Lesson Plan

Name of the Faculty : **Ms. Parul Trake**

Discipline : **Electrical Engineering**

Semester : **5th Semester**

Subject : **INSTRUMENTATION**

Lesson Plan Duration : **13-15 Week**

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
	1	Importance of measurement	1	To measure the level of a liquid using a transducer
	2	Basic measuring systems	2	To measure temperature using a thermo-couple
	3	Advantages and limitationsof each measuring systems	3	Study and use of digital temperature controller
	4	Generalized measurement system	4	Use of themistor in ON/OFF transducer
	5, 6, 7, 8	Signal conditioningand display devices	5	Study of variable capacitive transducer
	9	Transducers: Theory	6	Draw the characteristics of a potentiometer
	10, 11	Construction and use of various transducers like resistance	7	To measure linear displacement using LVDT
	12	Inductance,capacitance	8	To study the use of electrical strain gauge
	13	Electromagnetic	9	To study weighing machine using load cell
	14, 15	Piezo electric type	10	To study pH meter
	16	Displacement Measuring Devices: wire wound potentiometer		
	17	LVDT		
	18, 19, 20	Straingauges and their differenttypes such as inductance type, resistive type, wire and foil type etc.		
	21	Gauge factor, gauge materials, and their selections		
	22, 23	Sources of errorsand itscompensations		
	24	Use of electrical strain gauges		
	25, 26, 27	Strain gauge bridges andamplifiers		
	28, 29	Different types of force measuring devices and their principles		
	30	Loadmeasurements by using elastic Transducers		
	31	Loadmeasurements by using electrical strain gauges		
	32	Loadcells, proving rings		

	33, 34	Measurements of torque by brake, dynamometer		
	35	Electricalstrain gauges		
	36	Speed measurements; different methods, devices.		
	37	Bourdon pressure gauges, electrical pressure pick ups and their principle		
	38	Construction and applications		
	39	Use of pressure cells		
	40	Basic principles of magnetic and ultrasonic flow meters		
	41	Bimetallic thermometer		
	42	Pressure thermometers		
	43, 44	Thermoelectric thermometers, resistance thermometers, thermocouple, thermisters and pyrometer		
	45	Errors intemperature measurements in rapidly moving fluids. Temperature recorders		
	46, 47	Measurement of other non electrical quantities such as humidity, pH level andvibrations		
	48	Revision of Topics already covered		
	49	Class Test		
	50	Problems, Doubts & their solution		
	51	Revision of important topics		

Lesson Plan

Name of the Faculty : **Mr. R.L. Saini**

Discipline : **Electrical Engineering**

Semester : **5th Semester**

Subject : **UTILIZATION OF ELECTRICAL ENERGY**

Lesson Plan Duration : **13-15 Week**

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
	1	Advantage of Electric heating		
	2, 3	Heating Methods :Resistance heating – direct and indirect resistance heating, electric ovens, their temperature range, properties of resistance heating elements, domestic water heaters and other heating appliances, thermostat control circuit		
	4	Induction heating; principle of core type and coreless induction furnace, their construction and applications		
	5	Electric arc heating; direct and indirect arc heating, construction, working and applications of arc furnace		
	6, 7	Dielectric heating, applications in various industrial fields Infra-red heating and its applications (construction and working of two appliances)		
	8	Microwave heating and its applications (construction and working of two appliances), Solar Heating		
	9	Calculation of resistance heating elements (simple problems)		
	10, 11	Advantages of electric welding, Welding method, Principles of resistance welding, types – spot, projection, seam and butt welding, welding equipment		
	12, 13	Principle of arc production, electric arc welding, characteristics of arc; carbon arc, metal arc, hydrogen arc welding method and their applications. Power supply requirement. Advantages of using coated electrodes, comparison between AC and DC arc welding, welding control circuits, welding of		

		aluminum and copper		
	14, 15	Need of electro-deposition, Laws of electrolysis, process of electro-deposition - clearing, operation, deposition of metals,		
	16	polishing and buffering, Equipment and accessories for electroplating		
	17	Factors affecting electro-deposition, Principle of galvanizing and its applications		
	18	Principles of anodizing and its applications		
	19	Electroplating of non-conducting materials		
	20	Manufacture of chemicals by electrolytic process		
	21, 22	Principle of air conditioning, vapour pressure, refrigeration cycle, eco-friendly refrigerants		
	23, 24	Description of Electrical circuit used in a) Refrigerator, b) Air-conditioner, and c) Water cooler		
	25	Advantages of electric drives, Characteristics of different mechanical loads		
	26	Types of motors used as electric drive		
	28	General idea about the methods of power transfer by direct coupling by usingdevices like belt drive, gears, chain drives etc.		
	29	Examples of selection of motors for different types of domestic loads		
	30	Selection of drive for applications such as general workshop, textile mill, paper mill, steel mill, printing press, crane and lift etc. Application of flywheel.		
	31, 32	Selection of motors for Domestic Appliances		
	33, 34	Advantages of electric traction over other types of traction., Different systems of electric traction, DC and AC systems, diesel electric system, types of services – urban, sub-urban, and main line and their speed-time curves.		
	35, 36	Different accessories for track electrification; such as overhead catenary wire, conductor rail system, current collector-pentagraph		
	37, 38	Factors affecting scheduled speed		
	39	Electrical block diagram of an electric locomotive with description of various equipment and accessories used.		

	40	Types of motors used for electric traction		
	41	Power supply arrangements		
	42	Starting and braking of electric locomotives		
	43, 44	Introduction to EMU and metro railways		
	45, 46	Train Lighting Scheme		
	47, 48	Revision of Topics already covered		
	49	Class Test		
	50	Problems, Doubts & their solution		
	51	Revision of important topics		

Lesson Plan

Name of the Faculty : **Ms. Poonam Saini**

Discipline : **Electrical Engineering**

Semester : **5th Semester**

Subject : **PROGRAMMABLE LOGIC CONTROLLERS & MC**

Lesson Plan Duration : **13-15 Week**

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
	1, 2, 3, 4, 5, 6	Introduction to PLC, What is PLC, concept of PLC, Building blocks of limitations of relays. Advantages of PLCs over programming languages, PLC manufacturer etc. PLC, Functions of various blocks,	1, 2	Components/sub-components of a PLC, Learning functions of different modules of a PLC system
	7, 8	Basic operation and principles of PLC	3, 4	Practical steps in programming a PLC (a) using a Hand held programmer (b) using computer interface
	9, 10	Architectural details processor	5, 6	Demonstration to step 5 programming language, ladder diagram concepts, instruction list syntax
	11, 12	Memory structures, I/O structure	7, 8	Basic logic operations, AND, OR, NOT functions
	13, 14	Programming terminal, power supply	9	Logic control systems with time response as applied to clamping operation
	15	Basic instructions like latch, master control self holding relays	10	Sequence control system e.g. in lifting a device for packaging andcounting
	16	Timer instruction like retentive timers, resetting of timers	11	Use of PLC for an application(teacher may decide)
	17	Counter instructions like up counter, down counter, resetting of counters	12	Demonstration and study of Architecture of 8085 kit
	18	Arithmetic Instructions (ADD,SUB,DIV,MUL etc.)	13	Testing of general input/output on Micro controller board
	19	MOV instruction	14	Controlling of LED using Microcontroller Programme
	20	RTC(Real Time Clock Function)		
	21, 22	Comparison instructions like equal, not equal, greater, greater than equal, less than, less than equal		
	23, 24, 25, 26, 27	Programming based on basic instructions, timer, counter, sequencer, and comparison instructions using ladder program.		
	28	Assembly,		

		Packaging, Process controls		
	29, 30	Car parking, Doorbell operation, Traffic light control		
	31, 32	Microwave Oven, Washing machine, Motor in forward and reverse direction		
	33, 34, 35	Star-Delta, DOL Starters, Paint Industry, Filling of Bottles, Room Automation		
	36, 37	Introduction to SCADA		
	38	Pin details		
	39, 40	I/o Port structure		
	41, 42, 43	Memory Organisation		
	44, 45, 46	Special function registers		
	47, 48	Timer operation		
	49, 50	Serial Port operation		
	51, 52	Interrupts		
	53, 55	Assemblers and Compilers		
	55, 56, 57	Keypad interface, 7- segment interface, LCD, stepper motor. A/D, D/A, RTC interface.		
	58	Application of Micro controllers		
	59, 60	Revision of Topics already covered		
	61	Class Test		
	62	Problems, Doubts & their solution		
	63, 64	Revision of important topics		

Lesson Plan

Name of the Faculty : **Mr. Moh. Mohsin**

Discipline : **Electrical Engineering**

Semester : **5th Semester**

Subject : **Electrical Machines-II**

Lesson Plan Duration : **13-15 Week**

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
	1	Introduction to 3-Phase Induction Motor	1	Determination of efficiency by (a) no load test and blocked rotor test on an induction motor (b) direct loading of an I.M.
	2	Constructional features of squirrel cage and slip ring 3-phase induction Motors	2	Determination of effect of rotor resistance on torque speed curve of an induction motor
	3	Principle of operation, slip and its significance	3	Observe the performance of Ceiling fan without capacitor To study the effect of a capacitor on the performance single phase induction motor and reverse the direction of rotation.
	4	Locking of rotor and stator fields	4	To plot relationship between no load terminal voltage and excitation current in a synchronous generator at constant speed
	5	Rotor resistance, inductance	5	Determination of the relationship between the voltage and load current of an alternator, keeping excitation and speed
	6	Relationship between copper loss and motor slip	6	Determination of the regulation and efficiency of alternator from the open circuit and short circuit test
	7	Power flow diagram of an induction motor	7	Determination of the effect of variation of excitation on performance of a synchronous motor
	8	Factors determining the torque, Torque-slip curve, stable and unstable zones		
	9	Effect of rotor resistance upon the torque slip relationship		
	10	Double cage rotor motor and its applications		
	11	Starting of 3-phase induction motors,		

		DOL		
	12	Star-delta, auto transformer starting		
	13	Causes of low power factor of induction motors		
	14	Testing of 3-phase induction motor on no load		
	15	And blocked rotor test and to find efficiency		
	16	Speed control of induction motor		
	17	Harmonics and its effects		
	18	Cogging and crawling in Induction Motors		
	19	Specification and rating of induction motor		
	20	Single phase induction motors		
	21	Construction characteristics and applications		
	22	Nature of field produced in single phase induction motor		
	23	Split phase induction motors		
	24	Type of Induction Motor		
	25	Capacitors start and run		
	26	Shaded pole		
	27	Alternating current series motor and universal motors		
	28	1-phase synchronous motor Reluctance type		
	29	Brief description about Synchronous Motor		
	30	Hysteresis motor		
	31	Synchronous Machines		
	32	Main Construction features of Synchronous Machines including commutator and brushless excitation system.		
	33	Production of rotating magnetic field in a 3-phase winding		
	34	Generation of 3-phase emf		
	35	Concept of distribution factor and emf equation		
	36	Armature reaction at unity, lag and leading power factor		
	37	Equivalent circuit diagram of synchronous machine		
	38	Concept of voltage regulation. Determination of voltage regulation by synchronous impedance method.		
	39	Operation of single synchronous machine		

		independently supplying a load.		
	40	Concept of infinite bus bar. Need and necessary conditions of paralleloperation of alternators, Synchronizing analternator (Synchroscopemethod) with the bus bars		
	41	Operation of synchronous machine as a motor –its starting methods		
	42	Effect of change in excitation of a synchronous motor, V curve, Concept of synchronous condenser.		
	43	Concept and cause of hunting and its prevention		
	44	Specification, rating and cooling of synchronous machines		
	45	Applications of synchronous machines		
	46, 47	Construction, working principle and application of linear induction motor, steppermotor, AC Servomotor, Submersible Motor,		
	48	Revision of Topics already covered		
	49	Class Test		
	50	Problems, Doubts & their solution		
	51	Revision of important topics		

Lesson Plan

Name of the Faculty : **Mrs. Sharmila**

Discipline : **Electrical Engineering**

Semester : **5th Semester**

Subject : **ELECTRICAL POWER –I**

Lesson Plan Duration : **13-15 Week**

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
	1	Main resources of energy		
	2	Conventional and non-conventional		
	3	Different types of power stations, thermal, hydro, gas		
	4	Diesel and nuclear power stations		
	5, 6	Flow diagrams and brief details of their operation, Comparison of the generating stations on the basis of running cost, site, starting, maintenance		
	7	Importance of non-conventional sources of energy in the present scenario		
	8	Brief details of solar energy, bio-energy, wind energy		
	9	Fixed and running cost		
	10	Load estimation, load curves, demand factor		
	11	Load factor, diversity factor, power factor and their effect on cost of generation, simple problems there on		
	12, 13	Base load and peak load power stations, inter-connection of power stations and its advantages, concept of regional and national grid		
	14, 15	Layout of transmission system, selection of voltage for H.T and L.T lines, advantages of high voltage for Transmission of power in both AC and DC		
	16, 17	Comparison of different systems: AC versus DC for power transmission		
	18	Conductor material and sizes from standard tables		

	19	Types of supports, types of insulators		
	20	Types of conductors, Selection of insulators, conductors, earth wire and their accessories		
	21	Transposition of conductors and string efficiency of suspension type insulators, Bundle Conductors		
	22	Mechanical features of line: Importance of sag, calculation of sag		
	23, 24	Effects of wind and ice related problems; Indian electricity rules pertaining to clearance		
	25, 26,	Electrical features of line: Calculation of resistance inductance and capacitance without derivation in a.c. transmission line, voltage regulation, and concept of corona.		
	28	Effects of corona and remedial measures		
	29	Transmission Losses		
	30	Lay out of HT and LT distribution system		
	31	Constructional feature of distribution lines and their erection		
	32, 33	LT feeders and service mains; Simple problems on AC radial distribution system, determination of size of conductor		
	34	Preparation of estimates of HT and LT lines (OH and Cables).		
	35, 36	Constructional features of LT (400 V), HT (II kV) underground cables, advantages and disadvantages of underground system with respect to overhead system		
	37	Calculation of losses in distribution system		
	38, 39	Faults in underground cables-determine fault location by Murray Loop Test		
	40	Varley Loop Test		
	41, 42	Brief idea about substations; out door grid sub-station 220/132 KV, 66/33 KV outdoorsubstations		
	43	Pole mounted substations and indoor substation		
	44, 45, 46	Layout of 33/11 and kV/400V distribution substation and various auxiliaries and equipment associated with it		
	47	Concept of power factor Reasons and disadvantages of low power factor		

	48	Methods for improvement of power factor using capacitor banks, VAR Static Compensator (SVC)		
	49	Revision of Topics already covered		
	50	Class Test		
	51	Problems, Doubts & their solution		

Lesson Plan

Name of the Faculty : **Ms. Parul Trake**

Discipline : **Electrical Engineering**

Semester : **3th Semester**

Subject : **Analog and Digital Electronics**

Lesson Plan Duration : **13-15 Week**

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 : **Ms. Parul Trake**

Discipline : **Electrical Engineering**

Semester : **3th Semester**

Subject : **Electrical Measuring instruments and instrumentation**

Lesson Plan Duration : **13-15 Week**

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 earth tester.
	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 : **Mr. Surender Malik**

Discipline : **Electrical Engineering**

Semester : **3th Semester**

Subject : **Electrical Machines-I**

Lesson Plan Duration : **13-15 Week**

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. shunt motor.
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 : Mr. Mohd. Mohsin

Discipline : Electrical Engineering

Semester : 3th Semester

Subject : EEDD

Lesson Plan Duration : 13-15 Week

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 : **Mr. Mohd. Mohsin**

Discipline : **Electrical Engineering**

Semester : **1st Semester**

Subject : **PEE**

Lesson Plan Duration : **13-15 Week**

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** 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 &Magneto statics** 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** Verification of Faraday's law of electromagnetic induction
	44	REVISION UNIT-2		
	45	REVISION UNIT-2	**23**	**PRACTICAL-12** To obtain BH curve of a magnetic material
	46	REVISION UNIT-3		
	47	REVISION UNIT-3	**24**	**PRACTICAL-12** To obtain BH curve of a magnetic material
	48	REVISION UNIT-4		
	49	REVISION UNIT-4	**25**	**PRACTICAL-13** 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.
	50	REVISION UNIT-5		
	51	REVISION UNIT-5	**26**	**PRACTICAL-13** 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.
	52	Revision All Unit		

Lesson Plan

Name of the Faculty : **Mrs. Sharmila**
Discipline : **Electrical Engineering**
Semester : **3rd Semester**
Subject : **ELECTRICAL AND ELECTRONICS ENGINEERING MATERIALS**

Lesson Plan Duration : **13-15 Week**

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 : Mrs. Sharmila
Discipline : Electrical Engineering
Semester : 1st Semester
Subject : Fundamental of Information Technology

Lesson Plan Duration : 13-15 Week

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
	1	Brief history of development of computers, Definition of Computer, Block diagram of a Computer, Hardware, Software, Booting: Cold and Hot Booting,	1	Browser features, browsing, using various search engines, writing search queries .
	2	Interaction between the CPU and Memory with Input/output devices, Function of CPU and major functional parts of CPU.	2	Visit various e-governance/Digital India portals, understand their features, services offered.
	3	Memory, Bit, Nibble, Byte, KB, MB, GB, TB, PB, Functions of memory, Use of storage devices in a Computer, List types of memory used in a Computer, Importance of cache memory, CPU speed and CPU word length	3	. Read Wikipedia pages on computer hardware components, look at those components in lab, identify them, recognize various ports/interfaces and related cables, etc.
	4	Understanding browser, Introduction to WWW, efficient use of search engines, awareness about Digital India portals (state and national portals) and college portals.	4	Using Administrative Tools/Control Panel Settings of Operating Systems.
	5	Advantages of Email, Various email service providers, Creation of email id, sending and receiving emails		
	6	attaching documents with email and drive. Effective use of Gmail, G-Drive, Google Calendar, Google Sites		
	7	Google Sheets, Online mode of communication using Google Meet & WebEx		
	8	Introduction to Programming, Steps involved in problem solving, Definition of Algorithm, Definition of Flowchart		
	9	Steps involved in algorithm development, differentiate algorithm and flowchart, symbols used in flowcharts		
	10	algorithms for simple problems, flowcharts for simple problems		
	11	Practice logic building using flowchart/algorithms		

	12	Office Tools like LibreOffice/OpenOffice/MSOffice.		
	13	OpenOffice Writer – Typesetting Text and Basic Formatting, Inserting Images, Hyperlinks, Bookmarks, Tables and Table Properties in Writer Introducing LibreOffice/OpenOffice Calc		
	14	Working with Cells, Sheets, data, tables, using formulae and functions, using charts and graphics.		
	15	OpenOffice Impress – Creating and Viewing Presentations		
	16	Inserting Pictures and Tables, Slide Master and Slide Design, Custom Animation.		
	17	Introduction to Digital Marketing – Why Digital Marketing, Characteristics of Digital Marketing, Tools for Digital Marketing,		
	18	Effective use of Social Media like LinkedIn, Google+, Facebook, Twitter, etc.: Features of Social media		
	19	Advantages and Disadvantages of Social Media. Revision of important topics		
	20	Class test		