Punjab Institute of Technology GTB Garh (Moga)

(A Constituent College of Maharaja Ranjit Singh Punjab Technical University, Bathinda))

DEPARTMENT OF ELECTRICAL ENGINEERING

Skill Course Electrician Lab Specification

S. No.	Experiment Name	Apparatus Required	Quantity	Specification
1	**Practice on running on various starters like DOL, star delta,**	DOL, star delta starters	1	**(i)** Direct on line Starter (DOL Starter) 3 phase 415 Volt, all the parts including Relays, Contactors, push button ON/OFF switch, indicating lights are all arrange and fitted on a bakelite sheet with connections. **(ii)** Star /Delta Starter 3 phase 415 Volt, all the parts including Relays, Contactors, push button ON/OFF switch, indicating lights are all arrange and fitted on a bakelite sheet with connections.
2	**Connection of shunt generators. Voltage build-up in D.C. generator**	Panel set up for Connection of shunt generators. Voltage build-up in D.C. generator	1	**D.C. SHUNT MOTOR :** Type : DC Motor, shunt wound, self excited, screen protected, horizontal foot mounted, fan cooled. Capacity : 2 HP ; Winding : Shunt wound.; R.P.M. : 1500 ; Volts. : 230 ; Insulation : Class 'B' Connections : All the terminals of armature and shunt field shall be brought over to a bakelite sheet, fixed to C.I. terminal box, fitted on top of Motor. **D.C. SHUNT GENERATOR :** Type : DC Generator, Shunt wound, self excited, screen protected, horizontal foot mounted, fan cooled. Capacity : 1.0 KW ; R.P.M. : 1500 ; Volts. : 230 ; Insulation : Class 'B' Connections : All the terminals of armature and shunt field shall be brought over to a bakelite sheet, fixed to C.I. terminal box, fitted on top of Motor. Both The Machines must be Flexibly Coupled And Mounted On Sturdy M.S. Channel Base. The terminals of armature and shunt field windings of both the machines shall be brought over to bakelite plate fixed on C.I. Terminal box fitted on top of machine.

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3	**To study effect of variation of field current upon the stator current and power factor of synchronous motor running at no load draw V and Inverted V Curves**	Panel set up for with load and field varation for synchronous motor for draw a V and inverted V curves	1	**Synchronous Motor with Field and Load varaitoins panel, Screen protected. Horizontal foot mounted.** Capacity : 2 HP ; RPM : 1500 ; Volts : 415 ; Insulation : Class 'B' Connections : Connections of stator brought over to a terminal box fixed to top of motor. Excitation : Static type Mechanical Loading : Loading of the Motor shall be made through Pronney brake arrangement, consisting of a C.I. drum pulley, suitable for water cooling, round dial spring balances, canvas belt with hooks, C.P. wheels with threaded studs for tightening the belt, frame.
4	**To start the synchronous motor using apporpriate method**	Panel set up for showing the different starting method for snchronous motors	1	**Synchronous Motor with damper winding or pony motor setup for starting** Capacity : 1 HP ; R.P.M. : 1500 ; Volts : 220 ; Insulation : Class 'B' Connections : All the four terminals of auxiliary winding & main winding are brought over to a bakelite sheet, fixed to C.I. terminal box, fitted on top of Motor. Mechanical Loading : Loading of the Motor shall be made through Pronney brake arrangement, consisting of a C.I. drum pulley, suitable for water cooling, round dial spring balances, canvas belt with hooks, C.P. wheels with threaded studs for tightening the belt, frame.
5	**Speed control and practical application of AC motors like universal motors**	Panel set up for Speed control and practical application of AC motors like universal motors	1	**AC/DC Universal Motor** Capacity : 1 HP; Volts : 220 ; Insulation : Class 'B' Connections : All the terminals winding are brought over to a bakelite sheet, fixed to C.I. terminal box, fitted on top of Motor. Mechanical Loading : Loading of the Motor shall be made through Pronney brake arrangement, consisting of a C.I. drum pulley, suitable for water cooling, round dial spring balances, canvas belt with hooks, C.P. wheels with threaded studs for tightening the belt, frame.
6	**Speed control and practical application of AC motors like split phase motors.**	Panel set up for Speed control and practical application of AC motors like split phase motors.	1	Type : Spilt Phase Motor Capacity : 0.25HP; Volts : 220 ; Insulation : Class 'B' Connections : All the terminals winding are brought over to a bakelite sheet, fixed to C.I. terminal box, fitted on top of Motor. Mechanical Loading : Loading of the Motor shall be made through Pronney brake arrangement, consisting of a C.I. drum pulley, suitable for water cooling, round dial spring balances, canvas belt with hooks, C.P. wheels with threaded studs for tightening the belt, frame.

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7	**Identification of parts and terminals of alternator. Connection for starting, and running of alternator.**	cross section of alternator	1	**Alternator 0.75 KVA, 3 phase, 415 V, 4 wire, Star connected.** Cut Section Model of 3 phase Alternator, consisting of Quarter cut section, including Shaft of the enclosed cover to show the constructional details of the Alternator, such as Armature, Poles and their winding details, shaft with Sliprings. The Alternator is fitted on an appropriate size of M.S. channel frame. Silicon Steel laminations are used for Poles and ARMATURE Core and are wound with S.E. Copper wire. All terminals are brought to a Bakelite sheet and all parts and terminals are properly marked. The model is a working one.
8	**Demonstration of current and potential transformers**	current and potential transformers	1	Complete experimental setup consisting of CT, PT, Suitable Electrical Loading arrangement, Variable Voltage & Current Source and Clamp-on Meter.
9	**Speed control of 3 phase Induction motor using krmamer method**	Panel setup for krammer method	1	**3 phase slip ring motor** Speed Contro panel must have these components Capacity : 3 HP ; R.P.M. : 1420 ; Volts : 220 ; Insulation : Class 'B' Connections : All the four terminals of auxiliary winding & main winding are brought over to a bakelite sheet, fixed to C.I. terminal box, fitted on top of Motor. Mechanical Loading : Loading of the Motor shall be made through Pronney brake arrangement, consisting of a C.I. drum pulley, suitable for water cooling, round dial spring balances, canvas belt with hooks, C.P. wheels with threaded studs for tightening the belt, frame.
10	**To obatain the characteristics of DC series generators.**	Panel setup to obtain performance and different characteristics of DC series generators	1	**DC Series Generator with complete setup for testing and inbuilt rectifier kit** The experiment must be consist of these : Capacity : 1 HP ; R.P.M. : 1500 ; Volts : 220 ; Insulation : Class 'B' Connections : All the four terminals of auxiliary winding & main winding are brought over to a bakelite sheet, fixed to C.I. terminal box, fitted on top of Motor. Mechanical Loading : Loading of the Motor shall be made through Pronney brake arrangement, consisting of a C.I. drum pulley, suitable for water cooling, round dial spring balances, canvas belt with hooks, C.P. wheels with threaded studs for tightening the belt, frame.

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