

ELECTRIC MACHINES LAB

About the Lab:

Block 6, Room No. 615 and 616, EEE Department, MAIT

Lab In-Charge: Mr Sheersh Garg

Lab Assistant: Mr. Harish Kumar Tomar

Lab Attendant: Mr. Rahul

Objective: Providing sound knowledge about the principles of operation of various electrical machines, their constructional features, and their behaviour and characteristics under various condition of operation.

Following practical subjects are practiced in the lab as per university curriculum:

Electric Machines I



Electric Machines II



List of Equipments

| S. NO. | ITEM DESCRIPTION | QUANTITY |
|--------|--|----------|
| 1 | Hysteresis motor (single phase AC) | 2 |
| 2 | Universal motor (single phase AC) | 1 |
| 3 | Induction type motor (single phase AC) with capacitor 0.75 kw, 1 hp, 220 V, 1500 rpm six terminal | 2 |
| 4 | Induction type motor (single phase AC) with capacitor 1 hp, 220 V, 8 Amp, 1500 rpm four terminal | 2 |
| 5 | Single phase induction motor 1 hp, 220 V, 1500 rpm coupled with shunt generator 1 KW, 220 V, 1500 rpm | 2 |
| 6 | Three phase induction motor slip ring type 3.7KW, 5HP, 1500 rpm, 440 V coupled with dc shunt generator 3.75 KW, 1500 rpm, 230V, 15 Amp | 2 |

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| 7 | Synchronous motor three phase, 5 hp, 1500 rpm coupled with dc shunt generator 3kw, 1500 rpm, coupled with exciter shunt wound 0.75kw, 1500 rpm | 1 |
| 8 | Squirrel cage induction motor (three phase ac) 1hp, 440 V, 960rpm, 6 terminal | 2 |
| 9 | Squirrel cage induction motor (three phase ac) with pulley spring balance 3hp, 1440rpm, 415 V, 4 amp | 1 |
| 10 | Schrage motor (three phase ac) 7.5hp, 11.5 Amp, 400v, 600-2100 rpm | 1 |
| 11 | Shunt wound dc motor with mechanical breaking 5hp, 220V, 1500rpm | 2 |
| 12 | Shunt wound dc motor 1hp, 4 Amp, 1500rpm, 220V | 2 |
| 13 | DC shunt motor, 2.25kw, 1500rpm, 220V coupled with dc shunt generator 3kw, 1500rpm, 220 V, 8 Amp | 2 |
| 14 | DC shunt motor 5hp, 1500rpm coupled with induction generator 5kw, 1440rpm | 1 |
| 15 | DC motor shunt wound 5hp, 1500rpm coupled with 3 phase alternator 3kw, 1500rpm, 415 V | 1 |
| 16 | DC shunt motor 1kw, 1500rpm coupled with 3phase alternator 400 V | 1 |
| 17 | DC shunt motor 5 HP, 1500 rpm coupled with 3 phase alternator 440 V, 3 KVA with one control panel | 3 |
| 18 | Stepper motor study trainer | 2 |
| 19 | Transformer (single phase) 2kva, 230/230V, 50 Hz with 50% and 86.6% tappings on the secondary side | 6 |
| 20 | Transformer (single phase) 2kva, 220/110V, 50 Hz with centre tapping on the secondary side | 6 |
| 21 | Transformer (three phase) 3kva, 400/220V, 50 Hz with centre tapping on the secondary side | 3 |
| 22 | 3 Phase to 2 phase conversion transformer 3kva, 400/220V, 50 Hz with centre tapping on the secondary side | 2 |
| 23 | Variac (single phase) Input – 240V, Output – 0-270V, 15amp | 5 |
| 24 | Variac (3 phase) 415 V, Output current- 15 amp per line | 3 |
| 25 | DC rectifier continuously variable, Input – 230 V, Output – 0-270 V, 10 amp | 1 |
| 26 | 3 phase load (capacitive) 415 V, 0-10 amp | 1 |
| 27 | 3 phase load (inductive) 415 V, 0-10 amp | 1 |
| 28 | Loading rheostat (single phase) 230 V, 3 KW | 3 |
| 29 | Loading rheostat (single phase) 220 V, 2.5 KW | 3 |
| 30 | Loading rheostat (single phase) 250 V, 5 KW | 3 |
| 31 | Loading rheostat (three phase) 415 V, 5 KW | 1 |
| 32 | Loading rheostat (three phase) 440 V, 5.1 KW | 2 |
| 33 | Star delta starter | 2 |
| 34 | Direct- on- line starter | 2 |
| 35 | DC 3 point starter 220 V | 6 |
| 36 | Tachometer (digital laser type) | 9 |
| 37 | Tachometer (hand type) | 1 |
| 38 | Rheostat 50 ohm, 5 amp | 3 |
| 39 | Rheostat 100 ohm, 5 amp | 1 |

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| 40 | Rheostat 1.1 kilo ohm, 1.2 amp | 3 |
| 41 | Rheostat 1000 ohm, 1.2 amp | 2 |
| 42 | Rheostat 300 ohm, 1.5 amp | 9 |
| 43 | Rheostat 1500 ohm, 0.5 amp | 2 |
| 44 | Rheostat 10 ohm, 10 amp | 3 |
| 45 | Rheostat 320 ohm, 1.6 amp | 1 |
| 46 | Wattmeter (single phase) portable 300/600 V, 10/20 amp | 6 |
| 47 | Wattmeter(single phase) portable electrodynamicometer type 150/300V , 5/10 amp | 2 |
| 48 | Wattmeter (single phase) portable 250/500 V, 1/2 amp | 2 |
| 49 | Wattmeter (three phase) portable dynamometer type 300/600 V, 10/20 amp | 1 |
| 50 | Digital multimeter | 5 |
| 51 | Voltmeter (AC M.I type) 0-150/300 V | 8 |
| 52 | Voltmeter (AC M.I type) 0-300/600 V | 8 |
| 53 | Voltmeter (AC M.I type) 0-75/150 V | 4 |
| 54 | Ammeter (AC M.I type) 0-1 amp | 3 |
| 55 | Ammeter (AC M.I type) 0-2 amp | 2 |
| 56 | Ammeter (AC M.I type) 0-5/10 amp | 8 |
| 57 | Ammeter (AC M.I type) 0-10/20 amp | 5 |
| 58 | Ammeter (AC M.I type) 0-15/30 amp | 2 |
| 59 | Milli ammeter (AC M.I type) 0-500 milli amp | 3 |
| 60 | Milli ammeter (AC M.I type) 0-750 milli amp | 2 |
| 61 | Voltmeter DC permanent magnet moving coil type 0-30 V | 1 |
| 62 | Voltmeter DC permanent magnet moving coil type 0-150/300 V | 2 |
| 63 | Voltmeter DC permanent magnet moving coil type 0-300 V | 4 |
| 64 | Voltmeter DC permanent magnet moving coil type 0-250 V | 12 |
| 65 | Ammeter DC permanent magnet moving coil type 0-1 amp | 8 |
| 66 | Ammeter DC permanent magnet moving coil type 0-2 amp | 12 |
| 67 | Ammeter DC permanent magnet moving coil type 0-5 amp | 11 |
| 68 | Ammeter DC permanent magnet moving coil type 0-10 amp | 10 |