

**WIREMAN
COMMON FOR ALL SEMESTER**

S.No.	Specification of Items	Qty
1	Steel rule 30 CM	17 Nos
2	Screw Driver	17 Nos
3	Screw Driver	17 Nos
4	Terminal screw Driver	17 Nos
5	Knife Electrician	17 Nos
6	Hammer Ball peen.	17 Nos
7	Plumb bob	17 Nos
8	Combination pliers insulated	17Nos
9	Neon tester pencil bit type	17 Nos
10	Try square	17 Nos
11	Small crimping tools (assorted)	17 Sets
12	Spanner set DE	17 Sets
13	Screw driver set (set of 5)	17 Sets
14	File half round 2nd cut	17 Nos
15	File round 2nd cut	17 Nos
16	Soldering iron	17 Nos
17	Neon tester	17 Nos

**EQUIPMENT & MACHINERY IS COMMON FOR SEMESTER
I**

1	Forge with hand blower	1
2	Conduit pipe cutting and threading machines adjustable for 15mm to 30mm.	1
3	Conduit pipe bending machine, suitable for 15mm,18mm, 25mm and 30mm pipe	1
4	Bar magnet	1
5	Drill bit 6mm, 8mm & 10 mm	1
6	Horse shoe magnet	1
7	Crimping tool 25mm	1 no
8	Crimping tool for telephone/LAN cable	1 no
9	Rubber matting 2 meter x 1 meter x 9mm	2 Nos.
10	Writing board on stand 3 meter x 1 meter with 0.5 meter projection on the top	1
11	Fire extinguishers Dry chemical 5 Kg	2
12	Set of Rowel punch 8,10mm	16
13	Rawal tool holder & Bit No.8, 10, 14, & 16	2 set
14	Set of Wall jumper octagonal 37mm X 450mm and 37 X 600mm	4 set
15	Center punch 100mm	2
16	Combination pliers insulated 200 mm insulated	16
17	Rule four fold wood 600 mm	16
18	Spanner set DE 6X7,8X9,10X11,12X13,14X15,16X17 Set of 6	16

19	Bradawl 150 mm X 6mm square pointed	16
20	Set of Rowel punch 8,10mm	16
21	wooden mallet 1kg.(75mm x15mm)	16
22	Pliers side cutting insulated 200mm	5
23	Pliers flat nose insulated 150mm	5
24	Pliers round nose insulated 200mm	5
25	Pliers long nose insulated 200mm	5
26	Screw driver heavy duty 200mm	2
27	Screw driver heavy duty 300 mm	5
28	Firmer chisel 1”	10
29	Firmer chisel ½”	10
30	Hammer Ball Peen 0.50 kg.	5
31	Wire stripper 150mm	5
32	Hammer Ball Peen 1.00 kg	5
33	Hammer cross Peen 0.50 kg.	5
34	Rawal tool holder & Bit No.8, 10, 14, & 16	2 set
35	Set of Wall jumper octagonal 37mm X 450mm and 37 X 600mm	4 set
36	Scriber 150mm	2
37	File flat 300mm rough	5
38	File flat round 150mm smooth	5
39	File round 300mm 2nd cut	5
40	File triangular 150mm 2nd cut	5
41	Spanner set of 6 18X19,20X22,21X23,24X27,25X27,30X32, Double ended	2 set
42	Adjustable spanner 300mm	1
43	Foot print Grip 250mm	2
44	Allen keys Set 5 to 11	1 set
45	Spirit level 300mm	1
46	Electric soldering iron 125 watts 230-250 V	2
47	Blow lamp 1 liter capacity	2
48	Forge with hand blower	1
49	Bench vice 150mm	5
50	Hand vice 50mm jaw	5
51	Rubber gloves 5000volts	2 pair
52	Safety belt with provision for keeping tools	10
53	Tower ladder on type wheels Aluminum 6 to 9 meters Min 10ft-Max 30ft	2
54	Portable extension ladder	1
55	Trowel 150mm	2
56	All types C.F.L. lamp sets 5watt,15watt,25watt	3 each

EQUIPMENT & MACHINERY IS COMMON FOR SEMESTER II

1	Multi meter Technical Specifications: DC Voltage range : 400mV, 4V, 40V, 400V, 1000V Accuracy : +(0.5% + 4 Digit)	4
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	DC Current range : 400microA, 4000microA, 40mA, 400mA, 10A Accuracy : +(1% + 6 Digit) AC Voltage range : 400mV, 4V, 40V, 400V, 750V Accuracy : + (0.8% + 6 Digit) AC Current range : 400microA, 4000microA, 40mA, 400mA, 10A Accuracy : +(1.5% + 10 Digit) Resistance range : 400ohm, 4Kohm, 40Kohm, 400Kohm, 4Mohm, 40Mohm Accuracy : + (0.8% + 4 Digit) Capacitance range : 4nF, 40nF, 400nF, 4microF, 200microF Accuracy : + (2.5% + 6 Digit) Frequency : 100Hz, 1000Hz, 10kHz, 1MHz, 30MHz Accuracy : +(0.5% + 4 Digit) Temperature : -40OC ~ 1000OC Accuracy : +(0.8% + 4 Digit) Input impedance : 10Mohm Sampling Rate : 3s AC Frequency Response :40 ~ 400Hz Power requirement : Battery AA, 1.5V x 2nos Weight : 400g Approx. Standard Accessories : Probes, Batteries, Instruction manual	
2	Hot wire Ammeter 0-15 Amps.	1
3	Wheatstone Bridge Technical Specification Series Arm : Four decade dial in steps of 1000W, 100W, 10W , 1W . Ratio Arm : The ratio arm of bridge are capable of Selecting multiplying factor of 0.001, 0.01, 0.1, 1, 10, 100,1000 for resistance measurement & varley loop test & ratio M10, M100, M1000 for Murray loop test. One selectable switch with option for Murray (M) loop & For resistance/Varley (VR) loop test. One galvanometer fitted inside the box with option of external or internal galvanometer with terminal . Two press keys provided marked as initial & final. Two toggle switches are provided one for internal or external battery and other for direct or shunted sensitivity of galvanometer.	1
4	Electrical power drilling machine 12mm, capacity 250 volts universal type	1
5	Megger (Insulation tester) 500 volts	2
6	Voltmeter M.C. O.-300 volts Housed in a ABS Plastic case precision grade with a Bakelite box terminal	1
7	Voltmeter M.C/ Multi range 0.70, 150,300 & 600 V Housed in a ABS Plastic case precision grade with a Bakelite box terminal	1
8	Voltmeter M.C. Multi range 0-15,30,50 & 75 V Housed in a ABS Plastic case precision grade with a Bakelite box	1

	terminal	
9	Voltmeter centre zero 15-0-15 volts Housed in a ABS Plastic case precision grade with a Bakelite box terminal	1
10	Voltmeter M.I. multi-range 0-150, 300, 600 V Housed in a ABS Plastic case precision grade with a Bakelite box terminal	2
11	Voltmeter M.I. multi-range 0-50, 75, 150 V Housed in a ABS Plastic case precision grade with a Bakelite box terminal	1
12	Ammeter M.I. 0-30 Amp, panel board type Housed in a ABS Plastic case precision grade with a Bakelite box terminal	2
13	Ammeter M.I. 0-5Amp. Panel board type Housed in a ABS Plastic case precision grade with a Bakelite box terminal	2
14	Ammeter M.I 0 - 10 Amp. panel board mounting type Housed in a ABS Plastic case precision grade with a Bakelite box terminal	1
15	Ammeter M.C. Centre zero 5-0-5Amp Housed in a ABS Plastic case precision grade with a Bakelite box terminal	1
16	Ammeter MC 0 – 1 Amp Housed in a ABS Plastic case precision grade with a Bakelite box terminal	1
17	Field regulator 0 – 1000 ohmic, 2 Amps	1
18	Single phase K.W.H meter digital 5A, 250 V A. C	4
19	Single phase K.W.H meter analog 5A, 250 V A. C	4
20	3 Phase KW meter 15A 440 v	1
21	Watt meter Dynamo meter type 5 Amps. and 250 v, 1.25 kw	1
22	Personal computer system with printer	1
23	LCD projector	1
24	Clamp on ammeter 0-25A,0-200A Technical Specification : DC Voltage range :400, 600V Accuracy :+1.0% AC Voltage range :400, 600V Accuracy :+ 1.5%	2

	AC Current range :40, 400A Accuracy :+ 2.0% Resistance :400ohms Accuracy : + 1.0% Clamp size : 28mm (max.) Battery : 1.5V x 2 (Included)	
25	Three phase K.W.H meter analog 25A,415 V A. C	4
26	Three phase K.W.H meter digital 25A,415 V A. C	4
27	UPS 500VA with battery 230V	1

EQUIPMENT & MACHINERY IS COMMON FOR SEMESTER III

Sl. No. 1-17 of Semester - II to be utilized

28	<p>D.C. compound motor Motor DC Compound Wound 220 volt 3 HP with starter and switch A Laboratory Type Model For Conducting Various Experiments. TECHNICAL SPECIFICATION :</p> <p>MOTOR :</p> <p>D.C. compound motor 3 H.P., 220 volts,1500 R.P.M., continuous rating class of insulation 'F' S.P.D.P. type, Horizontal foot mounted, Confirming to I.S. 4722-1992, All the terminals are broughtout to the terminal box.</p> <p>CONTROL DESK :</p> <p>The Control desk consist of an Instrument panel and working area. The control desk made of 30mm x 30mm x 1.6mm tubular mild steel and MS sheet of 1 mm thickness, Siemens Grey colour with wooden top on the working area. The overall dimensions W = 900 mm ; D = 625 mm ; H = 1500 mm. The Box type Instrument Panel above the working area and of size W = 900 mm ; D = 250 mm ; H = 750 mm & Front side of 6mm thick bakelite sheet of brown colour and fitted at inside of the tube structure. All other sides made of MS sheet, Two sides of the panel are to be perforated for air ventilation. Back side in the form of hinged door with suitable locking arrangement. The working area top fitted in front of the Instrument Panel at a height of 750 mm from bottom. The top of W = 900 mm x D = 375mm and made of 19mm plywood fitted with 3 mm hylam sheet on top. The three sides of the working top lipped using 22mm x 6mm teakwood lipping patti. 30 A. Educational type bakelite insulated banana terminals provided for supply and motor connection. Circuit diagram of panel provided inside the panel. All accessories connected with internal wiring ferrules etc. The Instrument Panel consist of following accessories :</p> <ol style="list-style-type: none"> 1) Four point D.C. starter suitable for above motor, flush mounted : 1 no. 2) D.P.S./T. Knife Switch. suitable for above motor : 1 no. 3) Indicating lamp LED type 12 mm size for incoming and outgoing supply of the pannel board : 2 nos. 4) Voltmeter M.C. 0-300 volts D.C. 96x96mm size : 1 no. 5) Ammeter M.C. 0-15 Amp. D.C. 96x96mm size : 1 no. 6) Ammeter M.C. 0-1.5 Amp. D.C. 96x96mm size : 1 no. 	1
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	<p>7) Field regulator suitable to keep constant rated R.P.M. of the motor at full load. : 1 no.</p> <p>BASE PLATE :</p> <p>Motor mounted on fabricated base plate of M.S.'C' channel size 75 x 40 x 6 mm thick.</p> <p>PAINT :</p> <p>Motor painted with two coats of smoke grey oil paint, pannel board and angle stand powder coated.</p>	
29	<p>D.C. shunt motor 3 H.P TECHNICAL SPECIFICATION :</p> <p>MOTOR :</p> <p>D.C. Shunt motor 3 H.P., 220 volts,1500 R.P.M., continuous rating class of insulation 'B' S.P.D.P. Type, Horizontal foot mounted, confirming to , All the terminals are broughtout to the terminal box.</p> <p>Control Desk :</p> <p>The Control desk consist of an Instrument panel and working area. The control desk made of 30mm x 30mm x 1.6mm tubular mild steel and MS sheet of 1 mm thickness, Siemens Grey colour with wooden top on the working area.</p> <p>The overall dimensions W = 900 mm ; D = 625 mm ; H = 1500 mm.</p> <p>The Box type Instrument Panel above the working area and of size W = 900 mm ; D = 250 mm ; H = 750 mm & Front side of 6mm thick bakelite sheet of brown colour and fitted at inside of the tube structure. All other sides made of MS sheet, Two sides of the panel are to be perforated for air ventilation.</p> <p>Back side in the form of hinged door with suitable locking arrangement. The working area top fitted in front of the Instrument Panel at a height of 750 mm from bottom.</p> <p>The top of W = 900 mm x D = 375mm and made of 19mm plywood fitted with 3 mm hylam sheet on top.</p> <p>The three sides of the working top lipped using 22mm x 6mm teakwood lipping patti.</p> <p>30 A. Educational type backelite insulated banana terminals provided for supply and motor connection.</p> <p>Circuit diagram of panel provided inside the panel.</p> <p>All accessories connected with internal wiring ferrules etc.</p> <p>The Instrument Panel consist of following accessories :</p> <ol style="list-style-type: none"> 1) Three point D.C. starter suitable for above motor, flush mounted : 1 no. 2) D.P.S.T. Knife Switch. suitable for above motor : 1 no. 3) Indicating lamp LED type 12 mm size for incoming and outgoing supply of the pannel board : 2 nos. 4) Voltmeter M.C. 0-300 volts D.C. size 96 x 96 mm : 1 no. 5) Ammeter M.C. 0-15 Amp. D.C. size 96 x 96 mm: 1 no. 6) Ammeter M.C. 0-1.5 Amp. D.C. size 96 x 96 mm : 1 no. 7) Field regulator suitable to keep constant rated R.P.M. of the motor at full load. : 1 no. <p>BASE PLATE :</p> <p>Motor mounted on fabricated base plate of M.S.'C' channel size 75 x 40 x 6 mm thick. Base plate length 800 mm for generator coupling.</p> <p>PAINT :</p> <p>Motor painted with two coats of smoke grey oil paint, pannel board and angle stand powder coated.</p>	1

30	<p>D. C. series motor with 2 point starter D.C. MOTOR SERIES TYPE 3 HP A laboratory type model for conducting various experiments. TECHNICAL SPECIFICATION :</p> <p>MOTOR : 2 HP,220 volts,1500 RPM coupled with mechanical on load, __F' class insulation, continuous rating S.P.D.P.type,horizontal foot mounted. Educational type Suitable friction brake Dynamometer set having 2 Nos. 6 dial type spring balances & belt provided with fixed with motor base plate</p> <p>Control Desk : The Control desk consist of an Instrument panel and working area. The control desk made of 30mm x 30mm x 1.6mm tubular mild steel and MS sheet of 1 mm thickness, Siemens Grey colour with wooden top on the working area. The overall dimensions W = 900 mm ; D = 625 mm ; H = 1500 mm. The Box type Instrument Panel above the working area and of size W = 900 mm ; D = 250 mm ; H = 750 mm & Front side of 6mm thick bakelite sheet of brown colour and fitted at inside of the tube structure. All other sides made of MS sheet, Two sides of the panel are to be perforated for air ventilation. Back side in the form of hinged door with suitable locking arrangement. The working area top fitted in front of the Instrument Panel at a height of 750 mm from bottom. The top of W = 900 mm x D = 375mm and made of 19mm marine plywood fitted with 3 mm hylam sheet on top. The three sides of the working top lipped using 22mm x 6mm teakwood lipping patti. 30 A. Educational type bakelite insulated banana terminals provided for supply and motor connection. Circuit diagram of panel provided inside the panel. All accessories connected with internal wiring ferrules etc. The Instrument Panel consist of following accessories : 1) Two point starter suitable foe series D.C. motor flush mounted. 2) Indicating lamp, LED type 12mm size for incoming & outgoing supply. 3) DPST knife Switch, 20 A, 4) D.C.M.C. Ammeter 0-10A,96 x 96 mm sq.type, flush type 5) D.C.M.C. voltmeter 0-300 v, 96 x 96 mm sq.type, flush type 6) Fuses kitkat 16 A, 500 v inside the pannel.</p> <p>BASE PLATE : Motor with mechanical load will be mounted on fabricated base plate of M.S. Motor with mechanical load mounted on fabricated base plate of M.S.'C' channel 100 mm x 50 mm x 6 mm thick, with suitable antivibration mounts.</p> <p>PAINT : Motor painted with two layers of smoke gray oil paint. & control panel powder coated</p>	1
31	DC Power supply 250v DC , 25 Amp	1
32	Capacitor motor A laboratory type model for conducting various experiments.	1

TECHNICAL SPECIFICATION :

MOTOR :

A.C. Single Phase Capacitor Start Induction Motor 1/2 HP 230 volts AC, 50 Hz, 1440 RPM, TEFC, class 'B' insulation, frame 90, horizontal foot mounted.

Educational type Bakelite banana type terminals 30 Amps provided on terminal box.

Starting winding, running winding with capacitor terminals brought out on terminal box with marking

Control Desk :

The Control desk consist of an Instrument panel and working area.

The control desk made of 30mm x 30mm x 1.6mm tubular mild steel and MS sheet of 1 mm thickness, Siemens Grey colour with wooden top on the working area.

The overall dimensions W = 900 mm ; D = 625 mm ; H = 1500 mm.

The Box type Instrument Panel above the working area and of size W = 900 mm ; D = 250 mm ; H = 750 mm & Front side of 6mm thick bakelite sheet of brown colour and fitted at inside of the tube structure.

All other sides made of MS sheet, Two sides of the panel are to be perforated for air ventilation.

Back side in the form of hinged door with suitable locking arrangement.

The working area top fitted in front of the Instrument Panel at a height of 750 mm from bottom.

The top of W = 900 mm x D = 375mm and made of 19mm plywood fitted with 3 mm hylam sheet on top.

The three sides of the working top lipped using 22mm x 6mm teakwood lipping patti.

30 A. Educational type bakelite insulated banana terminals provided for supply and motor connection.

Circuit diagram of panel provided inside the panel.

All accessories connected with internal wiring ferrules etc.

The Instrument Panel consist of following accessories :

1) Voltmeter M.I. Type 96 mm x 96 mm Sq. 0-300V : 1 No.

2) Ammeter M.I. type 96 mm x 96 mm Sq. 0-10A : 1 No.

3) Suitable D.O.L. Starter Single Phase : 1 No.

4) DP MCB 16 Amp 250 V. ISI Marked mounted on panel

board :1 No.

5) Indicating lamp for incoming & outgoing , LED type, 12 mm size : 2 Nos.

6) HRC fuses 16 Amp Bakelite type base : 2 Nos.

PAINT :

Motor will be painted with two coats of smoke gray oil paint and panel board will be powder coated.

BASE PLATE :

Motor mounted on fabricated base plate of M.S.'C' channel

	size 75 x 40 x 6mm thick	
33	Split phase motor 1/2 H.P. single phase 250 V	1
34	<p>Universal motor A Laboratory Type Model For Conducting Various Experiments.</p> <p>TECHNICAL SPECIFICATION :</p> <p>MOTOR : Universal Motor Single Phase, Capacity 750 Watts, 230 volts A.C. / D.C. 1500 RPM (O.L.) 50 Hz, TEFC, class 'B' insulation, frame 100, horizontal foot mounted. Educational type Bakelite Insulated banana type terminals 30 Amps provided on terminal box. Four terminals armature and field brought out on terminal box with marking.</p> <p>Control Desk : The Control desk consist of an Instrument panel and working area. The control desk made of 30mm x 30mm x 1.6mm tubular mild steel and MS sheet of 1 mm thickness, Siemens Grey colour with wooden top on the working area. The overall dimensions W = 900 mm ; D = 625 mm ; H = 1500 mm. The Box type Instrument Panel above the working area and of size W = 900 mm ; D = 250 mm ; H = 750 mm & Front side of 6mm thick bakelite sheet of brown colour and fitted at inside of the tube structure. All other sides made of MS sheet, Two sides of the panel are to be perforated for air ventilation. Back side in the form of hinged door with suitable locking arrangement. The working area top fitted in front of the Instrument Panel at a height of 750 mm from bottom. The top of W = 900 mm x D = 375mm and made of 19mm plywood fitted with 3 mm hylam sheet on top. The three sides of the working top lipped using 22mm x 6mm teakwood lipping patti.</p> <p>30 A. Educational type bakelite insulated banana terminals provided for supply and motor connection Circuit diagram of panel provided inside the panel. All accessories connected with internal wiring ferrules etc. The Instrument Panel consist of following accessories : Voltmeter M.I. type 96 mm x 96 mm Sq. 0-300V : 1 No. Ammeter M.I. Type 96 mm x 96 mm Sq. 0-5A : 1 No. Suitable D.O.L. Starter : 1 No. DP MCB 16 Amp 230 V mounted on panel board : 1 No. Indicating lamp for incoming & outgoing, LED type, 12 mm size : 2 Nos. HRC fuses 10 Amp, 230 V Bakelite type base : 2 Nos. Change over switch for AC and DC output : 1 No. Suitable Stand by DC Supply provided inside the panel. : 1 No.</p> <p>PAINT : Motor will be painted with two coats of smoke gray oil paint and panel board will be powder coated.</p> <p>BASE PLATE : Motor mounted on fabricated base plate of M.S.'C' channel size 75 x 40 x 6mm thick</p>	

35	<p>M.G. Set consisting of squirrel cage induction motor 5 H.P. 400 V cycle with directly coupled compound generator 3K.W. 250 V with built in panel board consisting of :</p> <p>Motor-Generator (AC to DC) consisting of :</p> <p>A laboratory type model for conducting various experiments.</p> <p>Technical Specification :</p> <p>MOTOR :</p> <p>Squirrel cage Induction motor 5 H.P.415 volts,3 phase 50 Hz 1440 R.P.M. type TEFC cont. rating. Insulation class 'F' frame size 132,Horizontal foot mounted. 6 terminals brought out in the terminal box for connection.</p> <p>GENERATOR :-</p> <p>D.C.shunt generator : 3 K.W. 250 V. S Self excited : 1440 R.P.M. 4 pole with interpole S.P.D.P. type continuous rating Insulation class 'F'. Horizontal.</p> <p>Control Desk :</p> <p>The Control desk consist of an Instrument panel and working area. The control desk made of 30mm x 30mm x 1.6mm tubular mild steel and MS sheet of 1 mm thickness, Siemens Grey colour powder coated with wooden top on the working area. The overall dimensions W = 900 mm ; D = 625 mm ; H = 1500 mm. The Box type Instrument Panel above the working area and of size W = 900 mm ; D = 250 mm ; H = 750 mm & Front side of 6mm thick bakelite sheet of brown colour and fitted at inside of the tube structure. All other sides made of MS sheet, Two sides of the panel are to be perforated for air ventilation. Back side in the form of hinged door with suitable locking arrangement. The working area top fitted in front of the Instrument Panel at a height of 750 mm from bottom. The top of W = 900 mm x D = 375mm and made of 19mm marine plywoodfitted with 3 mm Ivory colour edhylam sheet on top. The three sides of the working top lipped using 22mm x 6mm teakwood lipping patti. Educational type bakelite insulated banana terminals provided for supply and motor generator connection. Circuit diagram of panel provided inside the panel. All accessories connected with internal wiring ferrules etc.</p> <p>The Instrument Panel consist of following accessories :</p> <p>A.C.SIDE :</p> <ol style="list-style-type: none"> 1) Voltmeter M.I.Type 0-500 volts, 96 x 96 mm : 1 no. 2) Ammeter M.I.Type 0-15 Amp.96 x 96 mm : 1 no. 3) Rotary Switch for voltmeter select for OFF/R/Y/YB/BR 16 Amp.,440 v : 1 no. 4) Automatic STAR / DELTA Starter suitable for above motor flush mounted : 1 no. 5) Bakelite based HRC fuses of suitable capacity : 3 Nos 6) RCCB of Suitable capacity (ISI) marked : 1 no. 7) Indicating lamp LED type 12 mm size Red, Yellow, Blue colour : 1 	
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	<p>no.each</p> <p>D.C.SIDE :</p> <p>1) Voltmeter M.C,Type 0-500 volts,96 x 96mm : 1 no. 2) Ammeter M.C.Type 0-15 Amp.96 x 96 mm : 1 no. 3) Ammeter M.C.Type 0-1.5 Amp.96 x 96 mm : 1 no. 4) Field regulator disc type suitable to decrease field current up to min.Amps :1 no. 5) D.P.S.T. Knife Switch. 20 Amp. 440 v : 1 no. 6) Indicating lamp LED type Red, colour 12mm size : 1 no.</p> <p>BASE PLATE :</p> <p>Motor and Generator will be mounted on fabricated base plate of M.S.'C' channel size 75 x 40 x 6 mm thick.</p> <p>COUPLING :</p> <p>Motor and Generator are coupled with a flexible coupling & mounted on a common base plate.Coupling guard & antivibration mounts are also provided.</p>	
	1. 3 phase air circuit breakers	1 set
	2. Star Delta starter (contact type 8 point) & Automatic type	1 no
	3. D.C circuit breaker	1
	4. Suitable voltmeter on A.C. & D.C. side	1
	5. Sunk field regulators	1
	6. Suitable line ammeters on A.C. and D.C. side	1
	7. Field circuit ammeter	1
	8. Indicating lamps on both the sides (AC &DC)	1
36	<p>Squirrel cage induction motor 3 H.P. 400 V with D.O.L. starter</p> <p>TECHNICAL SPECIFICATION :</p> <p>Motor</p> <p>A.C. 3 Phase 3 HP 415 volts, 50 Hz, Squirrel cage Induction Motor 1440 RPM, TEFC, class 'F' insulation, frame 100, horizontal foot mounted. Six terminals brought out on terminal box.</p> <p>Control Desk :</p> <p>The Control desk consist of an Instrument panel and working area. The control desk made of 30mm x 30mm x 1.6mm tubular mild steel and MS sheet of 1 mm thickness, Siemens Grey colour with wooden top on the working area.</p> <p>The overall dimensions W = 900 mm ; D = 625 mm ; H = 1500 mm.</p> <p>The Box type Instrument Panel above the working area and of size W = 900 mm ; D = 250 mm ; H = 750 mm & Front side of 6mm thick bakelite sheet of brown colour and fitted at inside of the tube structure.</p> <p>All other sides made of MS sheet, Two sides of the panel are to be perforated for air ventilation.</p> <p>Back side in the form of hinged door with suitable locking arrangement.</p> <p>The working area top fitted in front of the Instrument Panel at a height of 750 mm from bottom.</p> <p>The top of W = 900 mm x D = 375mm and made of 19mm plywood fitted with 3 mm hylam sheet on top.</p> <p>The three sides of the working top lipped using 22mm x 6mm teakwood lipping patti.</p>	1

	<p>30 A. Educational type bakelite insulated banana terminals provided for supply and motor connection. Circuit diagram of panel provided inside the panel. All accessories connected with internal wiring ferrules etc. The Instrument Panel consist of following accessories :</p> <ol style="list-style-type: none"> 1) Voltmeter M.I. Type 96 mm x 96 mm Sq. 0-500V with selector switch Off/R/Y/YB/BR : 1 No. 2) Ammeter M.I. type 96 mm x 96 mm Sq. 0-10A : 1 No. 3) Suitable D.O.L. Starter : 1 No. 4) TP MCB 16 Amp 415 V. ISI Marked mounted on panel board. : 1 No. 5) Indicating lamp LED type 12 mm size for incoming & outgoing in colour code : 6 Nos. 6) HRC fuses Bakelite type base with top 16 Amp 440 V : 3 Nos. <p>PAINT : Motor will be painted with two coats of smoke gray oil paint and panel board will be powder coated.</p> <p>BASE PLATE : Motor mounted on fabricated base plate of M.S.'C' channel size 75 x 40 x 6mm thick .</p>	
37	<p>Squirrel cage induction motor 5 H.P. 400 V with star delta starter A.C. SQUIRREL CAGE INDUCTION MOTOR 5 HP WITH STAR DELTA STARTER A laboratory type model for conducting various experiments. TECHNICAL SPECIFICATION : Motor A.C. 3 Phase 5 HP 415 volts, 50 Hz, Squirrel cage Induction Motor 1440 RPM, TEFC, class 'F' insulation, frame 100, horizontal foot mounted. Six terminals brought out on terminal box.</p> <p>Control Desk : The Control desk consist of an Instrument panel and working area. The control desk made of 30mm x 30mm x 1.6mm tubular mild steel and MS sheet of 1 mm thickness, Siemens Grey colour powder coated with wooden top on the working area. The overall dimensions W = 900 mm ; D = 625 mm ; H = 1500 mm. The Box type Instrument Panel above the working area and of size W = 900 mm ; D = 250 mm ; H = 750 mm & Front side of 6mm thick bakelite sheet of brown colour and fitted at inside of the tube structure. All other sides made of MS sheet, Two sides of the panel are to be perforated for air ventilation. Back side in the form of hinged door with suitable locking arrangement. The working area top fitted in front of the Instrument Panel at a height of 750 mm from bottom. The top of W = 900 mm x D = 375mm and made of 19mm marine plywood fitted with 3 mm Ivory colour edhylam sheet on top. The three sides of the working top lipped using 22mm x 6mm teakwood lipping patti.</p> <p>30 A. Educational type bakelite insulated banana terminals provided for supply and motor connection. Circuit diagram of panel provided inside the panel. All accessories connected with internal wiring ferrules etc. The Instrument Panel consist of following accessories :</p>	1

	<p>1) Voltmeter M.I. Type 96 mm x 96 mm Sq. 0-500V with selector switch Off/R/Y/YB/BR : 1 No.</p> <p>2) Ammeter M.I. type 96 mm x 96 mm Sq. 0-10A : 1 No.</p> <p>3) Suitable star delta. Starter : 1 No.</p> <p>4) TP MCB 16 Amp 415 V. ISI Marked mounted on panel board. : 1 No.</p> <p>5) Indicating lamp LED type 12 mm size for incoming & outgoing in colour code : 6 Nos.</p> <p>6) HRC fuses Bachelite type base with top 16 Amp 440 V : 3 Nos.</p> <p>PAINT : Motor will be painted with two coats of smoke gray oil paint and panel board will be powder coated.</p> <p>BASE PLATE : Motor mounted on fabricated base plate of M.S.'C' channel size 75 x 40 x 6mm thick .</p>	
38	Manual star Delta starter	1
39	Semi-automatic star Delta starter	1
40	Automatic star Delta starter	1
41	Automatic Reverse Forward starter	1
42	Single phasing preventer 415V	1
43	D.O.L starter	1
44	Two point starter for DC series motor	1
45	Soft starter 1ph	1
46	<p>Tachometer</p> <p>Technical Specification:</p> <p>Measuring range : 5-99,999 RPM</p> <p>Measuring distance : Max. 2 meters</p> <p>Measuring angle : 1200</p> <p>Resolution : 0.1 RPM (< 1000 RPM), 1.0RPM(>1000 RPM)</p> <p>Accuracy : ±0.05% +1 digit</p> <p>Laser output: <1mW, Class II</p> <p>Sampling time : 1 secretary (over 6 RPM)</p>	3
47	Flux meter	1
48	2KVA Alternator with 3 ph induction motor	1
49	<p>5 HP Slip ring induction motor with rotor resistance starter</p> <p>Technical Specification :</p> <p>Motor : A.C. 3 Phase 5 HP 415 volts, 50 Hz, slip ring Induction Motor 1440 RPM, TEFC, class 'B' insulation, frame 100, horizontal foot mounted. Educational type Bachelite banana type terminals 30 Amps is provided on terminal box. Six terminals are brought out on terminal box. Rugged construction, core of high grade CRGO silicon steel and coil of 99.9% pure copper.</p> <p>Control Desk : The Control desk consist of an Instrument panel and working area. The control desk made of 30mm x 30mm x 1.6mm tubular mild steel and MS sheet of 1 mm thickness, Siemens Grey colour powder coated with wooden top on the working area. The overall dimensions W = 900 mm ; D = 625 mm ; H = 1500 mm.</p> <p>The Box type Instrument Panel above the working area and of size W = 900 mm ; D = 250 mm ; H = 750 mm & Front side of 6mm thick bakelite sheet of brown colour and fitted at inside of the tube structure. All other sides made of MS sheet, Two sides of the panel is perforated</p>	1

	<p>for air ventilation. Back side in the form of hinged door with suitable locking arrangement.</p> <p>The working area top fitted in front of the Instrument Panel at a height of 750 mm from bottom. The top of W = 900 mm x D = 375mm and made of 19mm marine plywood fitted with 3 mm Ivory coloured hylam sheet on top. The three sides of the working top lipped using 22mm x 6mm teakwood lipping patti.</p> <p>30 A. Educational type bakelite insulated banana terminals provided for supply and motor connection. Circuit diagram of panel provided inside the panel. All accessories connected with internal wiring ferrules etc.</p> <p>The Instrument Panel consist of following accessories :</p> <p>(1) Voltmeter M.I. Type 96 mm x 96 mm Sq. 0-500V with: 1No. selector switch Off/R/Y/B/BR</p> <p>(2) Ammeter M.I. type 96 mm x 96 mm Sq. 0-20A: 1 No.</p> <p>(3) Suitable Rotor Resistance starter : 1 No.</p> <p>(4) TP MCB 16 Amp 415 V. ISI Marked is mounted on panel board -1No.</p> <p>(5) Indicating lamp LED type 12 mm size for incoming & outgoing in colour code- 6Nos.</p> <p>(6) HRC fuses Bakelite type base with top 16 Amp 440 V -3Nos</p> <p>PAINT :</p> <p>Motor is painted with two coats of smoke gray oil paint and panel board is powder coated.</p>	
50	Lux meter	1 No
51	Lead Acid battery 75Ah 12V	1 No
52	Battery Charger 15V, Current controlled	1 No
53	Solar street light lamp set 12v , 18 / 24 watts	4 No
54	Hydraulic crimping tool for UG cable crimping with bits 20 sq mm to 250sq mm	1 No

Sl. No. 1-18 of Semester - II to be utilized

55	<p>Transformer single phase 1 K.V.A. 250/100 v A Laboratory Type Model For Conducting Various Experiments.</p> <p>TECHNICAL SPECIFICATION :</p> <p>Transformer Single Phase air cooled capacity 1 KVA, Primary 230 Volts, Secondary 0-110-115-120 Volts.</p> <p>The unit must be fitted in MS Box 20 SWG with side ventilation. Top of the box will be of 6mm.</p> <p>Bakelite sheet and the terminals of primary & secondary will be brought out with Educational type bakelite banana type terminals 30 Amps and proper marking.</p>	2
56	<p>Transformer Three phase (oil cooled) 5 K.V.A. 440/220 v TRANSFORMER THREE PHASE 5 KVA</p> <p>Transformer Three Phase 5 KVA 440/230 Volts, oil Cooled With Transformer</p> <p>TECHNICAL SPECIFICATIONS</p> <ol style="list-style-type: none"> 1) Capacity 3 phase, 5 KVA, 440 / 230 Volts, 50 Hz 2) Delta - star connection 3) Shell type - Oil cooled 4) Totally enclosed, maximum ambient temp 45° C 5) Insulation Class 'B' 6) Tapping on Secondary Side 50% and 86.6% 7) Educational type Bakelite insulated banana terminals 30 Amp. <p>With colour code provided on the top of the transformer and on 6mm bakelite sheet</p>	2

	<p>8) The tank will be provided oil filling Hole with cap, oil level indicator, drain plug and earthing terminal</p> <p>9) Plain unidirectional M.S. Roller will be fitted to the tank for movement</p> <p>10) Electrical performance would confirm</p> <p>11) The transformer provided with transformer oil.</p>	
57	Transformer oil testing kit Automatic 60kv	1
58	<p>Autotransformer Single phase</p> <p>Technical Specifications:</p> <p>Variable Auto Transformer 0-270VAC</p> <p>Input Single Phase 230V</p> <p>Output Voltage 0-270VAC</p> <p>Output Current 15Amps</p>	2
59	<p>Autotransformer Three phase</p> <p>Three Phase Transformer 1KVA/440VAC</p> <p>Technical Specifications:</p> <p>Three Phase Variable Auto Transformer (Variac) is housed in a steel cabinet (Air cooled close type) with knob.</p> <p>Input and output connection provided on rear side of cabinet with connection diagram printed on plate.</p> <p>Fitted on wheel for easy movement.</p> <p>Input : 3 Phase 440V</p> <p>Output voltage : 0-470V AC, 50Hz, 3Phase</p> <p>Maximum current : 10Amps in each phase</p> <p>Continuous current : 9Amps</p> <p>Maximum wattage : 8.1KW Approx.</p> <p>Operating temp. : 0 - 45 Deg</p> <p>Power requirement :415~440V AC , 50Hz, 3 Phase</p>	2
60	<p>Current transformer 10/1, 20/1,30/1,50/5, 100/5 and 300/5A</p> <p>Current Transformer Test Set</p> <p>secondary rated for 5Amp. Which are intended to be used on 50 Hz.</p> <p>Technical Specification :</p> <p>The Current Transformer Test set provides the following components-</p> <ol style="list-style-type: none"> 1. Separate terminals to connect standard C.T. and Test C.T. secondaries. 2 Ratio error and phase angle error display 3 Range selecting Switch 4 Polarity check indicator 5 Ammeter to measure current injected in percentage 6 Null detector with sensitivity control 7 Terminals to connect burden box on both std. & under test 8 Aux. power supply to energise electronic null detector 9 High permeability magnetic core 10. Secondary current selector 1A . or 5A <p>Current Transformer Test Set</p> <p>Scope of Experimentation:</p> <p>Draw Magnetising Curve for a Protective CTs, and Check knee Point Voltage</p> <p>Technical Specifications:</p> <p>LCD Display.</p> <p>LED Indication.</p> <p>Aux. ON/OFF Switch.</p> <p>Current Range Selection - 1A & 5A AC.</p> <p>Hold Key.</p>	1 each

	<p>Standard CT & Burden Terminals. 'X' CT & Burden Terminals. A) Percentage Ratio Error : 0 to 50% B) Phase Ratio Error : 0-1000 Minutes C) Input Current : 0.05A to 7.5AAC D) Accuracy : + 1% of reading E) Burden : On Standard Transformer 1.5VA at U.P.F., : on 'X' Transformer same as connected : Externally at 'X' Burden terminal +1.5 VA F) Indication : a) Reverse Polarity : b) 'Std'C.T. Sec.open : c) 'X' C.T. Sec. Open : d) Difference Ratios of 'Std' &'X' CT Hi-imbalance : e) Over Current : f) Ratio Error Polarity : g) Phase lag-lead : h) Phase Error Over Range</p> <ul style="list-style-type: none"> - Compact in size. - Light in weight. - High Accuracy. -Reverse Polarity indication. - Direct reading from LCD display. - The Ratio Error is directly given in percentage. - The Phase Error is directly given in minute. -Current Injection Set - Output Variable Current 100Amps, Provided with Digital Current Meter & Timer -Current Transformer 100:5Amps 3nos. 	
61	Potential transformer 220/110, 300/110, 440/110,600/110	1 each
62	Miniature circuit breaker(MCB) 220V/ 6 Amps	2
63	Earth leakage circuit breaker (ELCB) 220V/25mA	2
64	Metal clad circuit breaker (MCCB) 220V/1A	2

WORKSHOP FURNITURE

1	Instructors table (Junior Executive)	1
2	Instructors chair – Full Arm, Caned Back & Seat	2
3	Metal rack 100x150x45 cm	4
4	Lockers with 16 drawers standard size with key	1
5	Steel almirah 2.5x1.20x0.50 m	2
6	White board	1
7	Computer table	1
8	Computer chair - Revolving	2
9	Printer and computer table	1
10	Work bench , 2.5x1.20x0.75meters	2
11	Steel locket standard size with 8 Drawers in each	2
12	Almirah , 1.8 x 1.2 x 0.45meters	2
13	Demonstration table , 2.5 x 1.25 x 0.75 meter	2
14	Blackboard with easel, 3' x 6'	1
15	Stools, 1' x 1' x 1.5'	16
16	Metal rack , 180 x 150 x 45cm	1