliper and hence find its volume.	05/09/26	
4	To find the diameter of wire & thickness of cardboard by using a screw gauge	19/09/26	
5	To determine the thickness of the glass strip using a spherometer	26/09/26	
6	To determine the radius of curvature of a given spherical surface by a spherometer.	03/10/26	
7	To determine the force constant of spring using Hooke's law	10/10/26	
8	To measure room temperature using a thermometer and convert it into different temperature scales.	24/10/26	

9	o verify the law of conservation of mechanical energy (PE to KE).	31/10/26	
10	To find the moment of inertia of a flywheel.	07/11/26	

G-II (Computer Engg.)

Exp. No.	Name of experiment	Proposed Date	Actual Date
1	Laboratory Safety and Familiarization: To acquaint students with laboratory safety rules and the construction, least count, handling, and reading of common measuring instruments such as the Vernier Calliper, Screw Gauge, Spherometer and Thermometer. (Compulsory for all students.)	10/08/26	
2	To find the diameter of a solid cylinder using a Vernier Calliper.	17/08/26	
3	To find the internal diameter and depth of a beaker using a Vernier Calliper and hence find its volume.	24/08/26	
4	To find the diameter of wire & thickness of cardboard by using a screw gauge	31/08/26	
5	To determine the thickness of the glass strip using a spherometer	07/09/26	
6	To determine the radius of curvature of a given spherical surface by a spherometer.	21/09/26	
7	To determine the force constant of spring using Hooke's law	28/09/26	
8	To measure room temperature using a thermometer and convert it into different temperature scales.	05/10/26	
9	o verify the law of conservation of mechanical energy (PE to KE).	12/10/26	
10	To find the moment of inertia of a flywheel.	02/11/26	

(Signature of teacher)

Pratim Singh Dogra
G-1 (ECE)

(Signature of MOD)

[Signature]

Exp. No.	Name of experiment	Proposed Date	Actual Date
----------	--------------------	---------------	-------------

LESSON PLAN

Program Name	Diploma (Eltx. & Comm. Engg..)
Course/Subject Name	Applied Chemistry
Course/Subject Code	Applied Chemistry: BS106 (Th) & BS110 (Pr)
Course/Subject Coordinator Name	Swati Bhardwaj

SN	Subject Name	Study Scheme (Hrs/Week)	Marks in evaluation scheme			
			Internal Assessment		External Assessment	
			Theory	Practical	Theory	Practical
1	Applied Chemistry Theory + Applied Chemistry Practical	3Th + 4 Pr (G1: 2 G2: 2 hrs)	50	50	100	100
REFERENCE BOOKS			1. Engineering chemistry, Agarwal Shikha - Cambridge Press New Delhi.			
			2. Text Books Of Chemistry for Class XI & XII (Part-I,Part-II) - NCERT Delhi.			
			3. Jain & Jain Engineering Chemistry - Dhanpat Rai and Sons, New Delhi			
			4. Applied Chemistry Laboratory Practices Vol. 1 & Vol.II, Dr. G.H. Hugar & Prof. A.N. Pathak - NITTTR, Chandigarh.			
			5. Eagle's Applied Chemistry By S C Ahuja Edited by Dr Vibha Sharma and Aman Saini			
ONLINE RESOURCES			1. www.chemguide.co.uk/atommenu.html (Atomic Structure and Chemical bonding)			
			2. https://www.iqsdirectory.com/articles/metal-alloy.html (Metal, Non-metal, alloy)			

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

CO1	Explain the concepts of atomic structure, electronic configuration, chemical bonding and the properties of engineering materials based on chemical principals.
CO2	Interpret the characteristics of solutions, water quality, hardness and buffer solution for domestic and industrial applications.
CO3	Apply the principles of electrochemistry and electrolysis to industrial processes, corrosion and metallic prevention methods used in engineering.
CO4	Analyze metallurgical processes, engineering materials, alloys and polymers to relate their properties with engineering applications.
CO5	Evaluate the suitability of fuels and lubricants based on their properties and performance for economical and eco - friendly industrial applications.

201

Teaching Plan:

Lect. No.	Name of topic	Proposed Date	Actual Date	Rem
1	Unit-1. Atomic Structure and Chemical Bonding : Fundamental particles (electron, proton, neutron), Bohr's model of atom (Postulates).	10.08.2026		
2	Bohr's theory (successes & limitations).	12.08.2026		
3	Atomic number, mass number, isotopes, isobars, isotones.	13.08.2026		
4	Concept of orbitals, difference between orbit and orbital.	17.08.2026		
5	Shapes of s and p orbitals.	19.08.2026		
6	Quantum numbers.	20.08.2026		
7	Aufbau's principle, Pauli's exclusion principle, Hund's rule of maximum multiplicity.	24.08.2026		
8	Electronic configuration (Z=1 to 30)	26.08.2026		
9	Chemical bonding – cause of chemical bonding, types of bonds: ionic bond (NaCl example), covalent bond (O_2 , N_2 , H_2).	27.08.2026 10.08.2026		
10	Difference between sigma and pie bond.	31.08.2026		
11	Unit-2. Solutions and Water : Definition of Solution, Solute and Solvent with examples, (Numerical excluded).	02.09.2026 13.08.2026 17.08.2026		
12	Methods to express the concentration of solutions - Molarity, Molality and Normality.	03.09.2026 20.08.2026		
13	pH of solution, industrial applications of pH solution, Definition of buffer solution and industrial applications of buffer solution.	07.09.2026 24.08.2026 26.08.2026		
14	Class test I	09.09.2026		
15	Definition of Hard and soft water, Types of hardness, Units of hardness (mg/ltr and ppm), and simple numerical based on hardness.	10.09.2026 31.08.2026		
16	Disadvantages caused by use of hard water in domestic and industrial use.	14.09.2026		
17	removal of hardness - permutit process, Characteristics of drinking water.	16.09.2026 03.09.2026 07.09.2026		

41	Physical properties (viscosity and viscosity index, flash and fire point).	25.11.2026		
42	Chemical properties (total acid number, saponification value) of lubricants.	26.11.2026		

Assignments:

Assignments	Contents of syllabus covered	Proposed Date slot	Actual Date	Remarks
A-1	Atomic Structure&Chemical Bonding, Solutions&water, Electrochemistry and Corrosion.	11.09.2026 / 26.10.2026		
A-2	Engineering Materials& polymers, chemistry of fuels and lubricants	30.10.2026 /25.11.2026		

House Test/Class Test:

House/Class Test	Contents of syllabus covered	Proposed Date	Actual Date	Remarks
CT-I	30% of the syllabus	09.09.2026		
CT-II	Next 30% of the syllabus	14.10.2026		
House Test	80% of the syllabus	1 st week of November 2026		

Signature of Teacher

(Swati Bhardwaj)

HOD, AS&H

Department of Applied Sciences & Humanities

Practical Coverage Plan (Lab: Applied Chemistry lab)

Branch & Semester: Electronics & Communication Engg, 1st Sem

Exp. No.	Name of experiment	Proposed Date	Proposed Date	Actual Date	Actual Date	Remarks
		G1	G2	G1	G2	
1	Preparation of standard solution of oxalic acid.	12.08.2026 19.08.2026	11.08.2026 18.08.2026			
2	To determine the strength of given sodium hydroxide solution by titrating against standard oxalic acid solution by using phenolphthalein as indicator.	26.08.2026 02.09.2026	25.08.2026 01.09.2026			
3	Experimental verification of Faraday's first law of Electrolysis by using copper sulphate solution and copper electrodes.	09.09.2026 16.09.2026	08.09.2026 15.09.2026			
4	Determination of pH of given solution by using pH meter.	23.09.2026 30.09.2026	22.09.2026 29.10.2026			
5	To estimate the amount of moisture in the given coal sample gravimetrically.	07.10.2026 14.10.2026	06.10.2026 13.10.2026			
6	To estimate the amount of ash in the given coal sample gravimetrically.	21.10.2026 28.10.2026	27.11.2026 G2			
7	To compare the viscosity of given lubricating oils by Redwood viscometer.	04.11.2026 11.11.2026	03.11.2026 10.11.2026			
8	To estimate the total alkalinity of a given water sample by titrating it against standard Sulphuric acid solution.	18.11.2026 25.11.2026	10.11.2026 17.11.2026			
		09.09.2026 16.09.2026	33.09.2026 15.09.2026			
		23.09.2026 30.09.2026	22.09.2026 29.10.2026			
		07.10.2026 14.10.2026	06.10.2026 13.10.2026			
		21.10.2026 28.10.2026	27.11.2026 G2			
		04.11.2026 11.11.2026	03.11.2026 10.11.2026			
		18.11.2026 25.11.2026	10.11.2026 17.11.2026			

Signature of Teacher

HOD, AS&H

LESSON PLAN

Program Name	ELTX & COMM ENGG.
Course/Subject Name	BASICS OF ELECTRICAL AND ELECTRONICS ENGG.
Course/Subject Code	ES 102
Course/Subject Coordinator Name	ASHOK KUMAR

Evaluation scheme

S.No.	Subject Name	Study scheme (Hrs/Week)	Marks in evaluation scheme			
			Internal Assessment		External Assessment	
			Theory	Practical	Theory	Practical
1.	BEEE & BEEE LAB	TH [3+1(DCS) + 2 (Lab)]	50	50	100	100
Reference books			1. ABC of Electrical Engineering, B.L.Theraja and A.K.Theraja – S. Chand Publishers, New Delhi. 2. Basic Electrical and Electronics Engineering, S.K.Bhattacharya - Pearson Education. 3. Basic Electric Engineering, DP Kothari and Nagrath - Tata McGraw Hill. 4. Basic Electrical Engineering, VN Mittle and Arvind Mittle - McGraw Hill. 5. Basic Electrical Engineering, V.K.Mehta & Rohit Mehta - S. Chand Publishers. 6. Fundamentals of Electrical Engineering, Tarlok Singh - S.K.Kataria & Sons.			

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

- CO 1.** Apply voltage divider rules, current divider rules, Kirchhoff's Voltage Law (KVL), and Kirchhoff's Current Law (KCL) to solve fundamental electrical circuits.
- CO 2.** Explain the basic concepts of magnetism and describe the working principles of Electromagnetic induction based on Faraday's and Lenz's laws.
- CO 3.** Contrast the features of AC and DC supply, and outline the installation purpose of Equipment earthing along with lead-acid battery maintenance.
- CO 4.** Illustrate the V-I characteristics of a PN junction diode under forward/reverse bias Conditions and state standard LED applications.
- CO 5.** Construct truth tables and logic symbols to verify the operations of basic, universal, and exclusive logic gates using Boolean algebra laws.

Teaching Plan:

Lecture No.	Topic Covered	Proposed date	Actual Date	Remarks
1	Electrical quantities (Definitions & S.I. Units): Charge, Current, Voltage, E.M.F., Power, Energy.	03-08-2026		

LESSON PLAN

Program Name	ELTX & COMM ENGG.
Course/Subject Name	BASICS OF ELECTRICAL AND ELECTRONICS ENGG.
Course/Subject Code	ES 102
Course/Subject Coordinator Name	ASHOK KUMAR

Evaluation scheme

S.No.	Subject Name	Study scheme (Hrs/Week)	Marks in evaluation scheme			
			Internal Assessment		External Assessment	
			Theory	Practical	Theory	Practical
1.	BEEE & BEEE LAB	TH [3+1(DCS) + 2 (Lab)]	50	50	100	100
Reference books			1. ABC of Electrical Engineering, B.L.Theraja and A.K.Theraja – S. Chand Publishers, New Delhi. 2. Basic Electrical and Electronics Engineering, S.K.Bhattacharya - Pearson Education. 3. Basic Electric Engineering, DP Kothari and Nagrath - Tata McGraw Hill. 4. Basic Electrical Engineering, VN Mittle and Arvind Mittle - McGraw Hill. 5. Basic Electrical Engineering, V.K.Mehta & Rohit Mehta - S. Chand Publishers. 6. Fundamentals of Electrical Engineering, Tarlok Singh - S.K.Kataria & Sons.			

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

- CO 1.** Apply voltage divider rules, current divider rules, Kirchhoff's Voltage Law (KVL), and Kirchhoff's Current Law (KCL) to solve fundamental electrical circuits.
- CO 2.** Explain the basic concepts of magnetism and describe the working principles of Electromagnetic induction based on Faraday's and Lenz's laws.
- CO 3.** Contrast the features of AC and DC supply, and outline the installation purpose of Equipment earthing along with lead-acid battery maintenance.
- CO 4.** Illustrate the V-I characteristics of a PN junction diode under forward/reverse bias Conditions and state standard LED applications.
- CO 5.** Construct truth tables and logic symbols to verify the operations of basic, universal, and exclusive logic gates using Boolean algebra laws.

Teaching Plan:

No.	Topic Covered	Proposed date	Actual Date	Remarks
	Electrical quantities (Definitions & S.I. Units): Charge, Current, Voltage, E.M.F., Power, Energy.	03-08-2026		

2	Electrical quantities (Definitions & S.I. Units): Charge, Current, Voltage, E.M.F., Power, Energy.	04-08-2026		
3	Electrical circuit elements: Resistor, inductor, capacitor. Ohms law, combination of resistances in series and parallel.	06-08-2026		
4	Electrical circuit elements: Resistor, inductor, capacitor. Ohms law, combination of resistances in series and parallel.	10-08-2026		
5	Factors affecting resistance and concept of resistivity.	11-08-2026		
6	Kirchhoff's Voltage Law (KVL) and Kirchhoff's Current Law (KCL).	13-08-2026		
7	Kirchhoff's Voltage Law (KVL) and Kirchhoff's Current Law (KCL).	17-08-2026		
8	Voltage and current divider rules.	18-08-2026		
9	Voltage and current divider rules.	20-08-2026		
10	Basic concepts of magnetism (Definitions & S.I. Units):	24-08-2026		
11	magnetic flux, flux density, magnetic field intensity, permeability, reluctance.	25-08-2026		
12	magnetic flux, flux density, magnetic field intensity, permeability, reluctance.	27-08-2026		
13	Faraday's laws of electromagnetic induction and Lenz's law	31-08-2026		
14	Faraday's laws of electromagnetic induction and Lenz's law	01-09-2026		
15	Analogy between electric and magnetic circuits.	03-09-2026		
16	Analogy between electric and magnetic circuits.	07-09-2026		
17	Difference between AC and DC supply	08-09-2026		
18	Various domestic, commercial, and industrial applications of electrical energy.	10-09-2026		
19	Advantages of electrical energy over other forms of energy	14-09-2026		
20	Earthing (Definition), Equipment Earthing, purpose of Earthing	15-09-2026		
21	Batteries: Various types of batteries, their comparisons & applications	17-09-2026		
22	Batteries: Various types of batteries, their comparisons & applications	21-09-2026		
23	Grouping of cells in series and parallel.	22-09-2026		
24	Grouping of cells in series and parallel.	24-09-2026		
25	Introduction to semi-conducting materials	28-09-2026		
26	Introduction to semi-conducting materials	29-09-2026		
27	Doping, Intrinsic and extrinsic semiconductors.	01-10-2026		
28	PN junction diode: PN junction formation,	05-10-2026		
29	PN junction diode: PN junction formation,	06-10-2026		
30	depletion region, potential barrier, forward and reverse biasing,	08-10-2026		

depletion /
biasing.
knee voltage
V-I characteri-
and Applicati-
V-I ch

32
33
34

Exp. No.	Name of experiment	Actual date		Remarks
		G-1	G-2	
1	Familiarization to basic equipment like ammeter, voltmeter, watt meter, energy meter, DSO/CRO, multi-meter etc. and their operation, uses.			
2	Determine the value of resistor and capacitor using multimeter/ LCR meter.			
3	Apply the Kirchhoff's Current Law in a dc circuit and verify the result using current divider rule.			
4	Apply the Kirchhoff's Voltage Laws in a dc circuit and verify the result using voltage divider rule.			
5	Demonstration of Faraday's law of electromagnetic induction.			
6	Observe the effect on voltage and current by grouping of cells in series and parallel			
7	Measure the amplitude, frequency and time period using CRO/DSO			
8	Identify the terminals of PN diode using multimeter and plot the VI characteristics of PN diode			
9	Verify the truth table of basic gates OR, AND and NOT.			
10	Verify the truth table of universal gates NAND and NOR.			


 (Signature of Teacher)


 (Signature of HOD)

Lesson Plan/Lab Plan (Electronics Workshop)

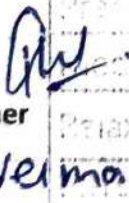
Trade : Electronics & Comm. Engg.

Session: Aug.-Nov. 2026

Sem: 1st

Sr. No	Name of Practical	Proposed Date	Actual Date	Remarks
1	Safety, Tools & Equipment:- Safety precautions to be observed in the Electornics shop. Job No. 1. Practice on the use of workshop hand tools and instruments (Brief write up)	GII 11/08/26		
		GIII 18/08/26		
		GI 25/08/26		
2	Identification and use of common workshop hand tools: Pliers, wire strippers, cutters, screwdrivers, crimping tools, connectors, heat gun etc.	GII 12/08/26		
		GIII 19/08/26		
		GI 26/08/26		
3	Familiarization with equipment: multimeter, Function Generator, Power Supply, Oscilloscope and Counters.	GII 13/08/26		
		GIII 20/08/26		
		GI 27/08/26		
4	Components Identification and Testing: Active and Passive Components Analog and Digital IC's , Connectors, switches, relays, cables etc. Job. No.2. Testing & Identification of Resistor, Inductor, Capacitor, Diode & Transistor. (Brief Wirte Up)	GII 01/09/26		
		02/09/26		
		GIII 08/09/26		
		09/09/26		
5	Soldering & De-Soldering Practices : soldering/ De-Soldering safety procedure. Use of soldering iron, de-soldering pump, hot air station. Job No. 3. Practice Soldering and De-soldering (Brief Write up)	GI 15/09/26		
		16/09/26		
		GII 03/09/26		
6	Practice on PCBs: Soldering resistors, IC's Connectors. De-soldering and Rework technique.	GIII 10/09/26		
		GI 17/09/26		
		GII 22/09/26		
7	PCB Basics and Assembly : Types of Printed Circuit Board. Job. No. 4. Design and testing of a simple electornics circuit on a general- purpose PCB.	GIII 23/09/26		
		GI 24/09/26		
		GII 29/09/26		
		06/10/26		
8	Assembling simple Circuits on General Purpose PCB	GIII 30/09/26		
		07/10/26		
		GI 01/10/26		
		08/10/26		
		GII 13/10/26		
		GIII 14/10/26		
		GI 15/10/26		

W

Lesson Plan/Lab Plan (Sports and Yoga)				
Trade : ECE		Session: Aug-Dec- 2026		
Sem: 1st				
Sr. No	Name of Practical	Proposed Date	Actual Date	Remarks
1. Physical fitness	Introduction :- This module emphasizes the development of physical fitness through activities such as warm-up.	10-Aug-26		
	Stretching, Flexibility, Endurance, strength exercises and cool-down.	17-Aug-26		
2. Yoga	Introduction:- The module on yoga may include loosening exercises	24-Aug-26		
	Surya Namaskar, Asanas(Standing, sitting, prone and supine)	24-Aug-26		
	Pranayama	7-Sep-26		
	Meditation	21-Sep-26		
	Relaxation techniques.	28-Sep-26		
3. Sports activities	Introduction:- Students may participate in games such as	5-Oct-26		
	Basketball	12-Oct-26		
	Badminton	12-Oct-26		
	Table Tennis	19-Oct-26		
	Athletics	2-Nov-26		
	Kabaddi	16-Nov-26		
	Kho-Kho	23-Nov-26		
Sign. Of Teacher  Vishal Verma			 HOD App. Sci.& Hum.	

Government Polytechnic Ambota

LESSON PLAN

Name of Faculty	Amit Sharma	Academic Session	August – November 2026
Course Name	Engineering Graphics	Scheme	N-2026
Course Code	ES103	Semester	1st (E.C.E)
Course Type	Engineering Science (ES)	Semester Start Date	01-08-2026
L-T-P	0-0-6 (L:0, T:0, P:6)	Semester End Date	28-11-2026

STUDY AND EVALUATION SCHEME

Teaching Hours/Week		Internal Assessment		External Assessment				Total		Credit
Theory	Practical	Theory	Practical	Theory	Hrs.	Practical	Hrs.	Theory	Practical	
NA	06 Hrs.	NA	50	NA	NA	100	03 Hrs.	NA	150	03

COURSE OUTCOMES (COs)

On successful completion of this course, students will be able to:-

- | | |
|-----|---|
| CO1 | Identify and use standard drawing instruments accurately. |
| CO2 | Draw geometrical figures and apply different types of lines. |
| CO3 | Apply standard dimensioning techniques, drawing codes, conventions, and symbols as per IS SP-46 (2003) in engineering drawings. |
| CO4 | Draw orthographic projections, sectional and isometric views of simple objects. |
| CO5 | Interpret and draw the free hand sketches of Civil, Electrical and Mechanical engineering symbols and conventions. |

Recommended Books

- Engineering Drawing – P. S. Gill, S. K. Kataria & Sons, New Delhi
- Elementary Engineering Drawing in First Angle Projection – N. D. Bhatt, Charotar Publishing House Pvt. Ltd., Anand
- A Text Book of Engineering Drawing – Surjit Singh, Dhanpat Rai & Co., Delhi
- Engineering Drawing – R. B. Gupta, Satya Prakashan, New Delhi
- Engineering Graphics – Sharad K. Pradhan and K.K. Jain, Khanna Book Publishing Co., New Delhi
- Engineering Drawing Practice for Schools and Colleges (SP 46:2003) – Bureau of Indian Standards, Government of India, New Delhi

Teaching Plan

Unit No.	No. of Sessions Planned	Topic / Sheet to be covered	Proposed date (as per timetable)	Actual Date	Remarks
1. Introduction to Engineering Drawing (2 Sheets)	1	Introduction to engineering drawing instruments and materials; standard drawing sheet layouts and sizes (ISO A-series); standard sizes of drawing boards	14/8/26		
	2	Convention of lines and their applications in Engineering Drawing as per BIS specifications	14/8/26		
	3	Practice of vertical, horizontal and inclined lines	14/8/26		
	4	Geometrical figures: triangles, rectangles, circles, ellipses and curves	21/8/26		
	5	Hexagon and pentagon construction with the help of drawing instruments (Sheet-1 completion)	21/8/26		
	6	Freehand lettering (5, 8 & 12 mm) and instrumental lettering of upper-case (Gothic, single stroke, vertical (height 25–35 mm, ratio 7:4) (Sheet-2 completion)	28/8/26		
2. Dimensioning Techniques (1 Sheet)	7	Necessity and principles of dimensioning; elements of dimensioning, dimensioning methods and arrangement of dimensions as per BIS standards	28/8/26		
	8	Dimensioning of overall sizes, circles, chamfered surfaces, angles	28/8/26		

No.	No. of Sessions Planned	Topic / Sheet to be covered	Proposed date (as per timetable)	Actual Date	Remarks
	38	Freehand sketching of standard Mechanical engineering symbols and conventions (Sheet-12 completion)	27/11/26		

Class Test

Name of Test	Syllabus Covered in Test (Unit-wise)	Proposed date	Actual Date	Remarks
Class Test-I	Unit-1, 2 & most of Unit-3	11/09 (2nd week of September)		
Class Test-II	Unit-3 to Unit-4	09/10 (2nd week of October)		

[Handwritten signature]

Signature of Course Teacher with Name

Amit Sharma

Approved by

[Handwritten signature]

OIC/HoD/Principal