GURUKUL
Pvt. Industrial Training Institute

2nd YEAR BREAKUP SYLLABUS OF ELECTRICIAN TRADE PRACTICAL			
Week	**Date**	**Professional Skills (Trade Practical) With Indicative Hours**	**Remarks**
1 to 2	20-Aug-19 to 5-Sep-19	115. Identify terminals, parts and connections of different types of DC machin	
		116. Measure field and armature resistance of DC machine	
		117. Determine build up voltage of DC shunt generator with varying field excitation and performance analysis on load.	
		118. Test for continuity and insulation resistance of DC machine.	
		119. Start, run and reverse direction of rotation of DC series, shunt and compound motors.	
3 to 4	6-Sep-19 to 20-Sep-19	120. Perform no load and load test and determine characteristics of series and shunt generators	
		121. Perform no load and load test and determine characteristics of compound generators (cumulative and differential).	
		122. Practice dismantling and assembling in DC shunt motor)	
		123. Practice dismantling and assembling in DC compound generator.	
5 to 6	21-Sep-19 to 4-Oct-19	124. Conduct performance analysis of DC series, shunt and compound motors	
		125. Dismantle and identify parts of three point and four point DC motor starters.	
		126. Assemble, Service and repair three point and four point DC motor starters. Practice maintenance of carbon brushes, brush holders, Commutator and slip-rings	
	5-Oct-19 to 15-Oct-19	128. Perform speed control of DC motors - field and armature control method.	
		129. Carry out overhauling of DC machines.	
7 to 8		130. Perform DC machine winding by developing connection diagram, test on growler and assemble.	
	16-Oct-19 to 30-Oct-19	131. Identify parts and terminals of three phase AC motors	
		132. Make an internal connection of automatic star-delta starter with three contactors.	
		133. Connect, start and run three phase induction motors by using DOL, star- delta and auto-transfo	
		134. Connect, start, rmer starters. (run and reverse direction of rotation of slip-ring motor through rotor resistance, starter and determine, performance characteristic.	
9 to 10	1-Nov-19 to 15-Nov-19	135. Determine the efficiency of squirrel cage induction motor by brake test	
		136. Determine the efficiency of three phase squirrel cage induction motor by no load test and blocked rotor test.	
		137. Measure slip and power factor to draw speed- torque (slip/torque) characteristics.)	
		138. Test for continuity and insulation resistance of three phase induction motors	
		139. Perform speed control of three phase induction motors by various methods like rheostatic control, autotransformer etc	
11	16-Nov-19 ot 24-Nov-19	140. Perform winding of three phase AC motor by developing connection diagram, test and assemble.	
		141. Maintain, service and troubleshoot the AC motor starter	
12 to 13	25-Nov-19 ot 8-Dec-19	142. Identify parts and terminals of different types of single phase AC motors.	
		143. Install, connect and determine performance of single phase AC motors. Start, run and reverse the direction of rotation of	
		single phase AC motors.	
		145. Practice on speed control of single phase AC motors.	
		146. Compare starting and running winding currents of a capacitor run motor at various loads and measure the speed	
14 to 15	9-Dec-19 to 22-Dec-19	147. Carry out maintenance, service and repair of single phase AC motors	
		148. Practice on single/double layer and concentric winding for AC motors, testing and assembling	
		149. Connect, start, run and reverse the direction of rotation of universal motor	
		150. Carry out maintenance and servicing of universal motor	
16 to 17	23-Dec-19 to 8-Jan-20	151. Install an alternator, identify parts and terminals of alternator	
		152. Test for continuity and insulation resistance of alternator	
		153. Connect, start and run an alternator and build up the voltage	
		154. Determine the load performance and voltage regulation of three phase alternator.	
		155. Parallel operation and synchronization of three phase alternators.	
18	9-Jan-20 to 15-Jan-20	156. Install a synchronous motor, identify its parts and terminals	
		157. Connect, start and plot V- curves for synchronous motor under different excitation and load conditions	
19	16-Jan-	158. Identify parts and terminals of MG set	

19	20 to 25-	159. Start and load MG set with 3 phase induction motor coupled to DC shunt generator.	
20	27-Jan-20 to 4-Feb-20	160. Determine the value of resistance by colour code and identify types	
		161. Test active and passive electronic components and its applications	
21 to 22	5-Feb-20 to 20-Feb-20	162. Determine V-I characteristics of semiconductor diode	
		163. Construct half wave, full wave and bridge rectifiers using semiconductor diode	
		164. Check transistors for their functioning by identifying its type and terminals	
		165. Bias the transistor and determine its characteristicsUse transistor as an electronic switch and series voltage regulator	
22 to 23	21-Feb-20 to 4-Mar-20	167. Operate and set the required frequency using function generator.	
		168. Make a printed circuit board for power supply.	
		169. Construct simple circuits containing UJT for triggering and FET as an amplifier	
23 to 24	5-Mar-20 to 15-Mar-20	170. Troubleshoot defects in simple power supplies	
		171. Construct power control circuit by SCR, Diac, Triac and IGBT	
		172. Construct variable DC stabilized power supply using IC	
		173. Practice on various logics by use of logic gates and circuits	
		174. Generate and demonstrate wave shapes for voltage and current of rectifier, single stage amplifier and oscillator using CRO	
25 to 26	16-Mar-20 to 30-Mar-20	175. Design layout of control cabinet, assemble control elements and wiring accessories for: (i) Local and remote control of induction motor	
		(ii) Forward and reverse operation of induction motor	
		(iii) Automatic star-delta starter with change of direction of rotationSequential control of three motors.	
27 to 28	1-Apr-20 to 14-Apr-20	176. Carry out wiring of control cabinet as per wiring diagram, bunching of XLPE cables, channeling, tying and checking etc	
		177. Mount various control elements e.g. circuit breakers, relays, contactors and timers etc.	
		178. Identify and install required measuring instruments and sensors in control panel	
		179. Test the control panel for its performance.	
29 to 30	15-Apr-20 to 27-Apr-20	180. Perform speed control of DC motor using thyristors / DC drive.	
		181. Perform speed control and reversing the direction of rotation of AC motors by using thyristors / AC drive.	
		182. Construct and test a universal motor speed controller using SCR	
31 to 32	28-Apr-20 to 18-May-20	183. Assemble circuits of voltage stabilizer and UPS.	
		184. Prepare an emergency light	
		185. Assemble circuits of battery charger and inverter	
		186. Test, analyze defects and repair voltage stabilizer, emergency light and UPS.	
		187. Maintain, service and troubleshoot battery charger and inverter	
		188. Install an Inverter with battery and connect it in domestic wiring for operation	
33	19-May-20 to 27-May-20	189. Draw layout of thermal power plant and identify function of different layout elements	
		190. Draw layout of hydel power plant and identify functions of different layout elementsVisit to transmission / distribution substation	
		191. Draw actual circuit diagram of substation visited and indicate various components	
34	28-May-20 to 7-Jun-20	193. Prepare layout plan and Identify different elements of solar power systemPrepare layout plan and Identify different elements of wind power system. Assemble and connect solar panel for illumination	
35	8-Jun-20 to 15-Jun-20	196. Practice installation of insulators used in HT/LT line for a given voltage range	
		197. Draw single line diagram of transmission and distribution system.	
		198. Measure current carrying capacity of conductor for given power supply	
		199. Fasten jumper in pin, shackle and suspension type insulators	
36	16-Jun-20-30-Jun-20	203. Identify various parts of relay and ascertain the operation.	
		204. Practice setting of pick up current and time setting multiplier for relay operation.	
		205. Identify the parts of circuit breaker, check its operation.	
		206. Test tripping characteristic of circuit breaker for over current and short circuit current.	
		207. Practice on repair and maintenance of circuit breaker.	

37 to 38	Project work / Industrial visit Broad Areas: a) Battery charger/Emergency light b) Control of motor pump with tank level c) DC voltage converter using SCRs d) Logic control circuits using relays e) Alarm/indicator circuits using sensors	
39 to 51	Revision	
52	Examination	