

**BOQ**

**Name of Work: Renovation work in the Department of BSBE at IITG Campus (Group-D) .**

<b>Sl no.</b>	<b>Description of Items</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate (₹)</b>	<b>Rate in Words</b>	<b>Amount (₹)</b>
<b>Part-A (Civil)</b>						
1	Dismantling aluminium/ Gypsum partitions, doors, windows, fixed glazing and false ceiling including disposal of unserviceable surplus material and stacking of serviceable material with in IITG Campus, as directed by Engineer-in-charge.	sqm	528.00			
2	<b>GYPSUM BOARD PARTITIONS</b>					
	97 mm thick metal stud partition which includes one layer of 13mm thick Gyproc Duraline of India gypsum fixed with drywall screws of 25mm at 300mm centres to either sides of 70mm studs (0.5 mm thick having one flange of 34mm & another flange of 36mm made GI steel) placed at 610mm centre to centre in 72mm floor and ceiling channel (0.55mm thick having equal flanges of 32mm made GI steel) with joints staggered to avoid leakage through joints. Finally the square and tapered edges of the boards are to be joined and finished so as to have a flush look which includes filling and finishing with jointing compound. Joint paper tape and two coats of drywall top coat suitable for plyboard including angle bead to be at external angles to get straight line finish & protection from noraml impacts and edge bead to be used to protect the exposed gypsum core of gybboard specially at cut edges of the opening for doors/windows/glazing or any other unprotected core complete as per the drawing & direction of Engineer-in-charge .					

	75 mm overall thickness partition with 12.5 mm thick double skin fire rated board conforming to IS: 2095: part I	sqm	54.00			
3	Providing and fixing of Natural creation Arbor Art classic/Antique 2mm thick of Armstrong PVC floor with approved adhesive	sqm	528.00			
4(a)	Providing of 100 mm vertical blinds as per direction of Engineer-in-charge , New tech- Make (NI-274)	sqm	68.00			
4(b)	Fitting & fixing of vertical Blinds	no	12.00			
5	a) Supply & installation of Arstrong OPTRA/ equivelent white pebble Micro look edge ceiling with silhoutte B/R steel angle tile size 600 x 600 x 15 mm complete as per manufacturer's specifications	sqm	528.00			
	b) Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm	sqm	120.00			

<p>each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , finishing with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with : 12.5 mm thick tapered edge gypsum moisture resistant board</p>					
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6	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) :					
a	For fixed portion : Powder coated aluminium (minimum thickness of powder coating 50 micron)	kg	850.00			
b	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately): Powder coated aluminium (minimum thickness of powder coating 50 micron)	kg	350.00			
7	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item): With float glass panes of 4.0 mm thickness	sqm	45.00			

8	Providing and fixing 12 mm thick prelaminated particle board flat pressed three layer or graded wood particle board conforming to IS: 12823 Grade I Type II, in panelling fixed in aluminum doors, windows shutters and partition frames with C.P. brass / stainless steel screws etc. complete as per architectural drawings and directions of Engineer-in-charge.: Pre-laminated particle board with decorative lamination on one side and balancing lamination on other side	sqm	45.00			
9	<b>WATER PROOFING</b>					
A)	The surface to be treated shall be clean from all debris and loose particles. All debonded particles shall be removed with wire brush and the surface should be clean and is SS: saturated surface dry condition and to the application of brushwood.	Sqm	77.00			
B)	Providing water proofing treatment with acrylic polymer modified cementitious composite slurry coating of approved brand at recommended rate as per manufacture @ 2mm in 2 coats over the sunken slab as per technical specification and as directed by Engineer in charge.	Sqm	77.00			
10	12 mm cement plaster of mix : 1:4 (1 cement: 4 fine sand)	Sqm	35.00			
11	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.	sqm	950.00			
12	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface : Water thinnable cement primer	sqm	950.00			
13	Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work	sqm	950.00			

14	<p>Providing and fixing G.I frame for partition upto ceiling height consisting of G.I. frame made of special section power pressed/ role form G.I. sheet with zinc coating of grade 175 consisting of floor and ceiling channel 50mm wide having equal flanges of 32mm and 0.5mm thick fixed to the floor and ceiling at the spacing of 610mm centre to centre with dash fastener of 12.5mm dia meter 40mm length and the studs 48mm wide having one flange of 34mm and other flange 36mm and 0.50mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610mm centre to centre by 6mm dia bolts and nuts at both ends of partition fixed flush to wall with rawl plugs at spacing of 450mm centre to centre finishing to a flush finish with recommended jointing compound, jointing tape, joint finisher and two coats of primer suitable for board as per manufacture's specification and direction of Engineer-in-charges all complet. Materials removed from item no.5 above shall be issued free of cost. Any additional material required shall be supplied by the contractor.</p>	sqm	55.00			
15	<p>Supplying, fitting and fixing boiling water proof ply conforming to IS 710-1977 bonded with phenol formaldehyde synthetic resin conforming to IS 848-1974 of approved make and brands (Greenply, Durian, Century): 8 mm thick</p>	sqm	75.00			
16	<p>Providing and fixing of wall panels size of 128mm width and 12mm thick made of one side of decorative pre-laminated particle board of approved designs fixed with approved adhesives and headless pins.</p>	sqm	75.00			

17	Providing and fixing of teak wood beading of approved design on walls partitions of size and design as per drawing including melamine polishing all complete as per direction of Engineer-in-charge (approx 50mm x 12mm size).	Rm	100.00			
18	Providing & fixing sunfilm as per the direction of the Engineer in charge.	Sqm	45.00			
				<b>Part-A (Civil) Total</b>		

**Part-B (Electrical)**

	<b>Point Wiring and sub main wiring</b>					
1	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit,with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required.					
a)	Group -C	Point	60			
2	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required.					
a)	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	Metre	250			

b)	2 X 4 sq. mm + 1 X 4 sq. mm earth wire	Metre	550			
3	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required	Metre	40			
4	Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc. as required.	each	40			
a)	1 or 2 Module (75 mmX75 mm)	each	17			
b)	4 Module (100 mmX75 mm)	each	25			
d)	8 Module (200 mmX75 mm)	each	20			
<b>Distrubution Board/ M.V Panel</b>						
5	Supplying and fixing following way, sheet steel, MCB distribution board, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/ Isolator)					
	a) 6 way (4 + 18), Double door TPN MCB DB Horizontal type	Each	3			



6	Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.					
	a) Single pole	Each	60			
	b) Double pole	Each	10			
	c) Triple pole	Each	4			
	d) Triple pole and neutral	Each	15			
7	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 A & 15/16 A modular socket outlet and 15/16 A modular switch, connections etc. as required (Power Plug).	Each	30			
8	Supplying and fixing following rating, four pole, 415 volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.					
	63 A	Each	2			

9	Supplying and fixing following rating, double pole, 240 volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.					
	63 A	Each	2			
10	Supplying and fixing DP sheet steel enclosure on surface/ recess along with 25/32 A 240 V "C" curve DP MCB complete with connections, testing and commissioning etc. as required	each	25			
<b>FANS &amp; LIGHT FIXTURES</b>						
11	Supply, Installation, testing and commissioning of five star rated 1400 mm Sweep ceiling fan (Make Crompton/ Legrands/ Havells/Orient)	each	5			
12	Supply, Installation, testing and commissioning of electronics step type fan regulator (Make Crompton/ Legrands/ Havells/Orient)	each	5			
13	Supply, Installation, testing and commissioning of five star rated 300 mm light duty exhaust fan (Make Crompton/ Legrands/ Havells/Orient)	each	5			
14	Suply of fully diffuses recess mounted 36W LED Pannel light of 2x2 size Refer CAT no RC380LED30S65500G4L60W60PSUODOC Make Phylips/Syska/Havellss/bajaj or equivalent	Each	52			

15	Supply of Ultra Sleek recess 10watt down light for low height false ceiling in round profile Cat no DN091BLED6S-6500PSUWH make Make Phylips/Syska/Havellss/bajaj or equivalent	each	10			
16	Installation, testing and commissioning of wall bracket /ceiling fittings of all sizes and shapes containing upto two GLS/CFL/ LED lamps per fitting, complete with all accessories including connections etc. as required	Each	60			
17	Installation, testing and commissioning of pre-wired, fluorescent fitting / compact fluorescent fitting of all types, complete with all accessories and tube/lamp etc. directly on ceiling/ wall, including connections with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable and earthing etc. as required	Each	61			
	<b>SUB HEAD-VII : Telephone wiring and Jelly Filled Telephone cable</b>					
18	Supplying, drawing, connecting and testing of 0.5 mm dia annealed copper conductor PVC insulated PVC sheathed telephone wire in existing conduit/wire way duct etc. as required of following sizes:					
	2 Pair	Metre	550			
19	Supplying and fixing of following sizes of PVC conduit along with the accessories in surface / recess including cutting the wall and making good the same in case of recessed conduit as required as per specification.					
a)	20mm dia conduit pipe	Metre	200			

b)	25mm dia conduit pipe	Metre	350			
20	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.					
	15/16 A switch	each	40			
	3 pin 5/6 A socket outlet	each	65			
	6 pin 15/16 A socket outlet	each	20			
	Telephone socket outlet	each	12			
21	Supplying and drawing of UTP 4 pair CAT 6 LAN Cable in the existing surface/ recessed Steel/ PVC conduit as required.					
	1 run of cable	meter	650			
22	Supply and installation oaf I/O RJ 45 Make D link or equivalent	Each	22			
<b>Part-B (Electrical) Total</b>						
<b>Part-C (Air-Conditioning)</b>						

1	Supply,installation,testing and commissioning of thermal break type , sheet metal sectionalised construction of Double Skin direct driven AHUs of following capacities with filter section with prefilters of 50 mm thick, efficiency 90% down to 10 micron, chilled water cooling coils of Copper tube and Aluminium Fins construction,insulated drain pan,squirrel cage induction EFF1 type motor,DIDW backward curved centrifugal/Plug fans,vibration isolators(spring mounted),proprtionate thermostatew, coil shall be selected for a max.face velocity of 500 FPM and static shall be 50 mm.Motor shall be suitable for 415V/3Ph/50 Hz AC AC supply. Air moving capacities shall be as per the specifications etc. complete as required.					
a	Double skin ceiling suspended direct driven AHU , 5000 CFM , 50mm SP, 4RD , Coil Compete as required.	nos	2			
b	Double skin ceiling suspended direct driven AHU , 4000 CFM , 50mm SP, 4RD , Coil Compete as required.	nos	1			
2	Supplying & laying , testing & commissioning mild steel ' C ' class pipe of size as mentioned below on exposed surface,wooden support, MS angle- clamp alongwith priming coat of steel primer as per standard specification complete as required.					
a	65 mm dia	meter	30			
b	40 mm dia	meter	20			

3	Providing and fixing Chilled water pipe insulation with 50 mm thick TF quality expanded polystyrene of 20 kg/ m3 density and finally covered with chicken wire mesh and 10 mm thick sand cement plaster in two layer and two coat of approved brand of painting on the pipes - <b>For over ground pipes.</b>					
a	65 mm dia	meter	30			
b	40 mm dia	meter	20			
4	Providing and fixing in position the following insulated butterfly valves.					
a	65 mm dia	Nos	6			
5	Providing and fixing in position the following insulated balancing valves as per the specifications complete as required.(supply )					
a	65 mm dia	Nos	3			
6	GI drain water piping with 19 mm thick closed cell nitrile rubber with sand cement plaster complete as required					

a	32 NB (medium class)	meter	25			
7	supplying,installation,testing and commissioning of following industrial type thermometer and pressure gauge with ball valves for isolation complete as required(supply )					
a	Thermometer	Nos	6			
b	pressure gauge	Nos	6			
c	Auto Air-purge valve of 25mm dia	nos	6			
<b>Control Panels for AHUs</b>						
8	Supply,installation,testing and commissioning of the following cubicle type openable front ,sheet steel wall mounted control panels sleeve type Al. bus bar including anchoring into the wall.These panels shall be complete in all respects as per the the specifications. The panel shall include the following accessories (I to XI) as mentioned below.					
a	MCCB as per rating given below. Terminal block for power distribution. Single Phase Preventor. LED Phase indicating lights and indicating lights for ON/TRIP status. Digital type Ammeter and suitable size CT and selector switch.	sets	3			

	<p>Time delay relay for automatic restart of AHUs motors.</p> <p>Auto/Manual stop selector switch shall be provided in each AHU Panel. The same should provide potential free contact for position monitoring to BMS system.</p> <p>All starters shall have suitable potential free contacts</p> <p>Wiring for microswitch for stopping the fan when fire dampers closes.</p> <p>suitable contactor and relay for CILP connection</p> <p>Suitable space for VFD to be provided inside AHU Panel for installing it.i/c 0-24V Transformer.</p> <p>The number of AHU panel shall be as detailed below :</p> <p>63 amps TPN MCCB with 1 No 5.5. HP DOL Starter for AHU.</p>					
	<b>Power Cabling</b>					
9	Supply, installation, testing and commissioning of PVC insulated sheathed 1.1 KV grade armoured Al. Power cables from various panels upto their respective equipment on MS painted perforated trays with appropriate clamps/fixing arrangements as per specifications and drawings. (supply )					
a	3 C X 16 mm <sup>2</sup> Aluminium Cable	RM	25			
b	Control Cable 1.5 X 3 core ( copper for 2-way valve )	RM	15			



10	Dismantling and removing of rectangular/round ducts with falnged joints, grills & diffusers i/c all accessories complete as required	sqm	30			
11	Supplying and application Of underdeck insulation for Machine boxing with insulation of 25 mm closed cell Nitrile Rubbber/FR-XLPE with all accessories i/c fasteneres, wiremesh etc complete as reured	sqm	20			
12	Providing and fixing of insulated motorised 2-way valve 40-65 mm with actuator ,position feedback etc complete as required.	Nos	3			
13	Dismantling of existing chilled water pipeline i/c all accessories	lot	3			
14	Providing and fixing in position the following insulated Y-stainer of (65) mm dia as per the specifications complete as required.	Nos	3			
	<b>Grilles/Diffusers</b>					
15	Providing and fixing of extruded aluminium powder coated grills/diffusers as per specifications and drawings complete as required.					
a	S/F of Aluminium extruded linear grill but with damper complete as required.	sqm.	8			

b	S/F of Aluminium extruded linear grill but without damper complete as required.	sqm.	10			
16	Supply, installation, testing and commissioning of GI volume control duct damper complete with neoprene rubber gaskets,nuts, bolts, screws linkages, flanges etc, as per specifications.	sqm	2			
	<b>Ducting</b>					
17	Supplying installation balancing and commissioning of site fabricatedGSS sheet metaly rectangular/ round ducting with flanged joint completeas required					
a	Thickness 0.63 mm sheet (24 gauge)	sqm	40			
b	Thickness 0.80 mm sheet (22 gauge)	sqm	30			
18	Supplying and fixing of following thickness duly laminated aluminum foil of mat finish closed cell Nitrile rubber (Class "O") insulation on existing duct after applying suitable adhesive for Nitrile rubber. The joints shall be sealed with 50 mm wide and 3 mm thick self adhesive nitrile rubber tape insulation complete as per specifications and as required.					
	19 mm	sqm	70			
	<b>Earthing :</b>					

19	Supply, installation, testing and commissioning of 6 SWG wire double earthing continuity conductor of GSS from Panels to respective equipment (supply )	meter	80			
<b>Part-C (Air-Conditioning) Total</b>						
<b>Grand Total (Part-A + Part-B + Part-C)</b>						
<b>Rebate, if any @ .....</b>						
<b>Total, after rebate</b>						
<b>Say Total (₹)</b>						
<b>Total, in words:</b>						