



1st YEAR BREAKUP SYLLABUS OF ELECTRICIAN TRADE

Week	Date	Topics	Remarks
1	05-Aug-19	Scope of Electrician Trade	
		Safety Rules & safety signs	
		Types and working of fire extinguisher	
		First aid safety practice	
		Hazard identification and prevention	
2	12-Aug-19	Personal safety and factory safety	
		Response to emergencies	
		Power Failure, system failure and fire etc.	
		Concept of standards and advantages of BIS/ISI	
		Trade tools specifications	
		Introduction to National electrical code-2011	
3	19-Aug-19	Allied trades: Introduction to fitting tools, safety-preventions.	
		Description of files, Hammers	
		Chisels, Hacksaw frames, Blades and their specifications and grades	
		Marking tools description and use.	
		Types of drills, description drilling machines	
		Various wooden joints	
4	26-Aug-19	Marking Tools, calipers, dividers, surface plates	
		Angle plates, scribes, punches, surface gauges types, uses case and maintenance	
		Sheet metal tools, description of marking & cutting tools	
		Types of rivets and riveted joints use of thread gauge.	
		Description of carpenter's tools care and maintenance of tools	
5	02-Sep-19	Fundamentals of electricity definitions, units.	
		Effects of electric current.	
		Conductors and insulators.	
		Conducting materials and their comparison.	
		Joints in electrical conductors. Techniques of soldering.	
6	09-Sep-19	Types of solders and flux.	
		Underground cables: Description types.	
		Various Joints and testing procedure.	
		Cable insulation & voltage grades.	
		Precautions in using various types of cables.	
7	16-Sep-19	Ohm's law, simple electrical circuits and problems.	
		Kirchoff's law, simple electrical circuits and problems.	
		Series and parallel circuits. Open and short circuits, in series and parallel networks	
		Law of resistance.	
		Types of resistors.	
8	23-Sep-19	Wheatstone bridge, principle and its applications	
		Effects of variation of temperature on resistance	
		Different methods of measuring the values of resistance	
		Series and parallel combination of resistors	
9	30-Sep-19	Magnetic terms, magnetic materials	
		properties of magnet.	
		Principles and laws of electromagnetism.	
		Self and mutually induced EMFs	

10	07-Oct-19	Electrostatics: Capacitor- Different types, functions, grouping and uses.	
		Inductive and capacitive reactance, their effect on AC circuit and related vector concepts.	
		Comparison and Advantages of DC and AC systems.	
11	14-Oct-19	Related terms frequency, Instantaneous value,	
		R.M.S. value, Average value, Peak factor, form factor, power factor and Impedance etc.	
		Sine wave, phase and phase difference.	
		Active and Reactive power. Single Phase and three-phase system.	
		Problems on A.C. circuits.	
12	21-Oct-19	Advantages of AC poly-phase system.	
		Concept of three-phase Star and Delta connection.	
		Line and phase voltage, current and power in a 3 phase circuits	
		balanced and unbalanced load	
		Phase sequence meter.	
13	28-Oct-19	Measure current and voltage of two phases in case of one phase is short-circuited in three phase	
		three phase four wire system and compare with healthy system	
14	04-Nov-19	Chemical effect of electric current and Laws of electrolysis.	
		Explanation of Anodes and cathodes.	
		Types of cells	
15	11-Nov-19	advantages / disadvantages and their applications.	
		Lead acid cell. Principle of operation and components. Types of battery charging, Safety precautions.	
16	18-Nov-19	Test equipment and maintenance.	
		Basic principles of Electro-plating and cathodic protection	
		Grouping of cells for specified voltage and current.	
		Principle and operation of solar cell.	
17	25-Nov-19	I.E. rules on electrical wiring. Types of domestic and industrial wirings.	
		Study of wiring accessories e.g. switches, fuses, relays, MCB, ELCB, MCCB etc.	
18	02-Dec-19	Grading of cables and current ratings.	
		Principle of laying out of domestic wiring.	
		Voltage drop concept.	
19	09-Dec-19	PVC conduit and Casing-capping wiring system	
		Different types of wiring	
		Power, control, Communication and entertainment wiring.	
		Wiring circuits planning	
20	16-Dec-19	permissible load in sub-circuit and main circuit	
		Estimation of load, cable size, bill of material and cost	
		Inspection and testing of wiring installations.	
		Special wiring circuit e.g. godown, tunnel and workshop etc.	
21	23-Dec-19	Importance of Earthing.	
		Plate earthing and pipe earthing	
		Methods and IEE regulations.	
		Earth resistance and earth leakage circuit breaker.	
22	30-Dec-19	Laws of Illuminations.	
		Types of illumination system.	
23	06-Jan-20	Illumination factors, intensity of light.	
		Type of lamps, advantages/ disadvantages	
24	13-Jan-20	Their applications.	
		Calculations of lumens and efficiency.	
25	20-Jan-20	Classification of electrical instruments	
		essential forces required in indicating instruments.	
26	27-Jan-20	PMMC and Moving iron instruments.	

26	27-Jan-20	Measurement of various electrical parameters	
27	03-Feb-20	different analog and digital instruments. Measurement of energy in three phase circuit.	
28	10-Feb-20	Errors and corrections in measurement. Loading effect of voltmeter and voltage drop effect ammeter in circuits. Extension of range and calibration measuring instruments.	
29	17-Feb-20	Working principles and circuits	
30	24-Feb-20	Common domestic equipment and appliances.	
31	02-Mar-20	Concept of Neutral and Earth.	
32	09-Mar-20	Working principle, construction and classification of transformer. Single phase and three phase transformers	
33	16-Mar-20	Single phase and three phase transformers. Turn ratio and e.m.f. equation.	
34	23-Mar-20	Series and parallel operation of transformer. Voltage Regulation and efficiency	
35	30-Mar-20	Auto Transformer and instrument transformers (CT & PT). Method of connecting three single phase transformers for three phase operation. Types of Cooling, protective devices, bushings and termination etc. Testing of transformer oil. Materials used for winding and winding wires in small transformer.	
36-48	06-Apr to 30-Jun-20	Revision	

