

Lesson Plan			
Faculty	Sh. Jagdeep		
Discipline	Electrical Engineering		
Semester	5th		
Subject	Electric Vehicle Technology		
Duration	(30/07/2026 to 23/11/2026)		
Work Load per Week	Lecture – 02 ; Practical - 02		
		Theory	PRACTICALS
Week	Lecture Day	Topic	Name of Practical
I	1	Introduction to Electric Vehicles (EV)	Draw block diagram of Electric Vehicle and identify its various parts.
	2	History and evolution of Electric Vehicle, Policies and regulations related to EV in India.	
II	1	Needs and Importance of Electric Vehicle.	Develop schematic diagram of hybrid electric vehicle and its parts.
	2	Advantages and Disadvantages of Electric Vehicles,	
III	1	Types of EVs- Battery Electric Vehicle (BEV),	Prepare a report on batteries used in EV and HEV.
	2	PHEV (Plug in Hybrid Electric Vehicle) and Hybrid Electric Vehicle (HEV).	
IV	1	Mandatory safety precautions while handling Electric Vehicle.	Diagnose, repair and maintenance of batteries used in Electric Vehicle.
	2	Drives for EVs	
V	1	Working principle and Control of various motors used in Electric Vehicles- Brushless DC (BLDC) motor	Study of various types of braking system used in EV
	2	Switched Reluctance Motor (SRM) and Permanent Magnet Synchronous Motor (PMSM).	
VI	1	Advantages and disadvantages of above motors	Practical Copy checking
	2	EV charging system	
VII	1	Electric Vehicle Charger: Main components of EV Charger	Viva
	2	EV Charging Sockets, Charging of Electric Vehicle.	
VIII	1	Safety precautions for EV charging.	Demonstration of wiring layout of Electric Vehicles using model (if available) or watching videos
	2	Alternate charging sources – Wireless, Solar, fuel cell, ultra capacitor and flywheel etc.	
IX	1	Battery management systems of EV	Prepare test procedure for electrical equipment used in Electric vehicle.

	2	Types of batteries used in EVs- dry batteries, zinc chloride, lead acid and Lithium Ion batteries,	
X	1	Construction and working of Lithium Ion batteries, Battery capacity in AH & KWH.	Practical Copy checking and Viva
	2	Charging & discharging tests of Li-Ion batteries.	
XI	1	Regenerative braking in EVs.	List safety procedures and schedule for handling HEVs and EVs.
	2	Safety precautions while handling a high voltage battery.	
XII	1	Battery management system.	Case study of Electric Vehicle available in Indian market and study the technology used in it.
	2	Battery cooling system.	
XIII	1	Hybrid Electric Vehicle (HEV)	Measurement of voltage of battery installed in Electric vehicle.
	2	Overview of Hybrid Electric Vehicles.	
XIV	1	Types of HEV (overview) like gasoline ICE & battery, diesel & battery, Battery & Fuel cell, battery capacitor, battery & flywheel etc.	Practical Copy checking
	2	Comparison with EV, advantages and disadvantages of HEV.	
XV	1		Viva
	2		

Lesson plan

Name of Faculty		Smt. Varsha Aggarwal		
Discipline		Electrical Engineering		
Semester		5 th		
Subject		Industrial Electronics and Control of Drives		
Lesson Plan Duration		(30/07/2026 to 23/11/2026)		
Work load [Theory + Practical] Per Week		[03+04]		
Week	Day	Theory Topic/ Assignment/ Test	No.	Practical
1 st	1	Unit-I :Introduction to SCR	1	To draw V-I characteristics of an SCR
	2	Construction and working principles of an SCR		
	3	Characteristics of SCR, Two transistor analogy, SCR specifications and rating,		
		Construction, working principles and V-I characteristics of DIAC and TRIAC		
2 nd	1	Basic idea about the selection of heat sinks for SCR and TRIACS	2	To draw V-I characteristics of a TRIAC
	2	Methods of triggering a Thyristor , Study of triggering circuits		
	3	UJT, its Construction, working principles and V-I characteristics		
3 rd	1	UJT as relaxation oscillator, Commutation of Thyristors	3	To draw V-I characteristics of a DIAC
	2	Series and parallel operation of Thyristors		
	3	Applications of SCR, TRIACS and Quadriac		
4 th	1	dv/dt and di/dt protection of SCR	4	Revision/File checking
	2	Assignment/Class test of 1 st unit		
	3	Unit2: Introduction to Controlled Rectifiers		
	4	Single phase half wave controlled rectifier with resistive load		
5 th	1	With Inductive load and freewheeling diode	5	To draw unjunction transistor characteristics
	2	Single phase half controlled full wave rectifier		
	3	Single phase fully controlled full wave rectifier Bridge, Single phase full wave Centre tapped rectifier		
6 th	1	Three phase full wave half controlled bridge rectifier	6	Observe the output wave of an UJT relaxation oscillator
	2	Three phase full wave fully controlled bridge rectifier		
	3	Assignment/Class test of 1 st unit		
7 th	1	Unit3: Introduction to Inverters, Choppers, Dual Converters and Cyclo Converters	7	Mid- term viva-voice/file checking
	2	Working principles and application of VSI, Working principles and application of CSI		
	3	Choppers-introduction, types of choppers and their working principles and applications		
8 th	1	Class A,B and C	8	Observe the wave shape across SCR and load of an illumination control circuit
	2	Class D and E		
	3	Dual convertors-introduction, working principles and applications		
	4	Cyclo-convertors- introduction		

9 th	1	types, working principles and applications	9	Fan speed regulator using TRIAC Quadriac (fabrication of this circuit)
	2	Assignment/Class test of 1 st unit		
	3	Unit4: Introduction and Basic principal of Thyristor Control of Electric Drives		
10 th	1	DC drives control	10	Speed-control of a DC shunt motor or universal motor
	2	Half wave drives		
	3	Full wave drives		
11 th	1	Chopper drives	11	Revision/File checking
	2	AC drives control , Phase control		
	3	Variable frequency a.c. drives Constant V/F application		
12 th	1	Voltage controlled inverter drives	12	Revision/File checking
	2	Constant current inverter drives		
	3	Cyclo convertors controlled AC drives		
13 th	1	Slip control AC drives	13	Single phase controlled rectifier
	2	Problem solution/ test check		
	3	Unit5: UPS, UPS online		
14 th	1	Off line UPS, Stabilizers	14	Use of Variable Frequency Drive for running a 3 phase Induction motor
	2	SMPS ,Storage devices (batteries) and their maintenance		
	3	Revision of important topics		
15 th	1	Assignment / Class test	15	Revision/File checking/ Internal Practical
	2	Problem solution/ test check		
	3	Revision/Review/Test of old HSBTE Papers		

Name of the Faculty: Sh. Sandeep Kumar

Discipline : Electrical Engineering

Semester : 5th

Subject : Solar Panel Installation & Maintenance

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

Work Load (Lecture/Practical)per week(in Hours) : L– 03, P-00

Week	Theory	
	Day	Topic
1	1	Introduction Of The Subject, Its Need, Applications
	2	INTRODUCTION TO PHOTOVOLTAIC
	3	Basic of PV system: Photo voltaic effect
2	4	PV Cell, PV panel, PV module, PV Arrays,
	5	Photovoltaic I-V Characteristics Curves
	6	conversion efficiency
3	7	Selection of Site: Site assessment tools, Site Location, Climate Condition,
	8	Solar Irradiance, Solar Insolation, Sun Angle and PV Orientation, Shading analysis.
	9	Tilt angle and its significance in solar panel orientation.
4	10	COMPONENTS OF PV SYSTEM
	11	PV Module: Series and Parallel connection of PV
	12	Charger Controller: Function, type of charge controller
5	13	Queries taken from previous topics from students
	14	Assignment no.1
	15	Class test no.1
6	16	Inverter: Function, power ratings.
	17	Storage Battery: Battery parameters, battery bank
	18	types of batteries used in solar system. 2.5 PV Mounting Structure: Roof mounted and ground mounted Structure
7	19	Balance of Systems: Disconnecting switches, wires and cables, combiner boxes, net meter, protection devices, earthing and grounding, Solar tracking systems

		etc.
	20	SOLAR PV SYSTEM INSTALLATION
	21	Installation Tool: Hand tool ,wire strippers, crimping tools, bolts, nuts, and washers, Leveling tools
8	22	ground anchors, multimeter, clamp on meter, non-contact thermometer, angle finder etc.
	23	Types of Solar PV System: Standalone PV system, On Grid system, Off Grid system and Hybrid PV system,
	24	Comparison of Different types of PV system.
9	25	Design Methodology for SPV system: Calculation of load, Size of solar panel,
	26	Battery sizing, Selection of inverter, Size of charge controller, Cable sizing etc
	27	Connection of PV system components.
10	28	Queries taken from previous topics from students
	29	Assignment no.2
	30	Class test no.2
11	31	SAFETY DURING PV INSTALLATION
	32	Operating Hazardous Tools and Equipment: Personal protective equipment (PPE),
	33	Fall protection equipment/tools, Fire protection equipment.
12	34	Safety of PV system: PV module safety, Electrical Safety, Battery safety.
	35	Marking and Labeling of PV components
	36	MAINTENANCE AND TROUBLESHOOTING
13	37	Maintenance of Solar PV system
	38	Maintenance of Battery
	39	Installation and Troubleshooting of Solar PV system
14	40	Copy checking
	41	Revision of 1 st and 2 nd chapters
	42	Revision of 3 rd and 4 th chapters
15	43	Queries taken from previous topics from students
	44	Assignment no.3
	45	Class test no.3

Lesson Plan

Name of the Faculty : Sh. Rajesh Saini
Discipline : Electrical Engineering
Semester : 5th Semester
Subject : POWER SYSTEM

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

		Theory	PRACTICALS
Week	Lecture Day	Topic	Name of Practical
I	1	Power Generation - Introduction	To measure earth resistance with the help of earth resistance tester.
	2	Different types of Power Generation:	
	3	Working operation of thermal power plant, diesel power and nuclear power plant	
II	1	Comparison of the generating stations on the basis of running cost, site, starting, maintenance etc.	To study different types of line insulators, line support.
	2	Economics of Generation: Fixed and running cost, load estimation, load curves,	
	3	demand factor, load factor, diversity factor	
III	1	Power factor and their effect on cost of generation	Visit a power generation plant to study its major parts, working and prepare detail report.
	2	Base load and peak load power stations	
	3	Power Grid: Inter-connection of power stations and its advantages,	
IV	1	concept of regional and national grid	
	2	Transmission Systems - Introduction	
	3	Introduction: Classification of transmission lines, selection of voltage for H.T and L.T lines,	
V	1	advantages of high voltage for Transmission AC and DC,	Visit a 400kV/220kV/132kV transmission line and make list of all components viz line supports, conductors, insulators and other accessories and prepare detail report.
	2	Introduction to 765kV and 1200 kV lines (HVAC & HVDC).	
	3	Comparison of AC versus DC for power transmission.	
VI	1	Constructional and Mechanical Features: Types of conductors-Copper, Aluminum:	Visit to a 66kV/33kV/11kV/415V/230V distribution line make list of

	2	Solid, stranded. Bundle conductors and Transposition of conductor.	all components viz line supports, conductors, insulators and other accessories and preparing detail report.
	3	Line supports: Requirements, types of line structures. Line insulators – requirements, types, Failure of insulator.	
VII	1	String efficiency, methods of improving string efficiency. Earth wire and their accessories.	To determine experimentally flash over voltage of transformer oil and hence determine the dielectric strength.
	2	Importance of sag, calculation of sag, effects of wind and ice. Indian electricity rules pertaining to clearance.	
	3	Electrical Features: Voltage regulation, Concept of corona, effects of corona and remedial measures,	
VIII	1	Skin effect, proximity effect and Ferranti effect,	
	2	Transmission line losses.	
	3	Concept of Load dispatch Centre.	
IX	1	Distribution System - Introduction	To measure the rating of capacitor bank installed in a sub-station for improving power factor.
	2	Overhead AC Distribution system: Layout of HT and LT distribution system,	
	3	constructional feature of distribution lines and their erection.	
X	1	Feeder, distributor and Service mains.	
	2	Types of different distribution schemes.	
	3	Advantages, disadvantages and applications of different distribution schemes.	
XI	1	Underground Distribution system: Comparison of underground system with overhead system.	Study of Indian Electricity rules as per BIS standard related to clearance of overhead transmission and distribution lines.
	2	Constructional features of LT (400 V), HT (11 kV) underground cables.	
	3	Faults in Underground Cable, determination of fault location by Blavier Test, Murray Loop Test, Varley Loop Test.	
XII	1	Sub Stations -Introduction	Draw a layout diagram of 11kV/400V substation installed in the campus and make list of all accessories.
	2	Classification of substation, selection & location of site,	
	3	Equipment's used in substation, Layout of 33kV/11kV and	

		11kV/400V distribution substation and various auxiliaries and equipment associated with it.	
XIII	1	Brief introduction to Gas Insulated Substation.	To find fault in underground cables by Murray Loop Test/ Varley Loop Test
	2	Tariff and Power factor -Introduction	
	3	Tariff: Types of tariff & characteristics,	
XIV	1	Types of consumers & their tariff.	Study of data related to conductors of different sizes/types for overhead lines as per IS 398.
	2	Power Factor: Concept of Power factor and its significance.	
	3	Causes of low power factor,	
XV	1	Methods of p.f. improvements, Economics of p.f. improvements.	Visit to a distribution substation to study layout of major components and types of Feeders, Distributors and Service Mains and prepare detailed report.
	2	Assignments	
	3	Revision	

Lesson Plan

Name of the Faculty : Sh. Sandeep Kumar
Discipline : Electrical Engineering
Semester : 3th Semester
Subject : Analog and Digital Electronics
Lesson Plan Duration : (30/07/2026 to 23/11/2026)

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
	1,2	Concept of insulators, conductors and semiconductors	1	To Plot V-I characteristics of a PN junction diode, To Plot V-I characteristics of a Zener diode, Observe the output of waveform:
	3,4	Intrinsic and extrinsic semiconductor	2	Half-wave rectifier circuit using one diode, Full-wave rectifier circuit using two diodes
	5,6	P and N type semiconductor and their conductivity	3	Observe the output of waveform of Bridge-rectifier circuit using four diodes.
	7, 8	Effect of temperature on conductivity of intrinsic semiconductor	4	Plotting of input and output characteristics and calculation of parameters of transistors in CE configuration., Plotting of input and output characteristics and calculation of parameters of transistors in CB configuration
	9,10	PN junction diode, mechanism of current flow in PN junction	5	To study weighing machine using load cell
	11,12	Forward and reverse biased PN junction, potential barrier	6	Plotting of V-I characteristics of a FET
	13	Drift and diffusion currents, depletion layer	7	Basic logic operations of AND, OR, NOT gates
	14, 15	V-I characteristics of diodes	8	Verification of truth tables for NAND, NOR and Exclusive OR (EX-OR) and Exclusive NOR (EX-NOR) gates
	16, 17	Diode as half-wave, full wave and bridge rectifiers, Peak Inverse Voltage, rectification efficiencies and ripple factor calculations	9	Realization of logic functions with the help of NAND or NOR gates.
	18, 19, 18	Concept of filters,	10	To design a half adder using XOR and NAND gates and

				verification of its operations.
	20	Types of diodes, characteristics and applications of Zener diodes	11	Construction of a full adder circuit using XOR and NAND gates and verify its operation
	21	Concept of a bipolar transistor, PNP and NPN transistors, CB, CE, CC configurations of a transistor	12	Verification of truth table for IC flip-flops (At least one IC each of D latch, D flip-flop, JK flip-flops)
	22, 23, 24	Transistor as an amplifier in CE Configuration, Current amplification factors, Comparison of CB, CE and CC Configurations	13	Verification of truth table for encoder and decoder ICs. Verification of truth table for Mux and De-Mux
	25, 26	Construction, operation and characteristics of FETs, FET as an amplifier		
	27, 28	Construction, operation and characteristics of a MOSFET, Comparison of JFET, MOSFET and BJT		
	29, 30	Distinction between analog and digital signal. Decimal, Binary, octal and hexadecimal number system		
	31, 32, 33	Conversion from decimal and hexadecimal to binary and vice-versa, Binary addition and subtraction		
	34, 35	Sequential Circuits such as Half adder, Full adder		
	36	Mux, De-Mux, Encoder and Decoder		
	37, 38	Combinational Circuits like Latch, Flip Flops, shift registers and counters		
	39, 40	A/D and D/A Converters and its Applications		
	41	Revision of important topics		

Lesson Plan

Name of the Faculty : Sh. Rajesh Saini
Discipline : Electrical Engineering
Semester : 3th Semester
Subject : Electrical Measurement and instrumentation
Lesson Plan Duration : (30/07/2026 to 23/11/2026)

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
	1	Significance of measurement, errors in measurement, types of error	1	Use of analog and digital multimeter for measurement of voltage, current (A.C/D.C) and resistance
	2	Classification of measuring instruments: indicating, recording, and integrating instruments; Essential requirements of an indicating instruments	2	To measure the value of earth resistance using earthtester.
	3, 4	Concept of Ammeter, voltmeter, ammeter, construction, working principle	3	To measure power, power factor in a single-phase circuit, using wattmeter and power factor meter and to verify results with calculations.
	5	Merits, demerits and comparison of moving coil, moving iron meter, rectifier type	4	Measurement of power and power factor of a three-phase balanced load by two wattmeter method.
	6, 7	Extension of range and calibration of voltmeter and ammeter, Errors and compensation	5	Measurement of voltage and frequency of a sinusoidal signal using CRO and draw wave shape of signal.
	8	Construction, working principle, merits and demerits of dynamometer wattmeter	6	Measurement of power in a 3 phase circuit using CT, PT and 3-phase wattmeter.
	9, 10	Digital wattmeter, Active and reactive power measurement by , two and three wattmeter method.	7	Use of LCR meter for measuring inductance, capacitance and resistance.
	11, 12	Effect of Power factor on wattmeter reading in two wattmeter method, Maximum Demand indicator	8	To record all electrical quantities from the meters installed in the institution premises
	13, 14, 15	Construction, working principle, merits and demerits of single-phase and three-phase energy meters (Induction type), Errors	9	To measure Energy at different Loads using Single Phase Digital Energy meter. T

		and their compensations		
	16	Calibration of energy meter using direct loading	10	Calibration of single phase and three-phase energy meter.
	17	Digital energy meter (diagram, construction and application)	11	Measurement of pressure by using LVDT
	18, 19, 20	Construction, working principle and application of Meggar, Earth tester (analog and digital), multi-meter (analog and digital), Frequency meter (dynamometer type), single power factor meter (Electrodynamometer type)	12	To measure temperature using a thermo-couple, Measurement of temperature by using thermistor/Thermal Imager.
	21, 22	Working principle of synchroscope and phase sequence indicator, tong tester (Clamp-on meter)	13	To measure the strain using electrical strain gauge To measure the pH level using pH meter
	23	Study of LCR meters and their applications		
	24	Construction, working and applications of CT and PT		
	25, 26	Cathode Ray Oscilloscope: Block diagram, working principle of CRO and its various controls		
	27	Digital Storage Oscilloscope (DSO), Introduction, Types of Transducers		
	28, 29	Construction and principle of resistive transducer- Potentiometer–variac and strain gauges -No derivation		
	30, 31	Only definition and formula for gauge factor, Types of strain gauges like unbonded, bonded and semiconductor		
	32, 33	Construction and principle of Inductive transducers-L.V.D.T. and R.V.D.T, their applications.		
	34.35	Construction, principle and applications of transducers – Piezoelectric transducer, photo-conductive cells, photo voltaic cells.		
	36, 37, 38	Temperature measurement - Construction and Working of RTD, Thermistor and Thermocouple, radiation pyrometer, technical specifications and ranges. Thermal Imager Camera (Concept)		
	39, 40	Pressure measurement –		

		Construction and working of bourdon tube, bellow diaphragm strain gauge. Measurement of pH Level.		
	41	Revision o f important topics		

Lesson Plan

Name of the Faculty : Sh. Sandeep Kumar
Discipline : Electrical Engineering
Semester : 3th Semester
Subject : Electrical Machines-I
Lesson Plan Duration : (30/07/2026 to 23/11/2026)

THEORY		PRACTICAL	
LECTURE DAY	TOPIC	PRACTICAL DAY	TOPIC
1	Definition of motor and generator.	1	Measurement of the angular displacement of the rotor of a slip-ring induction motor on application of DC to stator of motor winding in sequence and simultaneously to each phase of rotor winding
2	Concept of torque.	2	
3	Torque development due to alignment of two fields, concept of torque angle.	3	
4	Electro-magnetically induced emf	4	Measurement of the angular displacement of the rotor of a slip-ring induction motor on application of DC to stator of motor winding in sequence and simultaneously to each phase of rotor winding
5	Elementary concept of an electrical machine	5	
6	Main constructional features of DC machines. Comparison of generator and motor,	6	
7	Function of the commutator for motoring action.	7	Speed control of dc shunt motor (i) Armature control method (ii) Field control method
8	Function of the commutator for generation action	8	
9	Factors determining induced emf, Factors determining the electromagnetic torque	9	
10	Types of dc generation on the basis of excitation.	10	Speed control of dc shunt motor (i) Armature control method (ii) Field control method
11	Significance of back e.m.f. voltage built up in a dc shunt generator,	11	
12	the relation between back emf and Terminal voltage.	12	

13	Assignment on Torque development due to alignment of two fields & Comparison of generator and motor	13	Study of dc series motor with starter (to operate the motor on no load for a moment)
14	Armature Reaction, Commutation methods to improve commutation	14	
15	Performance of different types of DC motors characteristics of different types of DC motors	15	
26	Speed control of dc shunt motors	16	Study of dc series motor with starter (to operate the motor on no load for a moment)
17	Speed control of dc series motors	17	
18	Revision /test	18	
19	Need of starter, 4-point starter dc shunt motor	19	Study of 3 point starter for starting D.C. shuntmotor.
20	Three point dc shunt motor starter, Applications of DC motors, Losses in a DC machine	20	
21	Determination of losses by Swinburne's test	21	

Lesson Plan

Name of the Faculty : Sh. Sandeep Kumar

Discipline : Electrical Engineering

Semester : 3th Semester

Subject : EED

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

Week	Day	Practical
	1	Unit 1 : Electrical Symbols used in Electrical installation
	2	Drawing sheet1: Design and Drawing of panels/Distribution board using MCB, ELCB main switches and change over switches
	3	Drawing sheet2: Design and Drawing of panels/Distribution board using MCB, ELCB main switches and change over switches
	4	Unit 2 :DOL starting of 3-phase induction motor
	5	3-phase induction motor getting supply from selected feeder
	6	Forwarding/reversing of a 3-phase induction motor
	7	Two speed control of 3-phase induction motor
	8	Sequential operating of two motors using time delay relay
	9	Manually generated star delta starter for 3-phase induction motor
	10	Automatic star delta starter for 3-phase Induction Motor
	11	Draw the wiring diagram of battery and inverter connected to residential load.
	12	Draw the wiring diagram of standalone solar light system with battery for a residential house
	13	Draw the wiring diagram of solar water heating system.
	14	Key diagram of 11kV, 33kV
	15	Key diagram of 66kV sub-stations
	16	Key diagram of 132 kV sub-stations
	17	Draw pipe Earthling.
	18	Draw plate Earthling.
	19	Bus bar post.
	20	Kit Kat Fuse.
	21	Pin type insulator (Pin Type 11kV)
	22	Pin type insulator (Pin Type 66kV)
	23	Rotor of a squirrel cage induction motor
	24	Stator of 3 phase Induction motor (Sectional View)
	25	Revised Sessional Test -1
	26	Revised Sessional Test -2
	27	Revised Sessional Test -3
	28	Revised Sessional Test -3

Lesson Plan

Name of the Faculty : Smt. Varsha Aggarwal
Discipline : Electrical Engineering
Semester : 3rd Semester
Subject : Electrical Engineering Materials

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

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
	1	Classification of materials into conducting, Semi conducting		
	2	Insulating materials . Atomic theory, Energy band theory. Classifications of materials on the basis of atomic structure and energy bands. Characteristics of materials.		
	3	of conducting material such as low resistivity and high resistivity materials.		
	4,5	Properties and applications of different low resistivity materials such as silver, Gold, copper (hard drawn, annealed copper), aluminum, steel, ACSR and its alloys like copper alloy (brass, bronze) etc.		
	6,7	Properties and applications of different high resistivity material such as carbon, tungsten, platinum, mercury, lead, and its alloys like Constantan or eureka, Brass phosphor bronze, nichrome, manganin, tin-lead alloy etc.		
	8	Semi-conductors Materials and their Applications,		
	9	Commonly used semiconducting material Germanium and silicon and their properties. Types of Semiconductor etc.		
	10	Characteristics of good Insulating material, Electrical, thermal, chemical, visual, mechanical		
	11	Physical properties of Insulating materials. Types of Insulating materials. classification of insulating material on the basis of temperature		
	12	Gaseous Insulating Materials: Properties and applications of air, nitrogen and sulphur hexafluoride (SF-6) gases		
	13	Liquid Insulating Materials: Properties and applications of Mineral and Insulating oil for transformers (mineral oil), switchgears etc, synthetic insulating liquid (Pyranol).		
	14	Solid Insulating Materials: Properties, types and applications of Plastics such as polyvinyl chloride (PVC), Polyethylene, polystyrene, epoxy resin, Bakelite, Melamines, silicon resins etc		
	15	Natural Insulating materials, properties and their applications: Mica, asbestos, ceramic materials (porcelain and steatite)		
	16	Glass, Cotton, Silk, Jute, Paper (dry and impregnated) Rubber, Bitumen		
	17	Teflon, Silicon Grease , Insulating varnishes for coating and impregnation, Enamels for winding wires, wood etc		
	18	Characteristics and types of magnetic material, Properties of soft magnet material like Iron silicon alloy		
	19,20	Nickel iron alloy, Mu metal, soft ferrites, grain orientation, Cold rolled grain oriented silicon steels (C.R.G.O) etc. and their applications		
	21,22	Properties of hard magnet material like Tungsten steel alloy, chromium steel, cobalt steel, Hard ferrites etc. and their applications.		
	23	Cobalt steel, Hard ferrites etc. and their applications.		

	24	Thermocouples, Bimetals, soldering, fuse, materials and their applications		
	25	in fabrications of electrical machines such as motors		
	26	ors, transformers etc		
	27	Class Test		
	28,29	Problems, Doubts & their solution		
	30	Revision of important topics		

Lesson Plan

Name of the Faculty : Sh. Kuldeep Mittal

Discipline : Electrical Engineering

Semester : 1st Semester

Subject : PEE

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

Week	Theory		Practical	
	Lecture Day	Topic	Practical Day	Topic
	1	Introduction, Nature of Electricity, Electric current,	1	PRACTICAL-1 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	Electrical Energy, Electrical power and their unit.		
	3	Resistance, conductivity and resistivity, resistance properties.	2	PRACTICAL-1 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 .
	4	Rating and wattages of Electrical appliances, heating effect of Electrical current. Introduction to Capacitors, capacitance, Variable capacitor, Factors affecting capacitance of a capacitor and its various connections.		
	5	Factors affecting capacitance of a capacitor and its various connections.	3	PRACTICAL-2 Determine the value of resistance using colour coding method.
	6	Energy stored in capacitor, Charging and discharging of a capacitor.		
	7	Charging and discharging of a capacitor.	4	PRACTICAL-2 Determine the value of resistance using color coding method.
	8	REVISION UNIT-1		
	9	Unit-2 DC Machines Ohm's law with practical implementation.	5	PRACTICAL-3 Observation of change in resistance of a bulb in hot and cold conditions, using voltmeter and ammeter
	10	Definition of DC circuit, types of DC circuits		
	11	Concept of voltage source & current source, connections and their conversions.	6	PRACTICAL-3 Observation of change in resistance of

	12	Concept of voltage source & current source, connections and their conversions.		a bulb in hot and cold conditions, using voltmeter and ammeter
	13	Wheatstone Bridge.	7	PRACTICAL-4 To charge and discharge a capacitor and to show the graph on C.R.O.
	14	Kirchhoff's Laws-KVL and KCL.		
	15	Kirchhoff's Laws-KVL and KCL.	8	PRACTICAL-4 To charge and discharge a capacitor and to show the graph on C.R.O.
	16	Star – Delta connections and their conversion.		
	17	Revision / Problem solutions	9	PRACTICAL-5 Verification of laws of capacitors in series and parallel.
	18	UNIT III Electrostatics & Magnetostatics Concepts of Electrostatics, Coulomb's law.		
	19	Concept of magnetism, Magnetic field, Magnetic lines of force	10	PRACTICAL-5 Verification of laws of capacitors in series and parallel.
	20	Definition of Electromagnetism,		
	21	Magnetic effect of electric current, direction of magnetic field and current.	11	PRACTICAL-6 To verify ohm's law by drawing a graph between voltage and current
	22	Current carrying conductors in a magnetic field and methods to find its direction, applications		
	23	Analogy between electric and magnetic circuit.		
	39	Introduction to maintenance free batteries.	20	PRACTICAL-10 To find the ratio of inductance of a coil having air-core and iron-core respectively and to observe the effect of introduction of a magnetic core on coil inductance.
	40	Disposal of batteries		
	41	Revision / Problem solution	21	PRACTICAL-11 Verification of Faraday's law of electromagnetic induction
	42	REVISION UNIT-1		

	43	REVISION UNIT-1	22	PRACTICAL-11
	44	REVISION UNIT-2		Verification of Faraday's law of electromagnetic induction
	45	REVISION UNIT-2	23	PRACTICAL-12
	46	REVISION UNIT-3		To obtain BH curve of a magnetic material
	47	REVISION UNIT-3	24	PRACTICAL-12
	48	REVISION UNIT-4		To obtain BH curve of a magnetic material
	49	REVISION UNIT-4	25	PRACTICAL-13
	50	REVISION UNIT-5		Demonstration of parts of a battery and find the specific gravity of battery, Demonstration of charging and discharging of Battery and measure the terminal voltage during charging and discharging condition.
	51	REVISION UNIT-5	26	PRACTICAL-13
	52	Revision All Unit		Demonstration of parts of a battery and find the specific gravity of battery, Demonstration of charging and discharging of Battery and measure the terminal voltage During charging and discharging condition.

Lesson Plan

Name of the Faculty : Sh. Kuldeep Mittal
Discipline : Electrical Engineering
Semester : 1ST
Subject : FUNDAMENTALS OF INFORMATION TECHNOLOGY
Lesson Plan Duration : (30/07/2026 to 23/11/2026)

	Lectur eday	Topic (including assignment / test)	Practical Day	Topic
1 st	1 st	Basics of Computer Brief history of development of computers, Definition of Computer	1st	Prac. 1 1. Browser features, browsing, using various search engines, writing search queries
	2 nd	Block diagram of a Computer, Hardware, Software, Booting: Cold and Hot Booting		
	3 rd	Interaction between the CPU and Memory with Input/Output devices		
2 nd	4 th	Function of CPU and major functional parts of CPU.Memory	2nd	Prac. 2 . Visit various e-governance/ Digital India portals, understand their features, services offered.
	5 th	Bit, Nibble, Byte, KB, MB, GB, TB, PB, Functions of memory, Use of storage devices in a Computer		
	6 th	List types of memory used in a Computer, Importance of cache memory		
3 rd	7 th	CPU speed and CPU word length	3rd	Prac. 3 Read Wikipedia pages on computer hardware components, look at those components in lab, identify them, recognize various ports/interfaces and related cables, etc.
	8 th	Basic Internet Skills Understanding browser, Introduction to WWW		
	9 th	efficient use of search engines,		
4 th	10 th	awareness about Digital India portals (state and national portals) and college portals.	4th	Prac. 4 4. Using Administrative Tools/Control Panel Settings of Operating Systems
	11 th	Advantages of Email Various email service providers, Creation of email id		
	12 th	sending and receiving emails,		
5 th	13 th	attaching documents with email and drive.	5th	Prac. 5 5. Connect various peripherals (printer, scanner, etc.) to computer, explore various features of peripheral and their device driver software.
	14 th	Effective use of Gmail, G-Drive, Google Calendar, Google Sites, Google Sheets		
	15 th	Online mode of communication using Google Meet & WebEx.		
	16 th	Basic Logic building Introduction to Programming, Steps involved in problem solving,		Prac. 6 6. Explore features of Open Office tools and MS-Office,
	17 th	Definition of Algorithm, Definition of Flowchart		

6 th	18 th	Steps involved in algorithm development,	6th	create documents, create presentation, create spread sheet, using these features, do it multiple times
7 th	19 th	differentiate algorithm and flowchart	7th	Prac. 7 7. Working with Conversion Software like pdf To Word, Word To PPT, etc.
	20 th	symbols used in flowcharts		

Week	Theory		Practical	
	Lecture day	Topic (including assignment / test)	Practical Day	Topic
	21 st			
8 th	22 nd	algorithms for simple problems	8th	Prac. 8 8. Working with Mobile Applications – Searching for Authentic Mobile app, Installation and Settings, Govt. of India Mobile Applications
	23 rd	flowcharts for simple problems,		
	24 th	Practice logic building using flowchart/algorithms		
9 th	25 th	Office Tools like LibreOffice	9th	Prac. 9 9. Creating email id, sending and receiving mails with attachments.
	26 th	OpenOffice		
	27 th	Msoffice.		
10 th	28 th	OpenOffice Writer – Typesetting Text and Basic Formatting	10th	Prac 10 10. Using Google drive, Google calendar
	29 th	Inserting Images, Hyperlinks, Bookmarks		
	30 th	Tables and Table Properties in Writer		
11 th	31 st	Introducing LibreOffice/OpenOffice Calc, Working with Cells, Sheets, data	11th	11. Create Flow chart and Algorithm for the following: a. Addition of n numbers and display result b. To convert temperature from Celsius to Fahrenheit c. To find Area and Perimeter of Square
	32 nd	tables, using formulae and functions, using charts and graphics		
	33 rd	OpenOffice Impress – Creating and Viewing Presentations, Inserting Pictures and Tables		
12 th	34 th	Slide Master and Slide Design	12th	d. Swap Two Numbers e. find the smallest of two numbers f. Find whether given number is Even or Odd
	35 th	Custom Animation		
	36 th	Use of Social Media		
13 th	37 th	Introduction to Digital Marketing – Why Digital Marketing	13th	g. To print first n even Numbers h. find sum of series 1+2+3+.....+N i. print multiplication Table of a number
	38 th	Characteristics of Digital Marketing,		
	39 th	Tools for Digital Marketing		

14th	40th	Effective use of Social Media like LinkedIn, Google+,	14th	j. generate first n Fibonacci terms 0,1,1,2,3,5...n (n>2) k. sum and average of given series of numbers l. Factorial of number n (n!=1x2x3x...n) m. Armstrong Number
	41st	Facebook		
	42nd	Twitter, etc.: Features of Social media,		
15th	43rd	Advantages of Social Media.	15th	Revision
	44th	Disadvantages of Social Media.		
	45th	Revision		

Lesson Plan

Name of the Faculty : Sh. Kuldeep Mittal
Discipline : Electrical Engineering
Semester : 1ST
Subject : EG
Lesson Plan Duration : (30/07/2026 to 23/11/2026)

Week	Lecture	Theory Topic
1	1st	UNIT I 1. Introduction to Engineering Drawing and Graphics Introduction to use and care of drawing instruments, drawing materials, layout and sizes of drawing sheets and drawing boards.
	2nd	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	3rd	Geometrical construction-geometrical figures such as triangles, rectangles, circles, ellipses and curves with the help of drawing instruments.
	4th	Geometrical construction-geometrical figures such as hexagons, pentagons bisecting a line and arc, division of line and circle with the help of drawing instruments.
3	5th	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,
	6th	Single and double stroke, vertical and inclined (Gothic lettering) at 75 degree to horizontal and with suitable height to width ratio 7:4.
4	7th	Dimensioning Necessity of dimensioning, method and principles of dimensioning (mainly theoretical instructions). 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.
	8th	Scales Scales –Needs and importance (theoretical instructions), Type of scales, Definition of Representative Fraction (R.F.) and Length of Scale.
5	9th	To draw/construct plain and diagonal scales.
	10th	Sheets Checking & Revision
6		1 st Sessional
7	11th	Theory of orthographic projections (Elaborate theoretical instructions) ; Projections of points in different quadrants ; Projection of line (1st angle and 3rd angle) ; Line parallel to both planes
	12th	Line perpendicular to any one of the principal plane ; Line inclined to any one of the principal plane and parallel to other
8	13th	Three views of orthographic projections of different objects (At least one sheet in 3rd angle) ;

Week	Lecture	Theory Topic
	14th	Projection of Plane – Different lamina like square rectangular, triangular, circle and Hexagonal pentagon. Trace of planes (HT and VT).
9	15th	Identifications of surfaces, Importance and salient features of sectioning of objects;
	16th	Drawing of full section, half section, partial or broken out sections, Offset sections, revolved sections and removed sections (theoretical only).
10	17th	Orthographic sectional views of different objects
	18th	Sheets Checking & Revision
11		2 nd Sessional
12	19th	UNIT III 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.)
	20th	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.)
13	21st	Development of Surfaces – Development of lateral surfaces of right solids like cone, cylinder, pentagonal prism, pyramid and hexagonal pyramid (Simple problems)
	22nd	UNIT IV Isometric Views Fundamentals of isometric projections and isometric scale. Isometric views of different laminas like circle, pentagon and hexagon.
14	23rd	Isometric views of different regular solids like cylinder, cone, cube, cuboid, pyramid and prism. Isometric views from given different orthographic projections(front, side and top view)
	24th	UNIT V :Introduction to AutoCAD Basic introduction and operational instructions of various commands in AutoCAD. At least two sheets of different objects on AutoCAD (given pictorial/isometric view of a block)
15	25th	Basic introduction and operational instructions of various commands in AutoCAD. At least two sheets of different objects on AutoCAD (given pictorial/isometric view of a block)
	26th	Sheets Checking & Revision
16		3 rd Sessional