

LESSON PLAN

Name of Faculty : Jyoti Hooda

Discipline : ELECTRICAL ENGG

Semester : 1ST

Subject : ENGINEERING DRAWING-I

Work Load : P-8 per week

Lesson Plan Duration- 15 weeks (July 2018 to Nov. 2018)

Week		PRACTICAL
	PRACTICAL DAY	
1	1	Introduction to Engineering Drawing - Definition of Engineering Drawing. Introduction to drawing instruments, materials, layout and sizes of drawing sheets and drawing boards, engineering graph book, different grades of pencils to be used.
	2	Different types of lines in Engineering drawing as per BIS specifications
2	3	Practice of vertical, horizontal and inclined lines
	4	geometrical figures such as triangles, rectangles, circles, ellipses
3	5	parabola, hexagonal, pentagon with the help of drawing instruments.
	6	Free hand sketches of various kind of objects
4	7	Dimensioning Technique - 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., counter sunk holes, counter bored holes, cylindrical parts, narrow spaces and gaps, radii, curves and arches
5	9	Scales-Scales –their needs and importance (theoretical instructions), type of scales, definition of R.F. and length of scale.
	10	Construction of plain and diagonal scales.
6	11	Orthographic Projections - Theory of orthographic projections (Elaborate theoretical instructions)
	12	Projection of Points in different quadrant
7	13	Projection of Straight Line (1st and 3rd angle)- Line parallel to both the planes
	14	Line perpendicular to any one of the reference plane
8	15	Three views of orthographic projection of different objects. (At least one sheet in 3rd angle)
	16	Identification of surfaces
9	17	Sectioning of Objects - Importance and salient features
	18	Description of full section, half section, partial or broken out sections, Offset sections, revolved sections and removed sections
10	19	Isometric Views -Fundamentals of isometric projections and isometric scale.
	20	Isometric views of regular solids like cylinder and cone.
11	21	Common Symbols and Conventions used in Engineering - Civil Engineering sanitary fitting symbols
	22	Electrical fitting symbols for domestic interior installations
12	23	Safety symbols used in engineering works.
	24	REVISION
13	25	REVISION
	26	REVISION
14	27	REVISION
	28	REVISION
15	29	REVISION
	30	REVISION

LESSON PLAN

Name of Faculty : Preeti Girdhar

Discipline : Electrical Engg.

Semester : 3rd

Subject : Electrical Engg. Design & Drawing

Work Load : 15 weeks (from July, 2018 November, 2018)

Week	Lecture day	Theory (Including Assignments and Tests)
1	1	Symbols and Signs Conventions
		Various Electrical Symbols used in Domestic
2	2	Industrial Installation and Power System (Generation, Transmission and Distribution including Sub-stations) as per BIS Code.
	3	Wiring Diagram
3	4	Wiring diagram of light, fan
	5	Wiring diagram of bell and alarm circuits.
4	6	Staircase
	7	godown wiring
5	8	Panels/Distribution Boards
	9	Design and Drawing of panels/Distribution board using MCB
6	10	ELCB main switches and change over switches for domestic installation,
	11	Industrial installation
7	12	commercial installation.
	13	Orthographic projections of Simple Electrical Parts
8	14	Bus bar post/ Kit Kat
	15	Pin type and shackle type insulator (Pin Type 11kV/66kV)
9	16	Bobbins of a small transformer / choke
	17	Stay insulators/Suspension type insulators
10	18	Rotor of a squirrel cage induction motor
	19	Motor body (induction motor) as per IS Specifications (using outside dimensions)
11	20	Slip rings of 3-phase induction Motor.
	21	Stator of 3 phase Induction motor (Sectional View)
12	22	wiring diagram and block diagrams for circuits/systems using CAD
	23	wiring diagram and block diagrams for circuits/systems using CAD
13	24	wiring diagram and block diagrams for circuits/systems using CAD
	25	wiring diagram and block diagrams for circuits/systems using CAD
14	26	wiring diagram and block diagrams for circuits/systems using CAD
	27	Revision & Test
15	28	Revision & Test
	29	Revision & Test
	30	Revision & Test

LESSON PLAN

Name of Faculty : VED PARKASH

Discipline : ELECTRICAL ENGG

Semester : 3RD

Subject : ELECTRICAL WORKSHOP PRACTICE-I

Work Load : P-06

Lesson Plan Duration- 15 weeks (July 2018 to Nov. 2018)

Week		PRACTICAL
	PRACTICAL DAY	
1	1	Study of electrical safety measures as mentioned in the Indian Electricity Rules and shock treatment including first aid
	2	Wire jointing- Straight married joint
2	3	Western union joint, Britania joint
	4	Twist sleeve joint, Bolted type joint
3	5	Wiring of main distribution board with four outgoing circuits for light and fan loads including main switch and fuses (only internal connection) Types of wiring and to make different light control circuits in the following types of wiring: Casing and Capping (PVC) wiring
	6	In Conduit wiring (surface/concealed)
4	7	Construction/assembly of Distribution Board and Extension Board -Construction of an extension board with two 5A sockets and one 15A Socket controlled by their respective switches, a fuse and indicator with series test lamp provision.
	8	Assembly of distribution board panel using MCB, main switch, change over switch and ELCB/RCCB.
5	9	Wiring of main distribution board with four outgoing circuits for light and fan loads including main switch and fuses (only internal connection)
	10	Simple light and Alarm Circuits (any four)- 1.) One lamp controlled by two switches (staircase circuit). 2.) Two lamps controlled by three switches (double staircase circuit)
6	11	3.) Two ordinary bells (for day and night) used at a distant residence. 4.) Bell response circuit using one bell and one relay
	12	5) Bell response circuit of an office (for three rooms).
7	13	Traffic light control system for two roads crossing
	14	Wiring of a switch board containing at least two switches, one fan regulator and one 5/15A socket controlled by their respective switches using piano type switches and matching socket
8	15	Wiring of a series test lamp board and to use it for finding out simple faults
	16	Testing of domestic wiring installation using meggar
9	17	Fault finding and repair of a tube light circuit
	18	Wiring and testing of alarm and indicating circuits using relay, push buttons and bells (simple single phase circuits)
10	19	Assembly of distribution board/ panel using MCB, main switch, changeover switch and ELCB etc.
	20	REVISION
11	21	REVISION
	22	REVISION
12	23	REVISION
	24	REVISION
13	25	REVISION
	26	REVISION
14	27	REVISION
	28	REVISION
15	29	REVISION
	30	REVISION

Lesson Plan

Name of the faculty : Jyoti Hooda

Discipline : Electrical

Semester : 3rd semester

Subject : Electronics-II

Lesson Plan Duration : 15 weeks (from JULY 18 to OCT2018)

Work load (Lecture/Practical) per week (55 minutes) : Lectures-03 , Practicals-03+03

Week	Theory		Practical Day	
	Lecture day	Topic (Including assignment/test)	Practical Day	Topic
1st	1st	Introduction	1st	1. To study the effect of coupling capacitor on lower cut off frequency and upper cut off frequency by plotting frequency response curve of a two stage RC coupled amplifier
	2nd	chapter 1. Transistor Audio Power Amplifier, Difference between voltage and power amplifier Important terms in Power Amplifier, collector efficiency,	2nd	1. To study the effect of coupling capacitor on lower cut off frequency and upper cut off frequency by plotting frequency response curve of a two stage RC coupled amplifier
	3rd	Classification of power amplifier class A, B and C		
2nd	4th	Class A single-ended power amplifier, its working and collector efficiency. Impedance matching in a power amplifier using transformer. Heat sinks in power	3rd	1. To study the effect of coupling capacitor on lower cut off frequency and upper cut off frequency by plotting frequency response curve of a two stage RC coupled amplifier
	5th	Push-pull amplifier: circuit details, working and advantages (no mathematical derivations)		
	6th	Principles of the working of complementary symmetry push-pull	4th	2. To measure (a) optimum load (b) output power (c) signal handling capacity of a push-pull amplifier
3rd	7th	Assignment ch 1 ,notebook checking	5th	
	8th	CH-2. Tuned Voltage Amplifier, Introduction, Series and parallel resonance (No mathematical derivation)	6th	viva
4th	10th	Frequency response of tuned voltage amplifiers.	7th	
		copy checking	8th	2. To measure (a) optimum load (b) output power (c) signal handling capacity of a push-pull amplifier
5th	13th	ch-3 Feedback in Amplifiers, Feedback and its importance, positive and negative feedback and their need, Voltage gain of an amplifier with negative feedback	9th	2. To measure (a) optimum load (b) output power (c) signal handling capacity of a push-pull amplifier
	15th	distortion, band width, output and input impedance of an amplifier (No mathematical derivation)	10th	viva
6th	16th	Typical feedback circuits	11th	3. To measure (a) voltage gain (b) input and output impedance for an emitter follower circuit. To measure frequency generation in (a) Hartley (b) R-C Phase Shift oscillator
	17th	Effect of removing the emitter by-pass capacitor on a CE transistor amplifier	12th	
	18th	Emitter follower and its applications		3. To measure (a) voltage gain (b) input and output impedance for an emitter follower circuit. To measure frequency generation in (a) Hartley (b) R-C Phase Shift oscillator
7th	19th	ch.4. Sinusoidal Oscillators – positive feedback in amplifiers	13th	frequency generation in (a) Hartley (b) R-C Phase Shift oscillator
	20th	Difference between an oscillator and an alternator	14th	viva
	21th	Essentials of an oscillator		4. To observe the differentiated and integrated square wave on a CRO for different values of R-C time constant

8th	22th	Circuit details and working of Tuned Colpitts oscillator	15th	4. To observe the differentiated and integrated square wave on a CRO for different values of R-C time constant
	23th	Hartley and Colpitt's oscillators	16th	viva
	24th	R-C oscillator circuits, phase shift and Wein bridge oscillator circuits		To generate square-wave using an astable multivibrator and to observe the wave form on a CRO and verify the result using p-spice software
9th	25th	Introduction to piezoelectric crystal and crystal oscillator circuit	17th	To generate square-wave using an astable multivibrator and to observe the wave form on a CRO and verify the result using p-spice software
	26th	CH-5. Wave-Shaping and Switching Circuits Concept of Wave-shaping, Wave-shaping circuits	18th	viva
	27th	R-C differentiating and integrating circuits,		5. Clipping of both portion of sine-wave using: a) diode and dc source b) /zener diodes Clamping a sine-wave to: a) Negative dc voltage b) Positive dc voltage
10th	28th	Diode clipping circuits, Applications of wave-shaping circuits	19th	5. Clipping of both portion of sine-wave using: a) diode and dc source b) /zener diodes Clamping a sine-wave to: a) Negative dc voltage b) Positive dc voltage
	29th	Transistor as a switch (explanation using CE transistor characteristics)	20th	viva
	30th	Collector coupled astable, monostable,		
11th	31th	bistable multivibrator circuits	21th	7. To observe triggering and working of a bistable
	32th	Brief mention of uses of multivibrators	22th	7. To observe triggering and working of a bistable multivibrator circuit and observe its output wave form on a CRO
	33th	Working and applications of transistor inverter circuit using power transistors		
12th	34th	Ch-6. Power supplies: Working Principles of different types of power supplies viz. CVTs	23th	viva
	35th	Working Principles of CVTs	24th	8. To use the op-Amp (IC 741) as inverting one and non-inverting amplifiers, adder, comparator, integrator and differentiator and verify the result using p-spice software
	36th	IC voltage regulator (78 XX, 79XX)		8. To use the op-Amp (IC 741) as inverting one and non-inverting amplifiers, adder, comparator, integrator and differentiator and verify the result using p-spice software
13th	37th	assignment ch 4&5, notebook checking	25th	
	38th	Ch-7 Operational Amplifier, The basic operational amplifier.	26th	viva
	39th	The differential amplifier.		
14th	40th	The emitter coupled differential amplifier	27th	9. To study the pin configuration and working of IC 555 and its use as monostable and astable multivibrator
	41th	Offset even voltages and currents	28th	9. To study the pin configuration and working of IC 555 and its use as monostable and astable multivibrator
	42th	7.2. Basic operational amplifier applications, integrator and differentiator, summer,		
15th	43th	Familiarization with specifications and pin configuration of IC 741	29th	viva
	44th	Block diagram and operation of 555 IC timer	30th	viva
	45th	Revision, note book checking		

LESSON PLAN

Name of Faculty : Ranbir Dahiya

Discipline : ELECTRICAL ENGG

Semester : 3rd

Subject : Estimating & Costing of electrical engg.

Work Load : Lecture-03, lab-03

Lesson Plan Duration- 15 weeks (July 2018 to Nov. 2018)

Week	Theory	Week	Practical
Theory Day		Practical Day	
1	Purpose of estimating and costing, proforma for making estimates, preparation of materials schedule, costing	1	Framing of Tender and reply to tender to get job/project
2	price list, preparation of tender document (with 2-3 exercises), net price list, market survey, overhead charges, labour charges	2	Framing of Tender and reply to tender to get job/project
3	electrical point method and fixed percentage method, contingency, profit, purchase system, enquiries, comparative statements, orders for supply, payment of bills.	3	Identification of wiring for different applications
4	Cleat, batten, casing capping and conduit wiring, comparison of different wiring systems, selection and design of wiring schemes for particular situation (domestic and Industrial)	4	Identification of wiring for different applications
5	Selection of wires and cables, wiring accessories and use of protective devices	5	Prepare an estimate for a Two room residential building as per given plan
6	MCB, ELCB etc. Use of wire-gauge and tables (to be prepared/arranged)	6	Prepare an estimate for a Two room residential building as per given plan
7	Domestic installations; standard practice as per IS and IE rules	7	Prepare an estimate for service connection for residential building having connected load ---- kW.
8	Planning of circuits, sub-circuits and position of different accessories, electrical layout,	8	Prepare an estimate for service connection for residential building having connected load ---- kW.
9	preparing estimates including cost as per schedule rate pattern and actual market rate (single storey and multi-storey buildings having similar electrical load)	9	Prepare an estimate for service connection for residential building having connected load ---- kW.
10	Industrial installations; relevant IE rules and IS standard practices, planning, designing and estimation of installation for single phase motors of different ratings, electrical circuit diagram, starters, preparation of list of materials, estimating and costing exercises on workshop with single-phase, 3-phase motor load and the light load (3-phase supply system)	10	Prepare an estimate for service connection for residential building having connected load ---- kW.
11	Service line connections estimate for domestic and industrial loads (over-head and under ground connections) from pole to energy meter	11	Prepare an estimate LT line
12	Estimating Materials Required-Transmission and distribution lines (overhead and underground) planning and designing of lines with different fixtures, earthing etc. based on unit cost calculations	12	Visit a nearby substation and list the components with diagram
13	Substation: Types of substations, substation schemes and components, estimate of 11/0.4 kV pole mounted substation up to 200 kVA rating, earthing of substations, Key Diagram of 66 kV/11 kV Substation.	13	Visit a nearby substation and list the components with diagram
14	Single line diagram, layout sketching of outdoor, indoor 11kV sub-station or 33kV sub-station	14	Prepare an estimate LT line
15	Preparation of tender Documents- At least 2-3 exercises, tender = constituents finalization, specimen tender	15	Prepare an estimate LT line

LESSON PLAN

Name of Faculty : Preeti Girdhar

Discipline : Electrical Engg.

Semester : 3rd

Subject : Fundamentals of Electrical Engg.

Work Load : 15 weeks(from July, 2018 November, 2018)

Week	Lecture day	Theory (Including Assignments and Tests)
1	1	Introduction
		Application and Advantages of Electrical Energy
		Different forms of energy
		Advantages of electrical energy
		Uses of electrical energy
	2	Basic Electrical Quantities
		Basic concept of charge, current, voltage, resistance, power, energy and their units
	3	Conversion of units of work, power and energy from one form to another
2	4	DC Circuits
		Ohm's law, resistances in series and parallel
	5	Kirchhoff's laws and their applications in solving electrical network problems
	6	Network theorems such as Thevenin's theorem, superposition theorem Maximum power transfer theorem and Norton's theorem
	7	Star-delta transformation
3	8	Batteries
		Basic idea about primary and secondary cells
	9	Working principle, construction and applications of Lead acid, Nickel Cadmium and Silver Oxide Cells
		Charging methods used for lead acid accumulator
	10	Care and maintenance of a lead acid battery
4		Grouping of cells in series and parallel (simple numerical problems).
	11	Revision
	12	Revision & Test
	13	Magnetism and Electromagnetism
5		Introduction to electromagnetism, Magnetic field around a straight current carrying conductor and a solenoid and methods to find its direction,
	14	force between two parallel current carrying conductors.
	15	Force on a conductor placed in the magnetic field
	16	Series magnetic circuits, simple problems
6	17	Concept of hysteresis, loop and hysteresis loss.
	18	5 Electromagnetic Induction
		Faraday's Laws of electromagnetic induction
	19	Lenz's law
6	20	Fleming's Right and Left Hand Rule
	21	Principle of self and mutual induction
	22	Principle of self and mutually induced e.m.f. and simple problems
	23	Inductances in series and parallel
	24	Revision

LESSON PLAN

Name of Faculty : Preeti Girdhar

Discipline : Electrical Engg.

Semester : 3rd

Subject : Fundamentals of Electrical Engg.

Work Load : 15 weeks(from July, 2018 November, 2018)

Week	Lecture day	Theory (Including Assignments and Tests)
7	25	Energy stored in a magnetic field
	26	Concept of eddy currents, eddy current loss
	27	AC Fundamentals
	28	Concept of A.C. generation (single phase and three phase)
8	29	Difference between A.C and D.C
	30	Concept of alternating current and voltage,
	31	equation of instantaneous values, average value, r.m.s value, form factor, power factor etc.
	32	Revision
9	33	Concept of phase and phase difference.
	34	Representation of alternating sinusoidal quantities by vectors
	35	Phasor algebra (addition, subtraction, multiplication and division of complex quantities)
	36	Revision
10	37	AC Circuits
	38	AC through pure resistance, inductance and capacitance
	39	Alternating voltage applied to RL,RC and RLC series and parallel circuits (impedance triangle, phasor diagram and their solutions)
	40	Revision
11	41	Introduction to susceptance, conductance and admittance
	42	Power in pure resistance, inductance, capacitance, RL, RC, RLC circuits
	43	Active and reactive components of current and their significance
	44	Revision
12	45	Power factor and its practical significance
	46	Poly-Phase Systems
	47	Advantages of 3 ϕ over 1- ϕ system
	48	Revision
13	49	Star & delta connections (derive relationship b/w phase Voltage(V_{ph})
	50	Line Voltage (V_L) and Phase Current (I_{ph}) Line Current (I_L) in star delta connections
	51	Revision
	52	Revision
14	53	3-phase balanced and unbalanced circuits
	54	Power in 3-phase circuits
	55	Revision & Test
	56	Revision & Test
15	57	Revision & Test
	58	Revision & Test
	59	Revision & Test
	60	Revision & Test