Project :	MGM UNIVERSITY
Specification LT Panels	:LT Supply: 3 Phase - 415/433 VAC, +/- 10%, 1 Phase – 230VAC, +/- 10%, 50Hz
1	All panels shall be fully non-compartmentalized /compartmentalized totally segregated compartments for feeders, cables, terminations and bus bar. Panels shall be free standing, floor mounting type, dust and vermin proof suitable for indoor installation IP42. **PROVISION FOR TOP/BOTTOM CABLE ENTRY.**(Confirm at the time of drawing approval)
2	Panels Should be made in CRCA Sheet – Tata / JSW Make of Minimum 16 SWG for Non-Load Bearing & 14 SWG for Load Bearing members. Gland Plate should be of 12 SWG.
3	Busbars shall be color coded for ready identification of three phases or shall be provided with colored sleeved Busbars and busbar connections shall be fully insulated for full insulation voltage of 1100V. **Bus Bar - Aluminium E91E Grade (Certification need to submit) with Current Density of 0.8 A / Sqmm** (Hindalco / Jindal)
4	All breaker shall be provided with loto feature and pad locking for safety in off position.
5	Die-casted Lock to be used for openable Doors.
6	All Incomer Should have R-Y-B Indications & ON ,OFF,TRIP Indications. All Outgoings ACBs & MCCBs Should have ON ,OFF,TRIP Indications
7	**POWDER COATING with Siemens Grey 7035-** Panels pre-treatment should be done in Minimum 7-Tank Process.
8	Drawing To be submitted for Approval with GA, SLD & BOM for each Panels.
9	As-built drawing to be submitted in 2-sets.
10	All Necessary Certification need to be Submit.
11	All products catalogue and manuals along with test certificate need to be submit.
12	Switchgear - LK , Siemens ,Schneider ,

Main LT Panel :

Sr. No	Description	Qty	Unit
A	**INCOMING : (MSEDCL,DG,SOLAR)**		
1	**ACB 2500A 4 Pole Electricaly Operated (EDO) Icu=Ics=Icw=65kA for 1 Sec,** - LSING Protection with Temerature Monitoring, Release should have OLED display showing current metering ,Temp & should be upgradable for communication and power metering -ACBs shall have Break Time not greater than 25msec to reduce stresses on system while clearing fault. -ACB shall show and store min 18 trip data, fault current and type of - protection tripped minimum 18 trip record. -ACB shall show current metering & Should have Graphical Display for % loading. Motor , Closing & Shunt Coil Voltage 240 V AC	3	Nos.
2	Under Voltage Release (UVR) with time delay 240 V AC (MN)	3	Nos.
3	METERING FOR INCOMER : Multifunction Meter with Cl 1 with RS485 All Basic Parameter, THD ,Individual Harmonics upto 31st,Running demand, max demand LK - WL5010	3	Nos.
4	SPD 3P+N ,TYPE 1+2 ,I 12.5kA & Imax 50 kA with Backup Protection	3	Set.
B	**BUS COUPLER**		
1	**ACB 2500A 4 Pole Electricaly Operated (EDO) Icu=Ics=Icw=65kA for 1 Sec,** - LSING Protection with Temerature Monitoring, Release should have OLED display showing current metering ,Temp & should be upgradable for communication and power metering -ACBs shall have Break Time not greater than 25msec to reduce stresses on system while clearing fault. -ACB shall show and store min 18 trip data, fault current and type of - protection tripped minimum 18 trip record. -ACB shall show current metering & Should have Graphical Display for % loading. Motor , Closing & Shunt Coil Voltage 240 V AC	2	Nos.
2	Under Voltage Release (UVR) with time delay 240 V AC (MN)	2	Nos.
C	**PROVISION FOR INCOMING : (MSEDCL)**		

1	**ACB 2500A 4 Pole Electricaly Operated (EDO) Icu=Ics=Icw=65kA for 1 Sec,** - LSING Protection with Temerature Monitoring, Release should have OLED display showing current metering ,Temp & should be upgradable for communication and power metering -ACBs shall have Break Time not greater than 25msec to reduce stresses on system while clearing fault. -ACB shall show and store min 18 trip data, fault current and type of - protection tripped minimum 18 trip record. -ACB shall show current metering & Should have Graphical Display for % loading. Motor , Closing & Shunt Coil Voltage 240 V AC	1	Nos.
2	Under Voltage Release (UVR) with time delay 240 V AC (MN)	1	Nos.
3	METERING FOR INCOMER : Multifunction Meter with Cl 1 with RS485 All Basic Parameter, THD ,Individual Harmonics upto 31st,Running demand, max demand LK - WL5010	1	Nos.
4	SPD 3P+N ,TYPE 1+2 ,I 12.5kA & Imax 50 kA with Backup Protection	1	Set.
D	**OUTGOING :**		
a1	**ACB 2000A 4 Pole Electricaly Operated (EDO) Icu=Ics=Icw=65kA for 1 Sec,** - LSING Protection with Temerature Monitoring, Release should have OLED display showing current metering ,Temp & should be upgradable for communication and power metering -ACBs shall have Break Time not greater than 25msec to reduce stresses on system while clearing fault. -ACB shall show and store min 18 trip data, fault current and type of - protection tripped minimum 18 trip record. -ACB shall show current metering & Should have Graphical Display for % loading. Motor , Closing & Shunt Coil Voltage 240 V AC	2	Nos.
a2	Under Voltage Release (UVR) with time delay 240 V AC (MN)	2	Nos.
a3	METERING FOR INCOMER : Multifunction Meter with Cl 1 with RS485 All Basic Parameter, THD ,Individual Harmonics upto 31st,Running demand, max demand LK - WL5010	2	Nos.

b1	**ACB 1250A 4 Pole Electricaly Operated (EDO) Icu=Ics=Icw=65kA for 1 Sec,** - LSING Protection with Temerature Monitoring, Release should have OLED display showing current metering ,Temp & should be upgradable for communication and power metering -ACBs shall have Break Time not greater than 25msec to reduce stresses on system while clearing fault. -ACB shall show and store min 18 trip data, fault current and type of - protection tripped minimum 18 trip record. -ACB shall show current metering & Should have Graphical Display for % loading. Motor , Closing & Shunt Coil Voltage 240 V AC	1	Nos.
b2	Under Voltage Release (UVR) with time delay 240 V AC (MN)	1	Nos.
b3	METERING FOR INCOMER : Multifunction Meter with Cl 1 with RS485 All Basic Parameter, THD ,Individual Harmonics upto 31st,Running demand, max demand LK - WL5010	1	Nos.
c1	**ACB 1250A3 Pole Electricaly Operated (EDO) Icu=Ics=Icw=65kA for 1 Sec,** - LSING Protection with Temerature Monitoring, Release should have OLED display showing current metering ,Temp & should be upgradable for communication and power metering -ACBs shall have Break Time not greater than 25msec to reduce stresses on system while clearing fault. -ACB shall show and store min 18 trip data, fault current and type of - protection tripped minimum 18 trip record. -ACB shall show current metering & Should have Graphical Display for % loading. Motor , Closing & Shunt Coil Voltage 240 V AC	1	Nos.
c2	Under Voltage Release (UVR) with time delay 240 V AC (MN)	1	Nos.
c3	METERING FOR INCOMER : Multifunction Meter with Cl 1 with RS485 All Basic Parameter, THD ,Individual Harmonics upto 31st,Running demand, max demand LK - WL5010	1	Nos.

d1	**ACB 800A 4 Pole Electricaly Operated (EDO) Icu=Ics=Icw=65kA for 1 Sec,** - LSING Protection with Temerature Monitoring, Release should have OLED display showing current metering ,Temp & should be upgradable for communication and power metering -ACBs shall have Break Time not greater than 25msec to reduce stresses on system while clearing fault. -ACB shall show and store min 18 trip data, fault current and type of - protection tripped minimum 18 trip record. -ACB shall show current metering & Should have Graphical Display for % loading. Motor , Closing & Shunt Coil Voltage 240 V AC	2	Nos.
d2	Under Voltage Release (UVR) with time delay 240 V AC (MN)	2	Nos.
d3	METERING FOR INCOMER : Multifunction Meter with Cl 1 with RS485 All Basic Parameter, THD ,Individual Harmonics upto 31st,Running demand, max demand LK - WL5010	2	Nos.

Note :	**The remaining switchgear/control components (CTs,Control MCBs,Indication Lamp ,PB,SS,Aux & Trip Contact etc) will be within the manufacturer's scope.**

500 KVAR RTAPFC Panel Details	
Rating of RTAPFC Panel	500 KVAR (100 KVAR Thyristor + 400 KVAR Contactor)
Rated Voltage of the panel	415 + / - 10%
Frequency	50 + / - 3%
No of Phases	3
Detuned Reactor	7% Copper
Controller Make / Model No	LK - EtaUltra 8T + 8 R , 3 CT Based ,Should be suitable for Zero-crossover / Zero Differential Thyristor 8 T + Contactor8 R switching technique, controlling through high speed processor, self monitoring and built in with diagnosis tool. Accuracy class shoulld be specifed as per IEC-62053 Controller shall be possible to operate in Master -Slave configuration
	Controller shall sense PF to 3 decimal place and suitable for future upgradable Solar system
	Controller shall able to sense HT or CT side depending on system requirement.
CAPACITOR BANK	LK - LTCCH or Equivalent • 3 Phase, delta connected, 50 Hz • Overvoltage +10% (for 8h / 24h), + 15% (for 30m / 24h), + 20% (5m/24h), +30% (1m/24h) • Overcurrent: 1.8 x In • Peak Inrush current withstand: 350 x In • Total watt-losses: < 0.5 W / kVAr • IEC 60831
DETUNED FILTER	7% Detuned Copper
THYRISTOR MODULE	• Zero crossing operating mode with PIV of 2.2 kV; Thyristor module be without fan for cooling purpose. • High Peak Inverse voltage (2.2 kV) • Automatic thermal cut off • Monitoring of voltage, phase sequence, fault and display of status via LED • Faster response time- 5 ms • No noise during switching
CONTACTOR	• Capacitor Duty Contactors - AC-6b Type • Coil voltage : 240V, 50/60 Hz • Should have Separate termination for damping resistors • Should have minimum 1 NO Built-in Auxiliary Contacts
MAIN INCOMER FEEDER	**1250 A ACB TP 65 KA EDO**
BRANCH PROTECTION& STAGES	

TSM/Contactor	Backup Protection	Rating	Qty	Total kVAR
TSM Based	Semiconductor Fuse	1	1	1
TSM Based	Semiconductor Fuse	2	2	4
TSM Based	Semiconductor Fuse	5	1	5
TSM Based	Semiconductor Fuse	15	2	30
TSM Based	Semiconductor Fuse	30	2	60
Contactor Based	MCB/MCCB	50	4	200
Contactor Based	MCB/MCCB	100	2	200

500