

## Estimate for Electrification of Engineering College, Mundathikode, Thrissur

### HT INSTALLATION

Item No	Qty	Unit	Specification of Items	Rate	Amount
			<b>USS &amp; Transformer 500 KVA</b>		
1	1	No	Supply, Installation, testing and commissioning of indoor unitized substation consisting of 1 no. 11KV 350MVA 630A 3Ph HT load break switch with suitable HRC fuses , with incoming through 11KV 3core 150sq.mm XLPE cable ,shunt trip earth switch fused with mechanism , fuse trip mechanism and 1 no. cast resin dry type 500KVA 11KV/433 V , 3 phase AN cooled, vector DYN-11 cast resin transformer with Off circuit tapings of +5% to -7.5% in steps of 2.5, changeable by tap links provided, with LV cable box suitable for 3 runs of 3.5 x 400/ 4 run 240SQMM PVC cable and HV terminals connected to 11KV seal off bushings to the transformer.	865000.00	865000.00
2	1	No	Labour for mechanical erection of transformer and giving primary and secondary connections	15000.00	15000.00
3	1	No	Supply and installation of HT TOD Meter in existing enclosure and giving connections as per standards approved by KSEB including testing.	35000.00	35000.00
4	50	Mts	Supply, and laying of 11 kV XLPE 3 core, armoured, aluminium cable of 300 sq: mm size of approved make in existing masonry open duct as required neatly clamped on supports.	2735.00	136750.00
5	50	Mts	do- Clamped using 20x3mm MS Flat spacing not exceeding 60cm	2799.00	139950.00
6	200	Mts	Supply, and laying of 11 kV XLPE 3 core, armoured, aluminium cable of 150 sq: mm size of approved make in existing masonry open duct as required neatly clamped on supports.	1684.00	336800.00
7	25	Mts	do- Clamped using 20x3mm MS Flat spacing not exceeding 60cm	1768.00	44200.00
8	1	No	Supply and making dry, push on type outdoor end termination for 11kV, 3 core, 300 sqmm XLPE armoured aluminium cable including cable sockets, tapes, earthing, jointing, crimping etc complete	11975.00	11975.00

Item No	Qty	Unit	Specification of Items	Rate	Amount
9	4	No	Supply and making dry, push on type indoor end termination for 11kV, 3 core, 300 sqmm XLPE armoured aluminium cable including cable sockets, tapes, earthing, jointing, crimping etc complete	10748.00	42992.00
10	2	No	Supply and making dry, push on type indoor end termination for 11kV, 3 core, 150 sqmm XLPE armoured aluminium cable including cable sockets, tapes, earthing, jointing, crimping etc complete	8769.00	17538.00
11	100	mts	Supply and laying 1 run of 3.5 x 400sq mm PVC insulated and PVC sheathed armoured power cable of best conductivity Aluminium, 1.1KV grade conforming to IS 1554 partly clamped in existing built in trench as required	1994.00	199400.00
12	10	nos	Supply and providing end and core termination for 3.5 x 400sqmm cable including cost of gland cable socket, earth etc including crimping etc	1487.00	14870.00
13	1	No	Supply and installation of one number neutral CT 120/5A 15 VA class 5P10 weather proof metal enclosure for CDG11 low set earth fault relay and giving connection as required	6500.00	6500.00
14	1	No	do- earth fault relay CDG 11 and giving connection etc as required	10500.00	10500.00

Item No	Qty	Unit	Specification of Items	Rate	Amount
15	3	nos	Supply and providing pipe earthing as per IS 3043 with 2.5 m 38/40mm GI pipe	2500.00	7500.00
16	6	nos	Supply and providing <i>plate earthing</i> as per IS 3043 with 1200x1200x12 mm GI/CI earth plate, 50 mm GI watering pipe fixed to the earth plate with 25 x 3mm GI clamps, GI funnel with weld mesh, filling required quantity of charcoal including construction of inspection chamber with a bed concrete of 1:4:8 PCC using 40 mm broken stone (10 cm thick), brick work in cement mortar 1:6, plastering the surface of brick masonry and the exposed surface of PCC bed with cement mortar 1:4, 12 mm thick, (the finished inside dimension shall be 450 x 450 x 450 mm) but excluding test joint, earth continuity conductor to the plate, and covering at the top. <i>(in hard soil)</i>	11797.00	70782.00
17	6	nos	Supply and Providing cast iron gully trap with covering at top of the inspection chamber(450x450x10mm).	929.00	5574.00
18	6	nos	Supply and providing test joint for the earthing system using two numbers of 50x3mm GI strip including cutting and bending to shape, drilling necessary holes and fixed to watering pipes.	248.00	1488.00
19	30	Mts	Supply and providing earth lead from test joint to earth plate using 50x6mm GI strip	275.00	8250.00
20	125	mts	Supplying and providing 32 x 6mm bare Cu strip for connection of earth electrodes(For neutral earthing of transformer)	615.00	76875.00
21	60	mts	Supplying and providing 25 x 3mm Cu strip for interconnection of earth electrodes(For neutral earthing of generator)	483.00	28980.00
22	250	mts	Supplying and providing 50 x 6mm GI strip for interconnection of earth electrodes pits including excavation.	311.00	77750.00
			<b>MV PANELS:</b>		

Item No	Qty	Unit	Specification of Items	Rate	Amount
			Fabrication, supply, erection, testing and commissioning of cubicle type, dust and vermin proof, floor mounted, front operated MV panel board made out of 14 SWG thick CRCA sheet, powder coated after 7 tank process, fully compartmentalised complete with hinges and earthed front doors with name plate, danger notice board, heavy duty rubber gaskets, removable gland plates made out of 3mm thick sheet steel with all necessary meters, indications, CTs etc as shown in the electrical drawing or as per the latest Electrical Inspectorate requirement complete with all connections and interconnections for the following panels.		
			<p>*All breaker releases shall be set as per the ratings shown in the drawings</p> <p>*Bus bar sizes shall be taken either as shown in the drawing or as design parameter of *0.8A/Sqmm for AL and 1.2A/Sqmm for Cu which ever is higher.</p> <p>*Cable Camber shall be provided for incoming &amp; outgoing cables</p> <p>*Earth bus shall be full length of the panel and all Switches/breakers shall be earthed</p> <p>*GA drawings for all the panels before manufacturing shall submit to the Electrical Inspectorate/Consultant to get approval before manufacturing.</p>		
			<b>MSB / AMF</b>		
			<p>1) 1 no 800A 50kA 415V 50Hz, 50kA, 4 Pole EDO type microprocessor based ACB with 240 V AC shunt release, UV release &amp; Earth fault release and emergency trip switch.</p> <p>2) 1 No. 400A 4pole 415V SD Isolator.</p> <p>3) 1 set AMF Relay (C&amp;SEC2/ equivalent)</p> <p>4) 800A TPN busbar of best conductivity Aluminium (50 x 10X2 Almm for Phase and 50X10 mm for Neutral or as per size based on Ele Ins standards.) with heat shrinkable sleeves mounted on DMC/FRP busbar supports with extensible busbar.</p> <p>5) 400A 4P Power capacitor.</p> <p><b>Outgoings:</b></p> <p>1) 1 No 250A 3P MCCB (Thermal Magnetic Type), 35kA set at 185 A</p> <p>2) 1 No 200A 3PSD</p> <p>3) 2 No 200A 3P MCCB (Thermal Magnetic Type), 35kA set at 100A</p>		

Item No	Qty	Unit	Specification of Items	Rate	Amount
23	1	nos	<b>Accessories</b> <b>1)</b> 1 no multifunction meters to read frequency, voltage and ampere having accuracy 0.5 with CT of 600/5A 15VA class-1 <b>2)</b> 1 no multifunction meters to read frequency, voltage and ampere having accuracy 0.5 with CT of 200/5A 15VA class-1 <b>3)</b> 2 sets of RYB indicator lamps with appropriate fuses. <b>4)</b> 1 No danger notice board of standard pattern. <del>The board shall be provided with 25 x 50mm copper earth bus for the full length.</del> Painting letters / identifications for the incoming and outgoing switches, cable, fuse sizes, etc., in white enamel paint. The board shall be fabricated in such a way that future extension be possible. Accesories shall not be fitted on doors of switches/SDF/MCCBs( <b>MSB</b> ). <b>and all other required accessories as per Electrical Inspectorate approval.</b>	645700.00	645700.00
			<b>UZMSB &amp; LZMSB (upper zone &amp; Lower Zone MSB)</b>		
24	2	no	<b>Incomer:</b> 1) 1 no. 315A 35kA(Thermal Magnetic Type) 4P MCCB set at 80 A(as in scheme) 2) TPN busbar of best conductivity Aluminium of 40 x 10mm Al for Phase and 40X10mm Al for Neutral with heat shrinkable sleeves mounted on DMC/FRP busbar supports with extensible busbar <b>Outgoings:</b> 6 no 100A SDF 3 no. 63A SDF, ' <b>Accessories:</b> 1 no danger notice board,fuse links, indication lamps 1 No (0-600V) voltmeter with selector switch and all other required accessories as per Electrical Inspectorate approval.	170000.00	340000.00
			<b>UZSSB-1 to 5 &amp; LZSSB 1 TO 5: BF &amp; GF /1st &amp; 2nd/ 3rd &amp; 4th/ 5th &amp; 6th/ 7th &amp; terrace. (Installed floor wise)</b>		

Item No	Qty	Unit	Specification of Items	Rate	Amount
			Fabrication, supply, erection, testing and commissioning of wall mounting type LT cubicle type dust and vermin proof, panel board made out of 16 SWG thick CRCA sheet, powder coated after 7 tank process, fully compartmentalised complete with hinges and earthed front doors with name plate, danger notice board, heavy duty rubber gaskets, removable gland plates made out of 3mm thick sheet steel with all necessary meters, indications, CTs etc as shown in the electrical drawing or as per the latest Electrical Inspectorate requirement complete with all connections and interconnections for the following panels.		
25	10	No	<b>Incomer:</b> 1) 1 no. 100A 4P SD busbar of best conductivity Aluminium of 25.4 x 6.4mm Al for Phase and 25.4 x 6.4mm Al for Neutral with heat shrinkable sleeves mounted on DMC/FRP busbar supports with extensible busbar <b>Outgoings:</b> 3 no 63A 10kA 3PMCB 1no. 40A 10kA 3P MCB, 2 no. 32A 10kA 3P MCB, <b>Accessories:</b>	55500.00	555000.00
			<b>LIFT PANEL SSB AT MACHINE ROOM</b>		
26	2	No	<b>Incoming:</b> 1) 1 no. 100A 35kA 4P SD 2) TPN busbar of best conductivity Aluminium of 25.4 x 9.5mm Al for Phase and 25.4 x 6.4mm Al for Neutral with heat shrinkable sleeves mounted on DMC/FRP busbar supports with extensible busbar <b>Outgoing:</b> 3 no 63A TPN SDF <b>Accessories:</b> 1 no danger notice board, fuse links, indication lamps	42500.00	85000.00
			<b>LIFT CONTROL PANEL AT MACHINE ROOM</b>		

Item No	Qty	Unit	Specification of Items	Rate	Amount
27	6	No	<b>Incoming:</b> 1) 1 no. 63A 4P MCB 2) TPN busbar of best conductivity Aluminium of 25X6 mm Al for Phase and 25X6 mm Al for Neutral with heat shrinkable sleeves mounted on DMC/FRP busbar supports with extensible busbar <b>Outgoing:</b> A 4P 300mA RCCB, 1no 25A 2P 30mA RCCB, 4no 6A SPMCB <b>Accessories:</b> 1 no danger notice board, fuse links, indication lamps and all other required accessories as per Electrical Inspectorate approval.	37500.00	225000.00
			<b>PUMP PANEL</b>		
			Supply and installation of sheet steel, phosphatised and painted, dust and vermin proof enclosure of MCCB DB including copper /brass bus bar, neutral link, earth bus and DIN rail suitable for fixing MCB/ isolator etc. fixed on wall using suitable anchor bolts or fixed in recess including cutting hole on the wall , making good the damages, colour washing etc. as required		
28	1	No	1) 1 no. 63A TPN SD <b>Outgoing:</b> 3 no. 40/32 10kA TP MCB, 1 no 32/40A TPchange over switch, 2no 5HP DOL starter 2no 40A 100mA RCCB <b>Accessories:</b>	52500.00	52500.00

Item No	Qty	Unit	Specification of Items	Rate	Amount
29	1	No	<p>Fabrication and supply of cubicle type, dust and vermin proof, floor mounted, front operated APFC Panel.  Incomer : 400A,35kA  TP MCCB with door interlock, rotary handle, etc. - 1 No.  Outgoings : 80A, TP MCCB - 2 Nos. 63A, TP MCCB - 2 No. 40A, TP MCCB - 1 No. 32A, TP MCBs - 3 Nos. Capacitor duty contactors shall be wired from APFC relay and auto manual selector switch. 63A, 415V, Capa. duty contactors - 3Nos. 40A, 415V, Capa. duty contactors - 1No. 32A, 415V, Capa. duty contactors - 3 Nos.  Indications : LED type RYB coloured indication lamps 3 Nos at incoming &amp; 1 No at outgoing.  ries:  1 no danger notice board 1 No (0-</p>	275000.00	275000.00
30			Supply & laying of one number PVC insulated and PVC sheathed armoured aluminium power cable of 1.1KV grade of the following sizes in ground including excavation of trench of size 35 x 75 cm, refilling the trench etc. as required but excluding sand cushioning and protective covering (in hard soil).		
a	25	mts	3.5x 400 sqmm	2022.00	50550.00
b	25	mts	3.5x185 sq.mm	1109.00	27725.00
c	20	mts	3.5x150 sq.mm	928.00	18560.00
d	10	mts	3.5x 95 sqmm	634.00	6340.00
e	10	mts	3.5x 70 sq.mm	573.00	5730.00
f	10	mts	3.5x 50 sqmm	473.00	4730.00
g	10	mts	3.5x 35 sq.mm	395.00	3950.00
31			Supply, laying and clamping of 1 no. PVC insulated and PVC sheathed armoured aluminium power cable, 1.1 KV grade of the following sizes using clamps noted along with the cables, spacing of clamps not exceeding 60cms, making good the damages , colour washing etc. as required.		



Item No	Qty	Unit	Specification of Items	Rate	Amount
a	200	mts	3.5x 400 sqmm	1973.00	394600.00
b	150	mts	3.5x 185 sqmm	1069.00	160350.00
c	100	mts	3.5x 150 sqmm	889.00	88900.00
d	75	mts	3.5x 95 sqmm	600.00	45000.00
e	50	mts	3.5x 70 sqmm	502.00	25100.00
f	75	mts	3.5 x 50 sqmm-do-	393.00	29475.00
g	100	mts	4 x 16 sqmm -do-	231.00	23100.00
h	50	mts	4 x 10sqmm -do-	197.00	9850.00
i	75	mts	4 x 6 sqmm -do-	186.00	13950.00
32			Supply & laying of one No. PVC insulated and PVC sheathed armoured aluminium power cable of 1.1 KV grade of the following sizes in the existing masonry open duct as required.		
a	100	mts	3.5x 400 sqmm	1903.00	190300.00
b	75	mts	3.5x 185 sqmm	990.00	74250.00
33a	10		Supply and providing end and core termination for 3.5 x 400sqmm cable including cost of gland, cable socket, earth etc including crimping etc	3315.00	33150.00
b	10	nos	3.5x 185 sqmm	1164.00	11640.00
c	10	nos	3.5x 150 sqmm	1008.00	10080.00
d	10	nos	3.5x 95 sqmm	807.00	8070.00
e	10	nos	3.5x 70 sqmm	714.00	7140.00
f	10	nos	3.5x 50 sqmm	646.00	6460.00
34	20	nos	Supply route marker with 152mmx152mm <i>cast iron, spike</i> 5mm thick with inscription ' <i>LT Cable</i> ' there on bolted / welded to 35x35x6mm angle iron 60cm long and fixing the same in ground as required.	207.00	4140.00

Item No	Qty	Unit	Specification of Items	Rate	Amount
35	500	nos	Painting letters or figures of 2.5cm/4cm/5cm height (Block, Roman, Italic, Indian) with white enamel paint as identifications marks to SSB, DBs, cables, switch boxes, etc.,	12.00	6000.00
36	1200	kg	Supplying and installation including all manner of supports/ suspenders, anchor bolts etc for <i>cable trays</i> made out of suitable size channel sections, slotted angles, flats, MS plates etc as required including painting with 2 coats of synthetic enamel paint over a coat of zinc chromate primer, making good the damages, colour washing etc as required.	110.00	132000.00
37	13	nos	Supply and fixing of dry chemical powder type fire extinguishers of 5kg (ABC type)	2324.00	30212.00
38	4	set	supply and delivery at site of 4Nos fire buckets on one stand. The buckets shall be of round bottom, painted with post office red and marked "FIRE" in English and "FIRE" in Malayalam.	156.00	624.00
39	1	mts	Supply and providing <i>First Aid Chart</i> duly framed and placed in a conspicuous location for clear vision.	204.00	204.00
40	4	sq m	Supply and providing 2.5mm thick Elastomeric fire retardent insulating mat as per IS 15652/2006 to withstand 11 KV dielectric strength.	2261.00	9044.00
41	2	nos	Supply of 11KV grade rubber gloves	300.00	600.00
42	1	nos	Providing and fixing HT danger notice plate of size 200mmx150mm made of MS sheet steel at least 2mm thick and vitreous enamelled white on both sides and inscription in single red colour on front side as required	140.00	140.00
43	50	mts	Supply and laying Class 'B' GI pipe of 75mm dia with required accessories in ground including excavation of trench of size 1M x 30cm, refilling the trench, etc., as required as protective covering for cable at road crossing / vehicle traffic places.	473.00	23650.00
44	50	kg	Supply and providing <i>MS chequered plate</i> of suitable thickness including cutting, welding, painting etc. as required for the cable trench covering.	63.00	3150.00
45	1	no	Unloading charges of 250 KVA DG set at site	10000.00	10000.00

Item No	Qty	Unit	Specification of Items	Rate	Amount
46	1	no	Mechanical Installation, testing and commissioning of 250 KVA Diesel generator available at site complete with all necessary accessories	15000.00	15000.00
47	1	no	SITC of Insulating silencer with mineral /glass wool and aluminium cladding	7500.00	7500.00
48	30	mtrs	Exhaust piping complete with thermal insulation with mineral wool and cladding.MS pipe of suitable dia, heavy duty bend ,flexible connector and supports suitable for 250 KVA DG set form DG set to roof top of the building as per standards of EI.	1500.00	45000.00
49	1	Job	Preparation of all drawings ,Sumitting and getting approval from electrical inspectorate, arrange inspection, getting sanction and energisation certificate from electrical inspectorate and KSEB,obtaining power allocation and our connection etc. for commissioning of the whole installation.	50000.00	50000.00
50	1	no	Supply, erection, testing and commisioning of emergency push button station	1500.00	1500.00
51	1	no	Supply, installation, testing and commissioning of freestanding indoor cubicle type 150 KVAR automatic power factor correction panel with 320A 3P 35kA MCCB incomer , APP capacitor (sprague) with BELUKE relay in 8 stages 25 KVAR x 4no, 20KVAR x 1 no,15 KVAR x 1 no ,10 KVAR x 1no,5KVAR x 1no with all accessories as in drawing etc complete as required for the installation.The panel shall be fabricated from a CPRI approved vendor and comply with CPRI standards.	275000.00	275000.00
52	1	Job	KSEB Charges , power allocation, CD, OYEC,etc.	700000.00	700000.00

Item No	Qty	Unit	Specification of Items	Rate	Amount
53			<p>Supply and installation of 250KVA DG Set comprising Kirloskar /Greaves/Cummins/Mahindra diesel engine developing minimum 111 BHP coupled to Kirloskar /KEL / ELGI/Stamford make Alternator complete with standard control panel, fuel tank of suitable capacity and battery with leads and 6 nos anti-vibration pads and residential type silencer.</p> <p><b>Engine :-</b> Kirloskar/Greaves/Cummins/Mahindra make 250 KVA / water cooled 4 stroke vertical 4 cylinder, in line type arrangement developing minimum 172.5 BHP at 1500 rpm diesel engine with 12/24 volt electric start and shut down system having high water temperature and low lube oil temperature. <b>Alternator:-</b> Kirloskar / KEL / ELGI/Stamford make alternator rated at 250KVA 3 phase 415 Volt 50 c/s 1500 rpm. Under normal conditions the voltage regulation will be +/- 5%. The alternator shall be of class"F" insulation and designed and built to withstand tropical conditions.</p>		
	1	no	<p><b>Base frame:-</b> Sturdy channel iron base frame welded construction for mounting engine and alternator.</p> <p><b>Control panel:-</b> Wall / floor mounted totally enclosed sheet metal control panel, comprising 1 No 400A/ suitable approved size four pole MCCB set at 350A, 1 No AC Voltmeter (0-600V) with selector switch, 3 nos 600A Ammeter, 2 sets of indicator lamps, 1 No Frequency meter, 1 No KWH meter. The control panel shall be complete with necessary internal cables fuses and accessories as per Electrical Inspectorate standards . The erection of D.G. set also includes mechanical erection with anti-vibration pads, exhaust pipe, industrial silencer pipe, respective thermal insulation with mineral wool and Aluminium cladding.DG Set should be with acoustic chamber as per CPCB norm and all other required accessories as per Electrical Inspectorate standards and approval.</p>	2000000.00	2000000.00
			<b>Total</b>		<b>8900978.00</b>

























