

Government Polytechnic, Shergarh (Kaithal)

Lesson Plan

Name of the Faculty : Sh. Pardeep Kumar
Discipline : Electrical Engg.
Semester/ Year : 1st Semester
Subject : Engineering Graphics
Lesson Plan Duration : 15 weeks (from 30/07/2026 to 23/11/2026)

WEEK	PRACTICALS		DRAWING SHEET
	LECTURE NO.	TOPIC	
1	1	Unit-1 Introduction to Engineering drawing & Graphics Introduction to use and care of drawing instruments, drawing materials, layout and sizes of drawing sheets and drawing boards.	08 Sheets
	2	Symbols and Conventions- Conventions of Engineering Materials, Sectional Breaks and Conventional lines, Civil Engineering Sanitary fitting symbols, Electrical fitting symbols for domestic interior installations.	
2	3	Continued	
	4	Geometrical Construction - Geometrical figures such as triangles, rectangles, circles, ellipses and curves, hexagons, pentagons bisecting a line and arc, division of line and circle with the help of drawing instruments.	
3	5	Technical Lettering of Alphabet and Numerals Definition and classification of lettering, Free hand (of height of 5,8,12 mm) and instrumental lettering (of height 20 to 35 mm) : upper case and lower case, single and double stroke, vertical and inclined (Gothic lettering) at 75 degree to horizontal and with suitable height to width ratio 7:4.	
	6	Continued	
4	7	Dimensioning Necessity of dimensioning, method and principles of dimensioning (mainly theoretical instructions).	
	8	Dimensioning of overall sizes, circles, threaded holes, chamfered surfaces, angles, tapered surfaces, holes, equally spaced on P.C.D., countersunk holes, counter bored holes, cylindrical parts, narrow spaces and gaps, radii, curves and arches.	
5	9	Scales – Needs and importance (theoretical instructions), Type of scales, Definition of Representative Fraction (R.F.) and Length of Scale.	
	10	To draw/construct plain and diagonal scales.	
6	11	Continued	
	12	Unit - 2 Orthographic Projections Theory of orthographic projections (Elaborate theoretical instructions). Three views of orthographic projections of different objects of given pictorial view of a block in 1st and 3rd angle.	06 Sheets
7	13	Continued	
	14	Projection of Points in different quadrants	
8	15	Projection of Straight Line (1st angle) - Line parallel to both the planes, Line perpendicular to any one of the reference plane and parallel to others, Line inclined to any one of the references and parallel to another plane	
	16	Continued	
9	17	Projection of Plane – Different lamina like square rectangular, triangular, circle and Hexagonal pentagon. Trace of planes (HT and VT).	
	18	Identification of surfaces.	

10	19	Continued	01 Sheet
	20	Sectioning - Importance and salient features, Drawing of full section, half section, partial or broken out sections, Offset sections, revolved sections and removed sections (theoretical only), Orthographic sectional views of different objects.	
11	21	Continued	04 Sheets
	22	Unit - 3 Introduction of projection of right solids such as prism & pyramid (square, Pentagon, Hexagonal) cube, cone & cylinder (Axes perpendicular to H.P and parallel to V.P.), Introduction of sections of right solids - Section planes, Sections of Hexagonal prism, pentagon pyramid, cylinder and cone (Section plane parallel to anyone reference planes and perpendicular to V.P. and inclined to H.P.)	
12	23	Continued	
	24	Continued	
13	25	Development of Surfaces – Development of lateral surfaces of right solids like cone, cylinder, pentagonal prism, pyramid and hexagonal pyramid (Simple problems)	
	26	Continued	
14	27	Unit - 4 Isometric Views - Fundamentals of isometric projections and isometric scale, Isometric views of different laminas like circle, pentagon and hexagon, Isometric views of different regular solids like cylinder, cone, cube, cuboids, pyramid and prism.	02 Sheets
	28	Isometric views from given different orthographic projections(front, side and top view)	
15	29	Continued	
	30	Unit – 5 Introduction to AutoCAD Basic introduction and operational instructions of various commands in AutoCAD.	

GOVT. POLYTECHNIC, Shergarh (Kaithal)

Name of Faculty : Anand Yadav
Discipline : Electrical Engg.
Semester : 1st
Subject : FIT
Lesson Plan Duration : 16 Weeks (From : 30/07/2026 to 23/11/2026)

Week	Lecture No.	Topic Covered	Practical Topic Covered
1st	1	UNIT I Basics of Computer: Brief history of development of computers, Definition of Computer	Browser features, browsing, using various search engines, writing search queries
	2	Block diagram of a Computer, Hardware, Software, Booting: Cold and Hot Booting, Interaction between the CPU and Memory with Input/Output devices	
2nd	3	Function of CPU and major functional parts of CPU. Memory, Bit, Nibble, Byte, KB, MB, GB, TB, PB.	Visit various e-governance/Digital India portals, understand their features, services offered
	4	Functions of memory, Use of storage devices in a Computer.	
3rd	5	List types of memory used in a Computer, Importance of cache memory, CPU speed and CPU word length.	File Checking
	6	Revision UNIT-I , Questionnaire Unit-I	
4th	7	UNIT II Basic Internet Skills: Understanding browser, Introduction to WWW, efficient use of search engines.	Read Wikipedia pages on computer hardware components, look at those components in lab, identify them, recognize various ports/interfaces and related cables, etc.
	8	Awareness about Digital India portals (state and national portals) and college portals.	
5th	9	Advantages of Email, Various email service providers, Creation of email id, sending and receiving emails.	Using Administrative Tools/Control Panel Settings of Operating Systems
	10	attaching documents with email and drive.	

Week	Lecture No.	Topic Covered	Practical Topic Covered
6th	11	Effective use of Gmail, G-Drive, Google Calendar, Google Sites, Google Sheets.	File Checking
	12	Online mode of communication using Google Meet & WebEx.	
7th	13	Revision UNIT-II , Questionnaire Unit-II	Connect various peripherals (printer, scanner, etc.) to computer, explore various features of peripheral and their device driver software.
	14	UNIT III Basic Logic building:Introduction to Programming, Steps involved in problem solving.	
8th	15	Definition of Algorithm, Definition of Flowchart, Steps involved in algorithm development.	Explore features of Open Office tools and MS-Office, create documents, create presentation, create spread sheet, using these features, do it multiple times
	16	Differentiate algorithm and flowchart, symbols used in flowcharts, algorithms for simple problems.	
9th	17	Flowcharts for simple problems, Practice logic building using flowchart/algorithms.	File Checking
	18	Revision UNIT-III , Questionnaire Unit-III	
10th	19	UNIT IV Office Tools:Office Tools like LibreOffice/OpenOffice/MSOffice.	Working with Conversion Software like pdfToWord, WordToPPT, etc.
	20	OpenOffice Writer – Typesetting Text and Basic Formatting, Inserting Images, Hyperlinks.	
11th	21	Bookmarks, Tables and Table Properties in Writer	Working with Mobile Applications – Searching for Authentic Mobile app, Installation and Settings, Govt. of India Mobile Applications
	22	Introducing LibreOffice/OpenOffice Calc, Working with Cells, Sheets, data	

Week	Lecture No.	Topic Covered	Practical Topic Covered
12th	23	Tables, using formulae and functions, using charts and graphics	File Checking
	24	OpenOffice Impress – Creating and Viewing Presentations, Inserting Pictures and Tables.	
13th	25	Slide Master and Slide Design, Custom Animation.	Creating email id, sending and receiving mails with attachments.
	26	Revision UNIT-IV, Questionnaire Unit-IV	
14th	27	UNIT V Use of Social Media:Introduction to Digital Marketing – Why Digital Marketing	Using Google drive, Google calendar
	28	Characteristics of Digital Marketing, Tools for Digital Marketing	
15th	29	Effective use of Social Media like LinkedIn,	File Checking
	30	Google+, Facebook,	
16th	31	Twitter, etc.: Features of Social media	Internal viva
	32	Revision UNIT-V, Questionnaire Unit-V	

Govt. Polytechnic, Shergarh (kaithal)

Lesson Plan

Name of Faculty : Jag Parvesh

Discipline : ELECTRICAL ENGG.

Semester : 1ST

Subject : PRINCIPLES OF ELECTRICAL ENGINEERING

Lesson Plan Duration : 16 Weeks (From : 30/07/2026 to 23/11/2026)

Week	Lecture No.	Topic Covered	Practical Topic Covered
1st	1	UNIT I :Electrical Fundamentals:Nature of Electricity, Charge, free electrons.	Familiarization of basic components/equipment like ammeter, voltmeter, watt meter, resistance, capacitor, inductor, energy meter, power factor meter, CRO, multi-meter etc and their operation, uses .
	2	Electric potential and potential difference	
	3	Electric current, Electrical Energy, Electrical power and their unit.	
2nd	4	Resistance: Definition, Unit, Laws of resistance, conductivity and resistivity	Determine the value of resistance using colour coding method.
	5	Effect of temperature on resistance, Temperature coefficient of resistance, Types of resistance	
	6	Their applications, Color coding of resistance, Rating and wattages of Electrical appliances	
3rd	7	Heating effect of Electrical current.	File checking
	8	Introduction to Capacitors, capacitance, Variable capacitor, Factors affecting capacitance of a capacitor.	
	9	Capacitance of parallel plate capacitor, Grouping of capacitors: capacitors in series, parallel, series-parallel,	
4th	10	Energy stored in capacitor, Charging and discharging of a capacitor.	To charge and discharge a capacitor and to show the graph on C.R.O.
	11	Revision: unit I	
	12	UNIT II DC Circuits: Ohm's law with practical implementation.	
5th	13	Definition of DC circuit, types of DC circuits: series circuit, parallel circuit, seriesparallel circuit.	Verification of laws of capacitors in series and parallel
	14	Concept of voltage source & current source, connections and their conversions	
	15	Wheatstone Bridge. Kirchhoff's Laws-KVL and KCL. Star – Delta connections and their conversion	
6th	16	Revision: unit II	File checking
	17	UNIT III Electrostatics & Magnetostatics :Concepts of Electrostatics	
	18	Coulomb's law. Concept of magnetism, Magnetic field, Magnetic lines of force	
	19	Definition of Electromagnetism, magnetic effect of electric current	

Week	Lecture No.	Topic Covered	Practical Topic Covered
7th	20	Direction of magnetic field and current: right hand rule, right hand cork screw rule.	To verify ohm's law by drawing a graph between voltage and current.
	21	Magnetic field due to circular coil, solenoid, Current carrying conductors in a magnetic field and methods to find its direction applications.	
8th	22	Force between two parallel current carrying conductors. Analogy between electric and magnetic circuit	Verification of Kirchhoff's Current Law in a dc circuit & Verification of Kirchhoff's Voltage Laws in a dc circuit..
	23	Definition of Magnetic circuit, terms related to magnetic circuits	
	24	Magneto-motive force (MMF), flux, magnetic flux density, reluctance, permeability, field intensity, relation between magnetic flux density, permeability, field intensity.	
9th	25	Revision: unit III	File checking
	26	UNIT IV Electro-Magnetic Induction: Determination of Ampere Turns	
	27	Series & parallel magnetic circuits, Concept of magnetic leakage, useful flux & Air Gap.	
10th	28	Magnetic curve (B-H curve) - cause of Hysteresis, Hysteresis loss, significance of Hysteresis loss	Measurement of current and voltage in series resistive circuit.
	29	Magnetic hysteresis loop for hard and soft magnetic materials.	
	30	Faraday's laws of electro-magnetic induction. Direction of Induced emf and current: Lenz's law, Fleming's right Hand rule	
11th	31	E.M.F induced in a conductor: Dynamically induced emf, Statically induced emf: Selfinduced emf and Mutual induced emf	Measurement of current and voltage in parallel resistive circuit.
	32	Expression for self-inductance, mutual inductance.	
	33	Energy stored in an Inductor, Eddy currents, Eddy current losses.	
12th	34	Revision: unit IV	To obtain BH curve of a magnetic material.
	35	UNIT V Batteries: Electrolysis, Faradays law of electrolysis	
	36	Important terms related to electrolysis, electroplating.	
13th	37	Concept of Cell: definition, emf of cell,	Verification of Faraday's law of electromagnetic induction.
	38	Internal resistance of cell, terminal potential of cell,	
	39	Types of cell cell, grouping of cell.	
14th	40	Concept of Battery: Definition, types of battery like Lead-Acid	Demonstration of parts of a battery and find the specific gravity of battery.
	41	Nickel-Cadmium, Lithium ion batteries with their Construction, working principle and applications	
	42	Charging methods of storage battery and charging indications	
	43	Characteristics of battery: voltage, capacity, efficiency	

Week	Lecture No.	Topic Covered	Practical Topic Covered
15th	44	Care and maintenance of battery, Introduction to maintenance free batteries.	File checking
	45	Disposal of batteries	
16th	46	Revision: unit V	Internal viva
	47	Questionnaire	
	48	Previous year paper	

Government Polytechnic Dhangar (Fatehabad)

Name of the Faculty : Jag Parvesh

Subject : EMI

Semester : 3rd

Branch : ELECTRICAL Engg.

Lesson Plan Duration :16 Weeks (From : 30/07/2026 to 23/11/2026)

Week	Lecture Day	Theory	PRACTICAL
1st	1	UNIT I -Measurements of Voltage and Current:Significance of measurement, errors in measurement	Use of analog and digital multimeter for measurement of voltage, current (A.C/D.C) and resistance.
	2	Types of error, Classification of measuring instruments: indicating, recording and integrating instruments	
	3	Essential requirements of an indicating instruments.	
2nd	4	Concept of Ammeter, voltmeter, ammeter, construction, working principle.	To measure the value of earth resistance using earth tester.
	5	Merits,demerits and comparison of moving coil, moving iron meter	
	6	Rectifier type –Extension of range and calibration of voltmeter and ammeter – Errors and compensation.	
3rd	7	UNIT II Measurement of Power andElectricalEnergy:Construction, working principle, merits and demerits of dynamometer wattmeter	File checking
	8	Digital wattmeter, Active and reactive power measurement by , two and three wattmeter method.	
	9	Effect of Power factor on wattmeter reading in two wattmeter method,	
4th	10	Maximum Demand indicator.	To measure power, power factor in a single-phase circuit, using wattmeter and power factor meter and to verify results with calculations.
	11	Construction, working principle, merits and demerits of single-phase and three-phase energy meters	
	12	Errors and their compensations, Calibration of energy meter using direct loading.	

Week	Lecture Day	Theory	PRACTICAL
5th	13	Digital energy meter (diagram, construction and application).	Measurement of voltage and frequency of a sinusoidal signal using CRO and draw wave shape of signal.
	14	Revision Unit.I & Unit II	
	15	UNIT III Measurement of other Instruments:Construction, working principle and application of Meggar, Earth tester	
6th	16	Multi-meter, Frequency meter	File checking
	17	Single power factor meter (Electrodynamometer type). Working principle of synchroscope	
	18	Phase sequence indicator, tong tester (Clamp-on meter), Study of LCR meters	
7th	19	Construction, working and applications of CT and PT.	Use of LCR meter for measuring inductance, capacitance and resistance.
	20	Cathode Ray Oscilloscope: Block diagram, working principle of CRO	
	21	Its various controls. Digital Storage Oscilloscope (DSO).	
8th	22	Revision Unit.III	To measure Energy at different Loads using Single Phase Digital Energy meter.
	23	UNIT IV Transducer : Introduction, Types of Transducers	
	24	Construction and principle of resistive transducer	File checking
9th	25	Potentiometer –variac and strain gauges	Calibration of single phase and three-phase energy meter.
	26	Definition and formula for gauge factor,	
	27	Types of strain gauges like unbonded	
10th	28	bonded and semiconductor..	Measurement of pressure by using LVDT.
	29	Construction and principle of Inductive transducers-L.V.D.T	
	30	R.V.D.T, their applications.	

Week	Lecture Day	Theory	PRACTICAL
11th	31	Construction, principle and applications of transducers – Piezoelectric transducer	File checking
	32	Photo-conductive cells, photo voltaic cells.	
	33	Revision Unit.IV	
12th	34	UNIT V Measurement of Non-Electrical Quantities:Temperature measurement	To measure temperature using a thermo-couple
	35	Construction and Working of RTD, Thermistor	
	36	Thermocouple, radiation pyrometer, technical specifications and ranges.	
13th	37	Thermal Imager Camera (Concept).	To measure the pH level using pH meter.
	38	Pressure measurement	
	39	Construction and working of bourdon tube	
14th	40	Construction and working of bellow diaphragm	To measure the strain using electrical strain gauge
	41	Strain gauge.	
	42	Measurement of pH Level.	
15th	43	Revision Unit.V	File checking
	44	Questionnaire Unit- I	
	45	Questionnaire Unit- II & Unit -III	
16th	46	Questionnaire Unit- IV	Internal viva
	47	Questionnaire Unit- V	
	48	Revision: Previous year papers	

Govt. Polytechnic , Shergarh (Kaithal)

LESSON PLAN

Name of the Faculty : SH. SOHAN SHARMA
Discipline : ELECTRICAL ENGINEERING
Semester : 3rd
Subject : ELECTRICAL MACHINES - I
Lesson Plan Duration : 15 WEEKS(30/07/2026 to 23/11/2026)
Work Load (Lecture/ Practical) per week (in hours) Theory-03
 Practical :4

Week	Theory		Practical day	Practical
	Lecture Day	Topic		Topic
1st	1st	(a) Introduction to the Subject; (b) Introduction of the nature of the examination and marks distribution of different topics	1st	Introduction of lab & experiments
	2nd	Definition of motor and generator		
	3rd			
2nd	1st	Dc generator construction, parts ,materials	2nd	To measure the angular displacement of rotor of the three phase synchronous machine with respect to the stator on application of DC to the field winding and simultaneously to each phase-winding in sequence
	2nd	working principal of generator		
	3rd	EMF equation of generator		
3rd	1st		3rd	Speed control of DC shunt motor (i) Armature control method (ii) Field control method
	2nd	Factors determining induced emf		
	3rd	Types of generator, Application of DC generators		
4th	1st	Test of chapter -01	4th	Continued
	2nd	Performance and characteristics of different types of DC motors		
	3rd	Back emf its significance,voltage equation		
5th	1st	Toeque and speed characterstics, BHP,losses	5th	Quiz No. 01
	2nd	Electrical braking, Application of DC motors		
	3rd	Need of starter, three point dc shunt motor starter and 4 point starter		
6th	1st	Speed control of dc shunt/series motors	6th	Study of DC series motor with starter (to operate the motor on no load for a moment)
	2nd	Determination of losses by Swinburne's test		

	3rd	Rating and Specifications of DC machines brushless DC motor		motor on no load for a moment)
7th	1st	Test of chapter -02	7th	Determine efficiency of DC motor by Swinburne's Test at (i) rated capacity (ii) half full load
	3rd	Introduction : Single phase transformer Shell type and Core type		
	4th	Constructional features of a transformer and parts of transformer, working principle		
8th	1st	EMF equation of T/F ,Equivalent Circuit of transformer	8th	To perform open circuit and short circuit test for determining: (i) equivalent circuit (ii) the regulation and (iii) efficiency of a transformer from the data obtained from open circuit and short circuit test at full load
	2nd	Transformer on no-load and its phasor diagram		
	3rd	Mutual and leakage fluxes, leakage reactance		
9th	1st		9th	Quiz No. 02
	2nd	Relation between induced emf and terminal voltage, voltage regulation of a transformer- mathematical relation		
	3rd	Open circuit and short circuit test, Calculation of efficiency, Condition for maximum efficiency-maintenance of Transformer, scheduled Maintenance		
10th	1st	all day efficiency, Rating and specifications	10th	To find the efficiency and regulation of single phase transformer by actually loading it.
	2nd	Test of chapter -03		
	3rd	Construction of three phase transformers and accessories of transformers such as Conservator, breather, Buchholtz Relay, Tap Changer (off load and on load) (Brief idea		
11th	1st	Working of three phase transformer	11th	Finding the voltage and current relationships of primary and secondary of a three phase transformer under balanced load in various configurations conditions such as
	2nd			
	3rd	Need of parallel operation Conditions for parallel operation		
12th	1st	Difference between power and distribution transformer	12th	Checking the polarity of the windings of a three phase transformer and connecting the windings in various configurations
	2nd			
	3rd	Test of chapter -04		
13th	1st	Special purpose Transformer CT and PT	13th	Quiz No. 03
	2nd			
	3rd	Isolation Transformer, single phase transformer		
14th	1st	Single phase welding transformer, K factor of transformer	14th	Internal assessment
	2nd	Test of chapter -05		
	3rd	Revision of Chapter-01		
15th	1st	Revision of Chapter-02	15th	Internal assessment
	2nd	Revision of Chapter-03		
	3rd	Revision of Chapter-04 & 05		

Govt. Polytechnic, Shergarh (Kaithal)

Name of the Faculty : Sh. Anand Yadav

Subject : EEM

Semester : 3rd

Branch : ELECTRICAL Engg.

Lesson Plan Duration : 16 Weeks (From : 30/07/2026 to 23/11/2026)

Week	Theory	Topic
1st	1	UNIT I Introduction to Materials: Classification of materials such as conducting, semi conducting materials.
	2	Insulating materials, magnetic material.
	3	Atomic theory, Energy band theory
2nd	4	Classifications of materials on the basis of atomic structure and energy bands.
	5	Characteristics of materials.
	6	Revision Unit-I
3rd	7	UNIT II Conducting and Semi-Conducting Materials: Types of conducting material such as low resistivity and high resistivity materials.
	8	Properties and applications of different low resistivity materials such as silver, Gold, copper.
	9	Aluminum, steel, ACSR and its alloys like copper alloy (brass, bronze) etc.
4th	10	Properties and applications of different high resistivity material such as carbon, tungsten, platinum, mercury, lead.
	11	Its alloys like Constantan or eureka, Brass phosphor bronze, nichrome, manganin, tin-lead alloy etc.
	12	Semi-conductors Materials and their Applications
5th	13	Commonly used semiconducting material Germanium and silicon and their properties. Types of Semiconductor etc.
	14	Revision Unit-II
	15	Questionnaire UNIT I & UNIT II
	16	UNIT III Insulating Materials : Characteristics of good Insulating material, Electrical, thermal, chemical, visual, mechanical.

Week	Theory	Topic
6th	17	Physical properties of Insulating materials.
	18	Types of Insulating materials. classification of insulating material on the basis of temperature.
7th	19	Gaseous Insulating Materials: Properties and applications of air, nitrogen and sulphur hexafluoride (SF-6) gases.
	20	Liquid Insulating Materials: Properties and applications of Mineral and Insulating oil for transformers (mineral oil), switchgears etc.
	21	Synthetic insulating liquid (Pyranol).
8th	22	Solid Insulating Materials: Properties, types
	23	and applications of Plastics such as poly- vinyl chloride (PVC),
	24	Polyethylene, polystyrene, epoxy resin
9th	25	Bakelite, Melamines, silicon resins etc
	26	Natural Insulating materials, properties and their applications: Mica, asbestos,
	27	Ceramic materials (porcelain and steatite), Glass, Cotton, Silk, Jute
10th	28	Paper (dry and impregnated) Rubber, Bitumen, Teflon, Silicon Grease
	29	Insulating varnishes for coating and impregnation
	30	Enamels for winding wires, wood etc
11th	31	Revision Unit-III
	32	Questionnaire UNIT III
	33	UNIT IV Magnetic Materials: Characteristics and types of magnetic material,
12th	34	Properties of soft magnet material like Iron silicon alloy.
	35	Nickel iron alloy, Mu metal, soft ferrites, grain orientation,
	36	Cold rolled grain oriented silicon steels (C.R.G.O) etc. and their applications.
	37	Properties of hard magnet material like Tungsten steel alloy.

Week	Theory	Topic
13th	38	chromium steel, cobalt steel, Hard ferrites etc. and their applications.
	39	Hard ferrites etc. and their applications.
14th	40	Revision Unit-IV
	41	Questionnaire UNIT IV
	42	UNIT V Special Purpose Materials: Thermocouples, Bimetals.
15th	43	soldering, fuse, materials and their applications.
	44	Material used in fabrications of electrical machines
	45	Motors, generators, transformers etc.
16th	46	Revision Unit-V
	47	Questionnaire UNIT V
	48	Previous year paper

Govt. Polytechnic, Shergarh (Kaithal)

Lesson Plan

Name of Faculty : Pardeep Kumar
 Discipline : Electrical Engg.
 Semester : 3rd
 Subject : ADE
 Lesson Plan Duration : 16 Weeks (From : 30/07/2026 to 23/11/2026)

Week	Theory		Practical
	Lecture Day	Topic	Topic
1st	1	UNIT - I : Semiconductor Devices Concept of insulators, conductors and semiconductors.	To Plot V-I characteristics of a PN junction diode.
	2	Intrinsic and extrinsic semiconductor,	
	3	P and N type semiconductor and their conductivity.	
2nd	4	Effect of temperature on conductivity of intrinsic semiconductor etc.	To Plot V-I characteristics of a Zener diode.
	5	PN junction diode,	
	6	Mechanism of current flow in PN junction,	
3rd	7	Forward and reverse biased PN junction, potential barrier,	Revision & File Checking
	8	Drift and diffusion currents, depletion layer.	
	9	VI - characteristics of diodes.	
4th	10	Diode as half-wave, full wave and bridge rectifiers.	Half-wave rectifier circuit using one diode
	11	Peak Inverse Voltage, rectification efficiencies	
	12	Ripple factor calculations	
5th	13	Concept of filters.	Full-wave rectifier circuit using two diodes
	14	Types of diode.	

Week	Theory		Practical
	Lecture Day	Topic	Topic
6th	15	Characteristics and applications of Zener diodes.	Revision & File Checking
	16	Revision of UNIT - I	
	17	UNIT - I Questionnarrie	
	18	UNIT II : Bipolar-Transistors and Field Effect Transistors Concept of a bipolar transistor	
7th	19	PNP transistors.	Plotting of input and output characteristics and calculation of parameters of transistors in CE configuration.
	20	NPN transistors	
	21	CB, CE, CC configurations of a transistor.	
8th	22	Transistor as an amplifier in CE Configuration,	Basic logic operations of AND, OR, NOT gates
	23	Current amplification factors	
	24	Comparison of CB, CE and CC Configurations.	
9th	25	Construction, operation and characteristics of FETs.	Revision & File Checking
	26	FET as an amplifier.	
	27	Construction, operation MOSFET	
10th	28	Characteristics of a MOSFET	Verification of truth tables for NAND, NOR and Exclusive OR (EX-OR) and Exclusive NOR (EX-NOR) gates.
	29	Comparison of JFET, MOSFET and BJT.	
	30	Revision of UNIT - II	
	31	UNIT - II Questionnarrie	

Week	Theory		Practical
	Lecture Day	Topic	Topic
11th	32	UNIT - III : Digital Electronics Distinction between analog and digital signal.	To design a half adder using XOR and NAND gates and verification of its operations.
	33	Decimal, Binary, octal and hexadecimal number system.	
12th	34	Conversion from decimal and hexadecimal to binary and vice-versa.	Revision & File Checking
	35	Binary addition and subtraction.	
	36	Definition, symbols and truth tables of Logic gates (AND, OR, XOR, NOT, NAND, NOR and XNOR).	
13th	37	Revision of UNIT - III	Construction of a full adder circuit using XOR and NAND gates and verify its operation
	38	UNIT - III Questionnaire	
	39	UNIT - IV : Sequential and Combinational Sequential Circuits such as Half adder	
14th	40	Full adder, Mux, De-Mux,	Verification of truth table for IC flip-flops (At least one IC each of D latch, D flip-flop, JK flip-flops).
	41	Encoder and Decoder.	
	42	Combinational Circuits like Latch, Flip Flops,	
15th	43	Shift registers and counters.	File Checking
	44	A/D and D/A Converters and its Applications.	
	45	Revision of UNIT - IV	
16th	46	UNIT - IV Questionnaire	Internal Viva
	47	Previous Year Question Paper	
	48	Questionnaire Revision	

Govt. Polytechnic, Shergarh (Kaithal)

LESSON PLAN				
Faculty	:RAJESH CHOPRA			
Discipline	: ELECTRICAL ENGINEERING			
Semester	: 5th			
Subject	: ELECTRIC VEHICLE TECHNOLOGY			
Duration	: 15 WEEKS(From 30//07/2026 to 23/11/2026)			
(Lecture/ Practical) per week (in hours)	: Theory- 02 : Practical- 02			
Week	Theory		Practical	
	Lecture Day	Topic	Practical Day	Topic
1st	1st	(a) Introduction to the Subject	1st	Draw block diagram of Electric Vehicle and identify its various parts.
		(b) Introduction of the nature of the examination and marks distribution of different topics		
	2nd	History and evolution of Electric Vehicle, Policies and regulations related to EV in India.		
2nd	1st	Needs and Importance of Electric Vehicle	1st	Develop schematic diagram of hybrid electric vehicle and its parts.
	2nd	Advantages and Disadvantages of Electric Vehicles		
3rd	1st	Types of EVs- Battery Electric Vehicle (BEV), PHEV (Plug in Hybrid Electric Vehicle) and Hybrid	1st	Prepare a report on batteries used in EV and HEV
	2nd	Mandatory safety precautions while handling Electric Vehicle		
4th	1st	Test of UNIT 01	1st	(a)Technical Quiz for Experiment no. 01, 02 AND 03 Viva Voce and Practical file Evaluation
	2nd	(BLDC) motor, Switched Reluctance Motor (SRM) and Permanent Magnet Synchronous Motor (PMSM).		
5th	1st	Working principle and Control of various motors used in Electric Vehicles- Brushless DC	1st	Diagnose, repair and maintenance of batteries used in Electric Vehicle
	2nd	Advantages and disadvantages of above motors.		
6th	1st	Test of UNIT 02	1st	Study of various types of braking system used in EV.
	2nd	Electric Vehicle Charger: Charging of Electric Vehicle		
7th	1st	Main components of EV Charger, EV Charging	1st	(a)Technical Quiz for Experiment no. 04, 05 (b) Viva Voce and Practical file Evaluation
	2nd	Safety precautions for EV charging.		
8th	1st	Alternate charging sources – Wireless, Solar, fuel cell, ultra capacitor and flywheel etc.	1st	Demonstration of wiring layout of Electric Vehicles using model (if available) or watching
	2nd	Test of UNIT 03		

9th	1st	Batteries, Construction and working of Lithium Ion batteries,	1st	Prepare test procedure for electrical equipment used in Electric vehicle.
	2nd	Battery capacity in AH &KWH.		
10th	1st	Types of batteries used in EVs--dry batteries, zinc chloride	1st	(a) Technical Quiz for Experiment no. 06 and 07 (b) Viva Voce and Practical file Evaluation
	2nd	lead acid and Lithium Ion		
11th	1st	Charging & discharging tests of Li-Ion batteries.	1st	List safety procedures and schedule for handling HEVs and EVs.
	2nd	Regenerative braking in EVs.		
12th	1st	Safety precautions while handling a high voltage battery, Battery management system, Battery cooling system.	1st	Case study of Electric Vehicle available in Indian market and study the technology used in it.
	2nd	Test of UNIT 04		
13th	1st	Overview of Hybrid Electric Vehicles	1st	Measurement of voltage of battery installed in Electric vehicle.
	2nd	cell, battery capacitor, battery & flywheel etc.		
14th	1st	Comparison with EV, advantages and disadvantages of HEV.	1st	(a) Technical Quiz for Experiment no. 08,09 and 10 (b) Viva Voce and Practical file Evaluation
	2nd	Test of UNIT 05		
15th	1st	Revision previous paper	1st	
	2nd	Revision previous paper		

GOVT. POLYTECHNIC SHERGARH, KAITHAL
ELECTRICAL ENGINEERING DEPARTMENT
Lesson plan

Name of the faculty :	SOHAN SHARMA
Discipline :	Electrical Engg.
Semester :	5th
Subject :	Solar Panel Installation and Maintenance (SPIM)
Lesson Plan Duration:	15 weeks (30/07/2026 to 23/11/2026)

Work load (Lecture/Practical) per week : Lectures-04, Practicals-02 hrs per group

Week	Theory		Practical	
	Lecture day	Topic	Practical day	Topic
1st	1	Introduction to syllabus contents and Course outcome of the subject	1st	Panel Installation
	2	Basics on solar energy and power Generation systems		
	3	Use and handling procedure of solar panels		
2nd	4	Energy storage	2nd	Panel Installation
	5	Control and Conversion		
	6	Basic Electrical System and Functioning		
3rd	7	Mechanical Equipment and its functioning	3rd	Panel Installation
	8	Maintenance procedure of equipment		
	9	Site survey Design and evaluation of various parameters.		
4th	10	Tools involved in installation of system	4th	Panel Installation
	11	Quality and process standards		
	12	Occupational health and safety standards		
5th	13	Revision of Chapter -1	5th	Viva -Voce
	14	Queries		
	15	Assigemnet-1		
6th	16	Assignments Check	6th	Viva -Voce
	17	Assignments Check/queries		
	18	Chapter-2: Solar energy system components such as panels, batteries, charge controllers, inverters		
7th	19	Significance of volts, amps and watts, series and parallel	7th	Using Tools and Machines
	20	Voltage requirement of various equipment		
	21	Panel mounting and inclination and angle of tilt		
8th	22	Placement of solar panel mounting	8th	Using Tools and Machines
	23	Sunlight and direction assessment		
	24	Site surveying methods and evaluation parameters		
9th	25	Tools involved in installation of system	9th	Viva -Voce
	26	Revision of Chapter -2		
	27	Queries, Assigemnet-2		

10th	28	Class Test/quiz test	10th	Viva -Voce
	29	Assignments Check/queries		
	30	Chapter3-Coordinate colleagues at work		
11th	31	Sessional Test -2 checked answer sheet display to students	11th	Handling Safety Equipment
	32	Company's policies on incentives, delivery standards, and personnel management		
	33	Importance of the individuals role in the workflow,Reporting structure		
12th	34	Communicate effectively	12th	Handling Safety Equipment
	35	Building team coordination		
	36	Chapter-4 Safety at workplace.Maintaining the work area safe and secure		
13th	37	Handling hazardous material	13th	Viva-voce
	38	Operating hazardous tools and equipment		
	39	Emergency procedure to be followed such as fire accidents etc.		
14th	40	Chapter-5 : Concept of solar Tracking system	14th	Revision
	41	Queries of chapter 3,4,and 5		
	42	Assignments Check/queries		
15th			15th	Internal Viva - Voce
	43	Queries of complete syllabus		
	44	Revision of complete syllabus		
	45	Solving previous year HSBTE question papers		