

		Maharashtra State Electricity Distribution Co. Ltd ELECTRICITY BILL FOR THE MONTH OF JUN 2017 No.																																								
		DINCL	SUB-DIVISION, BZ																																							
Consumer No. Consumer Name Address: L. KESWANAND M MCC-BALLU		<table border="1"> <tr> <td>BILL DATE</td> <td>01-07-2017</td> <td></td> </tr> <tr> <td>DUPLICATE DATE</td> <td>01-07-2017</td> <td>1,28,98,21,000</td> </tr> <tr> <td>BT PAID DATED</td> <td>01-07-2017</td> <td>1,28,98,21,000</td> </tr> <tr> <td>BT PAID AFTER</td> <td>01-07-2017</td> <td>1,28,98,21,000</td> </tr> <tr> <td>Last Receipt No./Date</td> <td></td> <td>01/06/2017</td> </tr> <tr> <td>Last Month Payment</td> <td></td> <td>1,27,98,000.00</td> </tr> <tr> <td>D.D. No./P.N.A.</td> <td></td> <td></td> </tr> <tr> <td>Bank/Account</td> <td></td> <td>Private Bank</td> </tr> <tr> <td>Authority</td> <td></td> <td></td> </tr> <tr> <td>Reason</td> <td></td> <td></td> </tr> <tr> <td>Load Factor Flag</td> <td>Excess Feeder Flag</td> <td></td> </tr> <tr> <td>Feeder Voltage (V)</td> <td>L.S. Meter</td> <td></td> </tr> <tr> <td>Email ID</td> <td colspan="2">l.keswanand@gmail.com</td> </tr> </table>		BILL DATE	01-07-2017		DUPLICATE DATE	01-07-2017	1,28,98,21,000	BT PAID DATED	01-07-2017	1,28,98,21,000	BT PAID AFTER	01-07-2017	1,28,98,21,000	Last Receipt No./Date		01/06/2017	Last Month Payment		1,27,98,000.00	D.D. No./P.N.A.			Bank/Account		Private Bank	Authority			Reason			Load Factor Flag	Excess Feeder Flag		Feeder Voltage (V)	L.S. Meter		Email ID	l.keswanand@gmail.com	
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Email ID	l.keswanand@gmail.com																																									
Meter No. Phase Connected Load (KW) Contract Demand (KVA) 50% of Cont. Demand (KVA) Date of Connection Supply W. P.W. Right BT Demand Dis. Date # DTC	24000 Load (KW) Special Demand Meter No. T.D.																																									

ENERGY AUDIT

Of

ISB&M SCHOOL OF TECHNOLOGY

By

M/S STROM ENERGIE PVT LTD

Ground Floor, Mayur Apartments, Plot #22,
 Mayur Colony, Behind Bank Of Maharashtra,
 Kothrud ,Pune – 411038

Web Site : www.stromenergie.co.in

Email : stomenergie.pune@gmail.com

Mobile +91 9822653104

ACKNOWLEDGEMENT

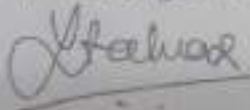
We would like to mention our sincere gratitude towards **ISB&M SCHOOL OF TECHNOLOGY** for giving us the opportunity to conduct energy audit of the College Building.

We would like to express our gratitude towards The respected Principal Dr. P. K. Srivastava and Assistant Professor (Comp/IT) Ms Sheela Bankar and Ms Rohini Hategaonkar for providing us the necessary arrangements and information during the Survey, Study, Analysis, Measurements etc.

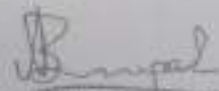
We would also like to extend our sincere thanks to the teaching staff Mr. Sachin Shelar Assistant Professor (Electrical) as well as students of AISSMS IOIT College of Engineering for their invaluable help and support for execution of Survey, Study, and Analysis & Measurements.

Finally we take this opportunity to thank one and all who helped us directly or indirectly for the completion of "Energy audit assignment".

For Strom Energie Pvt Ltd.



Yogendra Talware
Director



Ashok Borgaonkar
Certified Energy Auditor



OBJECTIVES OF ENERGY AUDIT

Energy Audit involves interviews with site operating personals, a review of facility utility bills and other operating data and a walk through the facility, becoming familiar with the building operation and to identify any glaring areas of energy waste or inefficiency.

Typically major problem areas will be covered during this type of audit. Corrective measures are briefly described and quick estimates of implementation cost, potential operating cost savings and simple payback periods are provided. Major energy conservation measures requiring further consideration is also provided.

Any process related and or subsequent detailing is not covered in this Audit.

As per Energy Conservation Policy 2017, there is importance to Power Factor Improvement.

Methodology:

Survey, Study, Analysis, Actual Site Measurements with Design, Engineering and calculating Payback Period Calculations.

To educate Degree students, we have decided to involve AISSMS IOT College of Engineering Third Year Students for the same activity.





ISB&M School of Technology

Approved by AICTE No. 1001/1/2002-2003, Government of India
Recognized by UGC as a Centre for Distance Education

Dr. Pramod Kumar

Principal

A-2, Chhatrapati Shivaji Maharaj Road, ...

Dr. P. K. ...

Date: 21st Jan 2018

Ref: PEC/DUR/MSO/NO/EA/2018/1711

WORK ORDER

To,
STORMCHARGE PVT LTD
Ground Floor, Mayor Apartment,
Plot 22, Mayor Colony,
Laxmi Road, Kothrud, Pune-411
MO: 9822553154

Subject: work order For Energy Audit of ISB&M School of Technology

Dear Sir,

As per the discussion held and the quotation given, we are pleased to place the work order at you with following descriptions, terms and conditions.

Sr.	Particulars	Amount in Rs.	Remarks
1	Order for Survey, study, Analysis of various Electrical Parameters including Electrical Safety in Existing Distribution Network, and Energy Audit.	25000.00	
	Net Amount In Rs.	25000.00	

In Words: Rupees Twenty Five Thousand Only

Terms and conditions:

Tax: Including GST

Payment:

50% Advance with Work Order, i.e. 12500.

Remaining at the time of Handing over report

Work Done: One Week



[Handwritten signature]

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- B. UNDERTAKING
- C. EXECUTIVE SUMMARY
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- F. ELECTRICAL DISTRIBUTION PATTERN
- G. WINDOWS/SPLIT A/C
- H. DG SETS
- I. USE OF RENEWABLE ENERGY
- J. ANNEXURE: ELECTRICITY BILL ANALYSIS
- K. ANNEXURE: GRAPHS
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- M. ANNEXURE: BUILDING AREA DETAILS
- N. ANNEXURE: APFC PANEL DETAILS
- O. ANNEXURE: SITE MEASUREMENTS
- P. ANNEXURE: MAIN INCOMER SITE MEASUREMENTS (CAPACITORS ON)
- Q. ANNEXURE: MAIN INCOMER SITE MEASUREMENTS (CAPACITORS OFF)
- R. ANNEXURE: SOT BUILDING INCOMER SITE MEASUREMENTS
- S. ANNEXURE: LIGHTING DETAILS
- T. ANNEXURE: LUX LEVEL DETAILS
- U. ANNEXURE: MACHINE/MOTOR DRIVE DETAILS
- V. ANNEXURE: FAN DETAILS

Summary of Energy Bill for Last twelve months:

Sr. No	Month & Year	Electricity Bill (in Rs.)	Fuel Bill (in Rs.)	Total (in Rs.)
1	November 2017	444215	NA	NA
2	October 2017	378341	NA	NA
3	September 2017		NA	NA
4	August 2017	452672	NA	NA
5	July 2017	435173	NA	NA
6	June 2017	353872	NA	NA
7	May 2017	363736	NA	NA
8	April 2017	330961	NA	NA
9	March 2017	459210	NA	NA
10	February 2017		NA	NA
11	January 2017	369828	NA	NA
12	December 2016	378987	NA	NA
	Total	3967000	NA	NA

Yours faithfully,

(Signature of Unit / Facility Head/
Authorised Signatory of Unit/ Facility)

Seal of Unit/ Facility

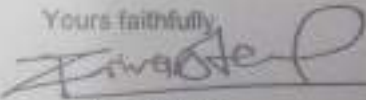
Undertaking

(To be signed by Authorised Signatory of the unit / facility)

This is to inform you that ISB&M SCHOOL OF TECHNOLOGY has completed the Energy Audit Study of our unit/ facility as per the guidelines given in Save Energy Program of MEDA. We have accepted the recommendations given by M/s STROM ENERGIE PVT. LTD. in the audit report and we undertake to implement all the possible medium and long term measures recommended in the Audit Report. We have not taken the benefit of financial assistance for carrying out detailed Energy Audit under this programme for the last three years. We have implemented the no cost and low cost measures. The Action Plan for implementation of these recommendations has been prepared. We will abide by the directions issued by MEDA from time to time.

Thanking You,

Yours faithfully,


(Signature)

Place: PUNE

Date:

EXECUTIVE SUMMARY

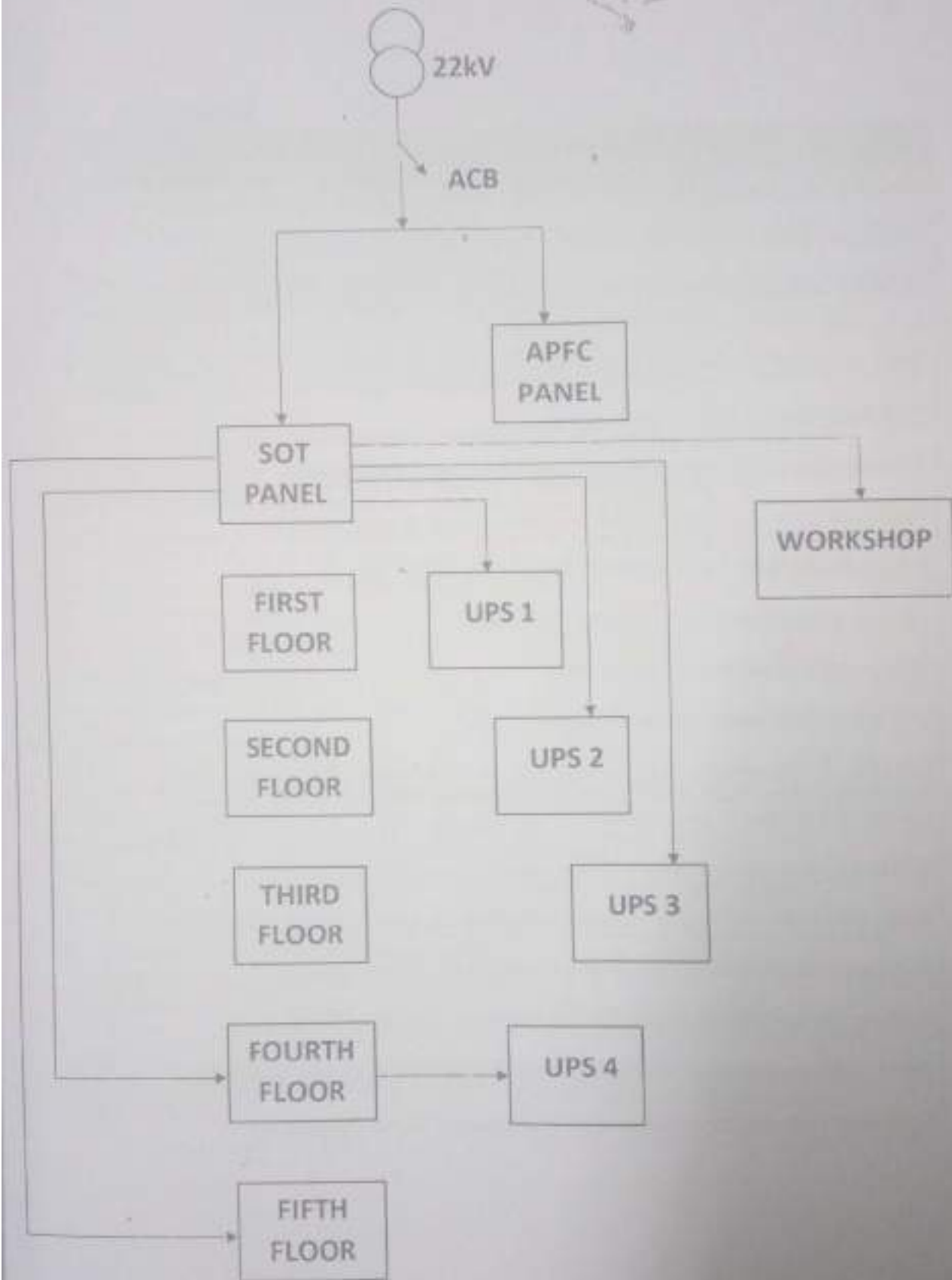
A. ELECTRICITY BILL ANALYSIS

1. Highest rKVAh is 19 % of kWh which must be close to zero
2. kWh consumption is 374230 units. A zone consumption is 102760 units, B zone consumption is 135390 units, C zone consumption is 50980, D zone consumption is 72390 units. D Zone consumption is charged at peak rate of Rs. 1.1 extra while B zone is charged at base rate. So for D zone you are charged Rs. 79629 for 72390 units. Hence D zone consumption must be reduced. From this analysis, we strongly recommend you to plan operation of non-priority load like water pumps, STP pumps, gardening during 10 pm to 6 am.
3. PF incentive received is Rs. 289152. But maximum possible PF incentive is Rs. 303651/- if Automatic Power Factor Control Panel is working effectively and power factor is maintained.
4. By implementing above suggestions, kWh can be reduced to 10% i.e. 37423 units can be reduced. kWh savings will be Rs. 340549/-
5. Total Benefit after PF correction and kWh reduction is Rs. 3,55,048/-
6. We strongly recommend you to rectify the APFC panel to secure unity PF
7. Existing Load factor is very poor. Another additional maximum billed reduction of 15% is possible through Load Factor Incentives.
8. It is strongly recommended to connect energy meters load wise, building wise and floor wise to monitor energy consumption.

B. Lighting

1. Abundant natural light is used in classrooms and Laboratories.
2. The natural light is obstructed due to White boards in some of the rooms at ground floor.
3. LED luminaries utilization is less than 2%. LED luminaries power consumption is less than 1%. There is a huge scope for savings in replacement of conventional luminaries by LED luminaries with involving cost of replacement.

DISTRIBUTION BLOCK DIAGRAM



General Aspects about Building	
Size, Age and Construction of the Building:	Main Building and Workshop, formed in 2010.
Connected Load or Contract Demand	Connected Load- 902 kW, Contract Demand- 570 kVA
Installed DG capacity:	112kW/140kVA, 50kW/62.5kVA (requirement for whole campus)
Total electricity consumption per annum:	374230 units
Total electricity purchased from utilities:	
Total electricity generated from DG:	Only in absence of Electricity
Total Built up area (in sqm):	Attached in Annexure: Building Area
Total Conditioned Area:	Attached in Annexure: Air Conditioners
Total conditioned area as % of total built up area	
Total number of employees in the office	
Occupancy information:	As per college time table
Load distribution pattern (total lighting load, air conditioning load and other loads)	
Awareness and attitude of occupants toward energy efficiency:	Good. Abundant natural light is used in classrooms
Measures/approach to involve building owners in operation of buildings	
Action plan of the building for renovation/new change in coming months/years:	No
Administrative authority in-charge of overall functions:	Sheela Bankar
Authority responsible for payment of electricity bills:	Accounts Department
Status of Bill Payments on time/Delay in Bill Payments, percentage paid:	On time
Controlling Authority for operation and maintenance:	Rohini Hategaonkar

Electrical Distribution Pattern

Status of Operation of existing Transformers

Source of power GRID/ DG Sets: Grid and 2 DG Sets for whole campus
Total Connected Load and Contract Demand: Connected Load- 902 kW, Contract Demand- 570 kVA
Break up of all major loads in KW (Division/Section Wise): Attached separately.
Copy of Electrical Single Line Diagram: Attached in Annexure: Single Line diagram
Section wise and overall energy consumption of the building for last 3 years (If varying then hourly for one month for running operations): Attached in Annexure: Graphs
Section Wise load list with application and kW rating along with usage timings: Attached separately
Separate feeders provided or not (for different loads like Lighting, Air Conditioning, Office Equipments etc): Separate feeder for lighting load.
Maximum Demand & Power factor Maintained for last one year (Copy of electricity bill for last one year): Maximum Demand=183 kVA, Maximum PF=1 Bills attached.
Minimum payable demand or fixed charges: Rs.66975
Energy Charges (basis of charges kVA/ kWh): kWh Basis, Rs. 403200 (maximum)
Power factor penalty/incentive (cutoff and how much): Rs. 10874 (min. incentive)
Variation of supply voltage and frequency: No
Number, Type and Rating (kVA), Voltage Ratio and Test Certificates of Transformers: 630 kVA
Emergency Load/Power Back up: DG Set
Usage pattern of transformers (loading/Standby pattern): Very less load
Break up of Loads connected to Each transformer
Details of various compensations provided in the building
Capacitor Bank installed - kVAR. Attached in Annexure : APFC Panel Details.
Location - Panel or with loads : Outside building premises.
Any instances of over compensation: Yes (Export of Reactive power)
Compensation provided at Meter Terminal: Yes
Power Quality (Is Harmonics a problem?): Current Harmonics are present.

Note: Collect copies of the electricity bills for last one year as these will help us know the basis of billing like kVA / kWh basis, average monthly consumption, power factor etc.

Information about Lighting

Total Lighting Load : Attached in Annexure: Lighting Details

Lighting Load as % of total load

Lighting Load Distribution: Attached in Annexure: Lighting Details

Light load connected to DG sets/alternative power source: Yes

Indoor lighting: Attached in Annexure: Lighting Details

General Lighting Points: Attached in Annexure: Lighting Details

Task Lighting Points: Attached in Annexure: Lighting Details

Lighting in Store Rooms, corridors, staircase, Toilets: Attached in Annexure: Lighting Details

Outside Lighting (Street Lighting and Campus Lighting in Lawns with Points.): Attached in Annexure: Lighting Details

Room Properties/ Arrangement for installation

Different area types and their utility : Attached in Annexure: Lighting Details

Area of Rooms: Attached in Annexure: Building Area Details

Height of Light Points from Work areas: Attached in Annexure: Building Area Detail

False Ceiling and its height, if it is there: NA

Total Glass Area of the building and Glass thickness and properties: All Labs

Status of Operation of existing installation/Measurements

Type of Light Fixtures working: Attached in Annexure: Lighting Details

Total Number of light fixtures/points: Attached in Annexure: Lighting Details

Type of Ballasts in operation: NA

Power Consumption per light bulb/light fixture: Attached in Annexure: Lighting

Number of actual light points working: Attached in Annexure: Lighting Details

Light load measurement system i.e. whether there is any separate lighting meter; Lighting transformer (if any and load connected to it): NA

Number of working days and operational hours per day: As per college schedule
Comments on Lighting Design and its efficacy: Abundant Natural light used.
Measurements: Attached in Annexure: Site Measurements
CRI Level and Lux Level required, Efficacy, Values of ILER: Attached in Annexure: Luminance levels
Lux level measurements and its distribution in various areas: Attached in Annexure
All measurements details and Calculation to be provided which includes Power consumption of light point and ballasts: Attached in Annexure
Status of wiring, Single switch for multiple lights: Applicable
Light load measurement system i.e. whether there is any separate lighting meter and also whether lighting is on separate feeder or controls and also whether lighting is in balance on all 3 phases if separately 3 phase supply is provided Controls or Sensors if any: Attached in Annexure: Site Measurements
General Measurements: Attached in Annexure: Site Measurements
Comments on use of day light: Abundant use of Daylight.
Operational Aspects
Status of operation of lighting system: Working
Preference of occupants for specific type of lighting: How to define comfort level for various options.
Power failure rate (DG operation hours): As per MSEDCL power failure
O&M measures which will affect implementation of O&M: NA
Controlling body responsible for O & M of Lighting: NA
Barriers to implementation: NA
Baseline Determination
Reporting Procedures in place to assess the baseline
Standard Measurement techniques (Method of determining consumption of each fixture/Spot measurements done): Floor wise measurement
Assumptions: NA

- hours of operation: As per college schedule

- Working days : 5 days in a week

- energy consumption per fixture

etc Savings Calculation :

Attached in Annexure: Lighting

Details

Windows/Split A/C

General Information

Total HVAC load : Attached in Annexure: Air conditioners

HVAC load connected to DG: Yes

Number of Rooms having air conditioners: 2

Area of Rooms/Cooling Space: Attached in Annexure: Building Area

False Ceiling/Height of roof: Attached in Annexure: Building Area

Exposure to sun light and Glazing, Total glass area: All Labs

Presence of major heat releasing loads i.e. photocopy machines, printers etc:
Attached in Annexure: Machine and Motor Details

Working hrs per day and working days in a week: As per college timetable

Measurements

Number of air conditioners and their rating: Attached in Annexure: Air Conditioners
Air conditioner measurements i.e. EER, SEC with calculation, energy saving with
star rated AC's: Attached in Annexure: Air Conditioner

Sample size chosen for measurements: NA

Orientation of Air Conditioners: NA

Whether there is separate energy meter for HVAC: No

Air conditioning load connected to DG : Yes

Year of Purchase of Air Conditioners : 2010

Measurement techniques

Temperature setting

Status of Thermostat (Working/Not working)

Operational Aspects

Existing Installations

Identify Operational and Maintenance factors responsible for energy loss in air conditioning system : NA

Operation and Maintenance procedures adopted : NA

Preference of occupants for specific type of lighting, How to define comfort level for various options: NA

Power failure rate (DG operation hours): As per MSEDCL power failure

Controlling body responsible for O & M of air conditioning system: Infra manager

Barriers to implementation: NA

Address Procurement issues: NA

Monitoring and Verification Aspects

Baseline Determination

Reporting Procedures in place to assess the baseline

Standard Measurement techniques (Method of determining consumption)

Assumptions

- hours of operation
Working days

Savings Calculation

DG Sets

Technical Aspects

Status of Operation of existing installation

Number of DG sets: 2

Rating of DG sets (kVA) Make and Year of DG: 140 kVA, 62.5 kVA
Status of Active/Standby Operations

Specification of DG Sets: Rating, Volt, Amp, RPM: Attached in Annexure: Ratings

Details of Load Connected on DG: Lighting load, AC load, Lab Instruments

Arrangement for recording performance of DG : Log Books.

Operational hours of DG per day: Approximately 2 hours during failure of MSEDCL.

Performance Evaluation Calculation of DG

Average % Loading and Power factor

Usage Pattern (parallel etc.)

Operational Aspects

Existing Status

Records/Log Book for Specific Fuel consumption (kwh/lts): Recorded

Provision of Meter to record electricity output from DG

Provision to capture oil consumption, whether oil flow meters/measuring arrangement is there

Maintenance schedule

Monitoring and Verification Aspects

Baseline Determination

Status of Building to assess the baseline consumption

Type of fans provided (Normal or exhaust) and power rating of fans; total connected load: Attached in Annexure: Fan Details
Year of Purchase, Make, Number of fans provided: Attached in Annexure
Type of regulators provided: Attached in Annexure: Fans
Regulator type and Fan Blade Material:
Average Working hours per day: Attached in Annexure: Fans
Fan Inventory: NA
Measurements: Floor wise measurements taken attached in Annexure
Power consumption per fan (W):
Air Delivery:
Total Power Consumption (kW):
Star Rated fans & energy saving comparison, costing, vendors

Use of renewable Energy

- Use of SWH (Solar Water Heating Systems) : Used
- Detailed proposal for installation of Solar Water Heating Systems in Building including detailed costing, piping layout etc. NA
- Description of distribution of Hot water in individual flat : NA
- Judicious distribution of hot water in individual flat/ premises: NA
- Cost effectiveness & life cycle costing of the use of SWH: NA
- Possibilities of use PV in common spaces as well for individual spaces/flats etc. : NA
- List of vendors for all systems : NA

Technical Aspects of Installation & Status of Operation of existing Transformers

Electrical Systems & Harmonics

The scope covers the study of Electrical Systems comprising the Electrical Substations, Electrical Bill analysis, Electrical Demand, Transformer loading practices, Phase Balancing Power Factor Management, Incoming Voltage Conditions and Distribution losses and Harmonics.

i) *Transformer Load Management*

The study will cover an in-depth analysis of the loading practices on distribution transformer to evaluate the operating efficiencies. Such an analysis would result in identification of measures for achieving optimum loading conditions and minimizing transformation losses.

ii) *Power Factor Management*

The study of power factor at different bus levels will help in designing and optimal placing of capacitor banks to reduce the distribution losses and at the same time to improve the power factor. Installation of capacitor banks on transformer LT bus will also be evaluated.

iii) *Distribution Losses*

An in-depth study of the energy losses in the cable system would indicate the measures to be taken for minimizing the energy losses in the cables and the overall distribution losses (percentage).

iv) *Incoming Voltage Conditions*

A detailed analysis of incoming voltage conditions would help in arriving at possible measures to improve the same.

v) *Harmonics*

A detailed harmonic analysis will be carried out in the selected areas like UPS feeder, main in-comer, lighting DB etc.

Consumer Number		183099042890				Tariff				HT 'X'B			
Connected Load (kW)		902				Sanctioned Load (kW)				902			
Contract Demand (kVA)		570				Sanctioned Demand (kVA)				570			
50% Of Contract Demand (kVA)		285				Previous Highest Demand (kVA)				183			
Month	Year	kWh	kVAh	kVAh	kVA(MD)	kWh(MD)	kVA(MD)	w.t.t. kWh	50% Con. Demand	75% of prev. high	(kWh)²	(kVAh)²	Billed PF
Nov	2017	42440	42640	1790	134	146	146	4.22	285	137	1801153600	3704100	0.999
Oct	2017	36140	35800	2410	153	168	168	6.61	285	137	1327873600	5808100	0.998
Aug	2017	42230	42460	1890	147	163	163	4.48	285	137	1783372900	3572100	0.999
Jul	2017	43750	44280	3210	138	161	161	7.34	285	137	1914062500	10304100	0.997
Jun	2017	28450	29690	5410	148	171	171	19.02	285	137	809402500	29268100	0.982
May	2017	29930	29940	180	101	103	103	0.60	285	137	895804900	32400	1.000
Apr	2017	37780	38130	2940	145	155	155	7.78	285	137	1427328400	8643600	0.997
Mar	2017	44800	45200	2210	155	173	173	4.93	285	137	2067040000	4884100	0.999
Jan	2017	33580	33700	130	95	94	94	0.39	285	137	1134342400	16900	1.000
Dec	2016	34730	34760	260	104	104	104	0.75	285	137	1206172900	67600	1.000
Total		1/4230	377600	20430				5.61					
Month	Year	A Zone	B Zone	C Zone	D Zone	A Zone	B Zone	C Zone	D Zone	Demand	Billed	Rate	Demand Charges
		kWh				Demand				kVA	Per kVA	Rate	Demand Charges
Nov	2017	11900	15710	6210	8620	94	146	121	138	138	285	250.00	71250
Oct	2017	13350	13760	5270	7860	103	154	168	131	131	285	250.00	71250
Aug	2017	12320	16040	5750	8120	64	163	150	130	130	285	250.00	71250
Jul	2017	13920	15190	5320	8820	134	161	136	156	156	285	250.00	71250
Jun	2017	7920	11500	3350	6680	151	164	148	171	171	285	250.00	71250
May	2017	960	12920	4250	4800	48	103	88	75	75	285	250.00	71250
Apr	2017	10500	5970	5250	6050	70	155	108	91	91	285	250.00	71250
Mar	2017	12700	18050	5830	8270	91	173	149	142	142	285	235.00	66975
Jan	2017	9420	12750	4920	6590	62	94	83	75	75	285	235.00	66975
Dec	2016	9770	13500	4830	6630	63	104	92	97	97	285	235.00	66975
Total		102760	135390	50880	72390								

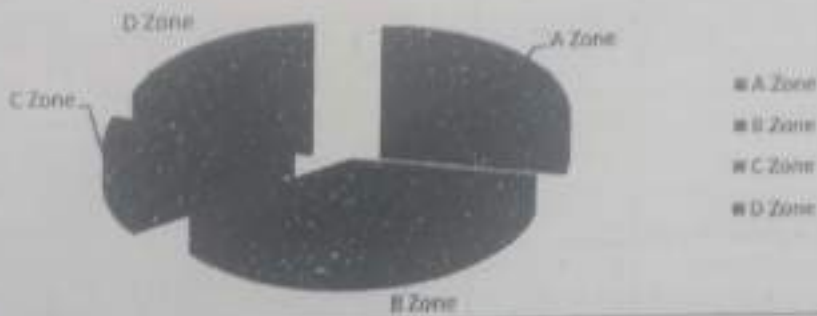
Nov 2017	9.1	386704	-3400	0.83	35225.2	-15278.4	-33180.06	33180.056	0	0	378341.13
Oct 2017	9.1	331604	-3543	0.83	30245.2	-25872.4	-28257.87	28257.866	0	0	452672.65
Aug 2017	9.1	384293	-4948	0.83	35050.9	-7533.8	-33817.85	33817.847	0	0	435173.91
Jul 2017	9.1	398125	-6522	0.83	36312.5	-35000	-32491.59	32491.585	0	0	353872.82
Jun 2017	9.1	258895	-2952	0.83	23613.5	11664.5	-10874.13	25372.97	0	14499	363716.88
May 2017	9.1	272363	-3260	0.83	24841.9	23365.4	-27197.82	27197.821	0	0	30961.38
Apr 2017	9.1	343798	-4884	0.83	31357.4	-35135.4	-28447.02	28447.02	0	0	459210
Mar 2017	9	403200	-5344	0.82	36736	-11648	-34294.33	34294.33	0	0	360828.27
Jan 2017	9	303120	-2945	0.82	27617.6	0	-27633.73	27633.732	0	0	270987.21
Dec 2016	9	312570	-3498	0.82	28478.6	0	-28316.79	28316.792	0	0	396000.24
Total							-289152.3	303651.16	0	14499	
MkWh reduction	37423										
MWh Savings (Rs)	310549.3										
Total Savings / Rs.	355048.14										

ANNEXURE: GRAPHS

kWh Vs. rkVAh consumption



Consumption distribution in Time zones



Possible Savings with Improved Power Factor



SAMPLE BILL CALCULATIONS

BILLING PARAMETERS (NOVEMBER-2017)

Sr.No.	Particulars	Amount(Rs.)	Billed kVA	Rs./kVA	Amount(Rs.)
1	Demand Charges	71250	285	250	71250
			Consumption	Rs./kWh	
2	Wheeling Charges	35225.2	42440	0.83	35225.2
			Consumption	Rs./kWh	Amount(Rs.)
2	Energy Charges	386204	42440	9.1	386204
			A Zone Units	Rs./kWh	Amount(Rs.)
3	ToD Tariff EC	-3400	11900	-1.5	-17850
			C Zone Units	Rs./kWh	
			6210	0.8	4968
			D Zone Units	Rs./kWh	
			8620	1.1	9482
					-3400
			Consumption	Rs./kWh	Amount(Rs.)
4	FAC	-15278	42440	-0.35999	-15278
			Gross(1 to 4)	% Rate	Amount(Rs.)
5	Electricity Duty	0	474001.2	0	0.00
			Gross(1 to 5)	% Rate	Amount(Rs.)
6	Tax On Sale	3395	474001.2	0.800%	3395
			Gross (1 to 4)	% Rate	Amount(Rs.)
7	Power Factor Charges	-33180	474001.2	7	-33180
			Excess By	Rate	Amount(Rs.)
8	Charges for Excess Demand	0	0	0	0
	Total Current Bill	444216.2			

ANNEXURE: BUILDING AREA DETAILS

Location	Department	Name of Classroom	Area in Sq.m	Length×Breadth (Sq.m)	Height (m)
Ground Floor	First Year Engineering	Admin Office	167.65	12.73×13.17	2.5
		Basic Electronics Laboratory	66.75	10.13×6.58	2.5
		Class room 3	66.76	6.34×10.53	2.5
		Class room 4	66.76	6.34×10.53	2.5
		Medical Room	11.33	2.69×4.20	2.5
		Gents Toilet	25.44	4.35×5.85	2.5
		Electrical Room	10.11	3.37×3.00	2.5
		Maintaince Room	9.36	3.37×2.78	2.5
		Engineering Mechanics Laboratory	66	10.43×6.32	2.5
		Ladies Toilet	25.44	4.35×5.85	2.5
		Pantry	11.2	2.69×4.20	2.5
		Chemistry Laboratory	74.14	12.66×5.85	2.5
		Tutorial Room 2	40.8	8.98×4.52	2.5
		Tutorial Room 1	40.8	10.05×4.03	2.5
		Class Room 2	66	10.05×6.60	2.5
		Class Room 1	95.92	12.73×7.54	2.5
		Civil Laboratory	80	10.26×13.25	2.5
		Principal Cabin	40	8×5	2.5
		Physics Laboratory	80	10.26×13.25	2.5
		First Floor		Faculty Cabin	167.65
Basic Mechanical Engg Lab	70.35			10.05×7.0	3.2
Counselor Cabin	40			8×5	3.2
ComputerLab	117.5			10.06×11.68	3.2
Server ROOM	22.6			9.96×2.27	3.2
Store Room	11			2.62×4.20	3.2
Gents Toilet	25.44			4.35×5.85	3.2
FE Coordinators Cabin	10			3.45×2.90	3.2
Girls Common Room	75			12.93×5.8	3.2
Ladies Toilet	25.44			4.35×5.85	3.2
Library	346.98			29.42×11.79	3.2
Drawing Hall	184			12.86×13.10	3.2
Digital Library	78.37			10.57×7.50	3.2

ANNEXURE: BUILDING AREA DETAILS

Location	Department	Name of Classroom	Area in Sq.m	Length×Breadth	Height
Second Floor	Electronics And Telecommunication	Digital Signal Processing Lab	81.716	12.63×6.47	3.2
		Basic Electrical Engineering Lab	66	10.05×6.47	3.2
		Power Laboratory	75.55	10.05×7.52	3.2
		Digital Logic Design Laboratory	75.55	10.05×7.52	3.2
		Audio Video laboratory	74.17	12.68×5.85	3.2
		Gents Toilet	25.44	4.35×5.85	3.2
		Exam Control Room	67.56	11.71×5.77	3.2
		Language Laboratory	70.97	12.30×5.77	3.2
		Seminar Hall	108	10.05×10.07	3.2
		Tutorial Room	33	10.05×3.28	3.2
		Class Room-1	66.3	10.05×6.60	3.2
		Class Room-2	75.72	10.05×7.54	3.2
		Simulation Laboratory	83.648	13.07×6.40	3.2
		Communication Laboratory	78.37	10.5×7.50	3.2
		Analog Laboratory	83.648	13.07×6.40	3.2
Third Floor	IT Depart/E&TC	OOP&CG	82.36	12.73×6.47	3.9
		Software Engineering	66	10.13×6.47	3.9
		Microprocessor and Microcontroller	66	10.13×6.47	3.9
		Test And Measurement Lab	66	10.13×6.47	3.9
		Audio Video Laboratory	85	10.13×8.40	3.9
		Project Laboratory	76	12.99×5.85	3.9
		IT LAB	66	11.28×5.85	3.9
		Seminar Hall	120	10.05×11.94	3.9
		Tutorial Room	33	10.05×3.83	3.9
		Class Room -1	66	10.05×6.56	3.9
		Class Room -2	72.84	10.05×7.54	3.9
		ISDL Laboratory	91.3	12.86×7.10	3.9
		Class Room -3	72	10.26×7.10	3.9

ANNEXURE: BUILDING AREA DETAILS

Location	Department	Name of Classroom	Area in Sq.m	Length×Breadth	Height (Meter)
Fourth Floor	Computer Department	SDTL Laboratory	80.74	12.48×6.47	2.9
		Network Laboratory	66	10.13×6.474	2.9
		Project Laboratory	66	10.13×6.474	2.9
		Comp. Laboratory	66	10.13×6.474	2.9
		Class Room-3	66	10.13×6.474	2.9
		Placement office	30	4.5×6.6	2.9
		Comp. Laboratory	66	10.13×6.474	2.9
		Department Office	120.255	4.5×4.5	2.9
		Comp. Laboratory	66	10.13×6.474	2.9
		Comp. Laboratory	66	10.36×6.37	2.9
		Toilet	25.44	5.85×4.35	2.9
		HOD Cabin	12	4.58×2.62	2.9
		Seminar Hall	135	12.45×10.84	2.9
		Tutorial Room	36	10.0×3.6	2.9
		Class Room-1	66	10.0×6.5	2.9
		Class Room-2	75	10.0×7.5	2.9
		Faculty Cabin	24	3.8×6.3	2.9
		Comp. Laboratory	75	12.48×6.47	2.9
		Data Structure Laborn	66	10.20×7.0	2.9

ANNEXURE: BUILDING AREA DETAILS

Location	Department	Name of Classroom	Area in Sq.m	Length×Breadth	Height (meters)		
Ground Floor	Mechanical Engineering	SE DIV A	75	6.3×11.90	3.2		
		SE DIV B	75	6.3×11.90	3.2		
		TE DIV A	75	6.3×11.90	3.2		
		TE DIV B	75	6.3×11.90	3.2		
		BE DIV A	75	6.3×11.90	3.2		
First Floor		BE DIV B	75	6.3×11.90	3.2		
		CAD-1	75	6.3×11.90	3.2		
		CAD-2	75	6.3×11.90	3.2		
Workshop	Mechanical Engineering	Machine shop	293	12×24.43	9		
		Strength of material	66	6.15×10.75	2.7		
		Metallurgy	66	6.15×10.75	2.7		
		IFPL	66	6.15×10.75	2.7		
		Applied Thermodynamics	66	6.15×10.75	2.7		
		Ref. and air conditioning	66	6.15×10.75	2.7		
		IC Engine	66	6.15×10.75	2.7		
		Fluid and Turbo	66	6.15×10.75	2.7		
		Dynamics of Mach.	66	6.15×10.75	2.7		
		Theory of Machines	66	6.15×10.75	2.7		
		Gents Toilet	11.5	5×2.30	2.7		
		Girls Toilet	8.51	3.70×2.30	2.7		
		First floor		Seminar Hall 1	135	12.30×10.75	2.7
				Seminar Hall 2	135	12.30×10.76	2.7
				Drawing Hall	66	6.15×10.75	2.7
				Mechatronics	66	6.15×10.75	2.7
				Metrology & Quality	66	6.15×10.75	2.7
				Heat Transfer	66	6.15×10.75	2.7
				Tutorial Room 1	33	6×5.5	2.7
				Department Office	12.6	2.8×4.5	2.7
HOD Cabin	12.6	2.8×4.5	2.7				
		Tutorial Room 2	33	6×5.5	2.7		

ANNEXURE: APFC PANEL DETAILS

Client Name	ISB&M SCHOOL OF TECHNOLOGY				Nande				Time					
	panel room	Step.No.	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Location	185	kVar	25	10	15	15	25	10	15	15	25	10	10	10
Total kVar	12	Voltage (V)	440	440	440	440	440	440	440	440	440	440	Fix	Fix
No. Of Steps	Sycon 5512	Reactor	-	-	-	-	-	-	-	-	-	-	-	-
Relay Make	Subhodhan	Contactor (A)	65	32	40	40	65	32	40	65	65	32		
Capacitor Make	MPP	MCB (A)	63	32	40	40	63	32	40	63	63	32		
Capacitor Type														
Switchgear Make	Telemechanic	Current												
Incomer Rating	630	R-Y												
Sensing CT Ratio	300/5	Y-B												
Sensing CT At	B phase	B-R												
R Phase (A)	78	R	44	32	-	16.6	-	-	-	0	-	-	16	13
Y Phase (A)	76.5	Y	45	32	-	0.0	-	-	-	8	-	-	15	12.5
B Phase (A)	82.4	B	45	32	-	16.5	-	-	-	11	-	-	15	12

Capacitance(MFD)

ANNEXURE: SITE MEASUREMENTS										
Location	Currents				KW			POWER FACTOR		
	R	Y	B	N	R	Y	B	R	Y	B
Main Building	17	17	20	4	3.3	3.2	3.6	0.73	0.71	0.66
First Floor P1	2.4	0	0	1.4	0.57	0	0	0.712	-	-
First Floor P2	7	7	7	-	0.56	0.56	0.62	-	0.725	0.336
SECOND FLOOR	4	4	4	-	1.06	2.53	0.32	0.664	0.897	0.856
THIRD FLOOR	SINGLE PHASE : CURRENT = 1A				-	-	-	-	-	-
FOURTH FLOOR	4	4	5	-	0.72	0.73	0.56	0.453	0.561	0.857
HOSTEL - 5th floor	3.8	2.7	0	-	0.95	0.65	0.99	0.988	-	-
WORKSHOP	3	2	0	-	0.65	0.31	-	-	-	-
UPS 1 i/p	2	3	3	-	-	-	-	-	-	-
UPS 1 o/p	3	-	-	2	-	-	-	-	-	-
UPS 2 i/p	3.7	4	3.6	0	4.1	5	5.2	-	-	-
UPS 2 o/p	3.3	-	-	-	17.2	25	26	-	-	-
UPS 3 o/p	1.4A									

Location	VOLTAGE					
	R-Y	Y-B	B-R	R-N	Y-N	B-N
Main Meter Building	426	429	428	246	247	248

UPS :All 20kVA rating

UPS: Incoming 3 phase, outgoing 1 phase

UPS 1 connected to Ground , 1st and 2nd floor

UPS 2 connected to 3rd floor

UPS 3 connected to 4th floor

ANNEXURE: MAIN INCOMER SITE MEASUREMENTS (CAPACITORS ON)

Parameter	Min			Avg			Max		
	V1	V2	V3	I1	I2	I3	V	I	PF
Voltage									
Vrms ph-n	240.44	241.36	240.60	242.35	243.24	243.45	242.84	243.84	244.31
Vrms ph-ph	416.84	418.81	415.97	420.02	422.19	420.55	420.82	423.38	421.93
Peak Voltage ph-n	339.20	341.50	339.60	342.25	344.25	342.93	343.50	345.80	345.20
Voltage Crest Factor	1.41	1.41	1.41	1.41	1.42	1.41	1.42	1.42	1.42
Current									
Current	90.20	80.20	97.70	105.24	96.23	99.20	130.30	166.40	151.60
Peak Current	155.00	158.80	178.00	178.83	183.25	181.40	214.20	277.60	255.20
Current Crest Factor	1.65	1.73	1.70	1.70	1.91	1.83	1.70	2.18	2.01
Frequency									
Frequency	49.89			49.96			49.97		
Power									
Active Power (KW)	19.28	17.28	22.13	23.03	20.82	21.92	28.19	33.86	31.22
Active Power Total (KW)	59.22			65.77			81.30		
Apparent Power (KVA)	21.72	19.39	23.67	25.49	23.35	24.10	31.59	40.35	36.86
Apparent Power Total (KVA)	65.37			73.15			97.80		
Reactive Power (KVAR)	8.95	7.29	6.26	10.32	9.26	7.83	14.79	21.90	19.33
Reactive Power Total (KVAR)	22.56			27.88			49.14		
Power Factor									
Power Factor	0.87	0.85	0.90	0.90	0.89	0.91	0.93	0.91	0.93
Power Factor Total	0.86			0.90			0.92		
THD									
THD V %	1.43	1.12	1.33	1.47	1.16	1.33	1.53	1.24	1.37
THD A %	12.86	15.40	15.97	17.52	24.11	25.46	15.60	23.19	30.73
Volts Harmonics									
Volts Harmonics1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Volts Harmonics3	0.16	0.22	0.11	0.20	0.25	0.18	0.27	0.28	0.19
Volts Harmonics5	0.75	0.62	0.61	0.74	0.63	0.56	0.83	0.72	0.60
Volts Harmonics7	0.65	0.53	0.64	0.69	0.60	0.70	0.81	0.75	0.87
Volts Harmonics9	0.17	0.12	0.01	0.19	0.16	0.04	0.19	0.15	0.07
Volts Harmonics11	0.25	0.16	0.13	0.24	0.21	0.15	0.31	0.28	0.22
Volts Harmonics13	0.33	0.16	0.54	0.36	0.22	0.56	0.38	0.27	0.59
Volts Harmonics15	0.45	0.35	0.37	0.49	0.38	0.33	0.53	0.40	0.37
Volts Harmonics17	0.54	0.17	0.44	0.72	0.30	0.53	0.71	0.42	0.51
Volts Harmonics19	0.10	0.20	0.26	0.18	0.28	0.31	0.23	0.61	0.73
Volts Harmonics21	0.06	0.06	0.04	0.08	0.09	0.06	0.17	0.21	0.09
Volts Harmonics23	0.02	0.03	0.04	0.06	0.08	0.04	0.16	0.19	0.05
Volts Harmonics25	0.00	0.02	0.05	0.03	0.03	0.05	0.07	0.12	0.11
Current Harmonics									
Amps Harmonics1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Amps Harmonics3	2.19	2.28	1.10	2.91	3.88	4.45	2.94	3.66	6.21
Amps Harmonics5	10.07	12.77	12.63	13.43	19.60	19.61	12.04	18.89	23.48
Amps Harmonics7	6.56	7.15	8.59	9.56	11.71	14.05	8.52	11.46	17.12
Amps Harmonics9	2.05	0.94	0.12	2.46	1.96	0.75	2.27	2.05	1.36
Amps Harmonics11	0.43	1.46	1.38	1.03	2.59	2.68	1.40	2.76	3.71
Amps Harmonics13	0.56	0.89	0.72	0.79	1.33	1.37	0.88	1.47	1.70

APPENDIX: MAIN INCOMER SITE MEASUREMENTS (CAPACITORS OFF)

Parameters	Min			AVG			Max		
	L1	L2	L3	L1	L2	L3	L1	L2	L3
Voltage									
Vrms ph-n	244.17	244.48	244.54	244.01	244.31	245.05	243.50	243.87	244.00
Vrms ph-ph	422.88	424.13	422.93	422.50	424.21	423.50	421.61	423.49	422.50
Peak Voltage ph-n	344.30	345.30	344.70	344.20	345.15	345.01	344.10	345.00	344.00
Voltage Crest Factor	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.42	1.41
Current									
Current	107.60	130.80	89.50	106.14	123.01	97.18	121.50	132.40	107.60
Peak Current	173.60	222.00	159.40	172.29	212.11	171.13	200.80	230.60	173.60
Current Crest Factor	1.59	1.67	1.66	1.62	1.72	1.77	1.67	1.75	1.59
Frequency									
Frequency	49.92			49.98			50.11		
Power									
Active Power (KW)	21.85	26.76	16.72	21.39	24.92	18.52	25.84	27.43	21.85
Active Power Total (KW)	65.85			64.83			73.86		
Apparent Power (KVA)	26.30	32.00	21.97	25.89	30.04	23.75	29.53	32.24	26.30
Apparent Power Total (KVA)	81.33			80.14			87.60		
Reactive Power (KVAR)	13.83	16.92	13.41	14.24	16.34	13.59	14.21	16.58	13.83
Reactive Power Total (KVAR)	44.16			44.65			44.64		
Power Factor									
Power Factor	0.82	0.83	0.74	0.83	0.83	0.78	0.88	0.85	0.82
Power Factor Total	0.79			0.81			0.85		
Total Harmonic Distortion (THD)									
THD V %	0.93	0.69	0.77	0.92	0.73	0.82	1.11	0.90	0.93
THD A %	15.10	15.23	15.90	16.37	17.18	23.73	16.28	17.96	15.10
Voltage Harmonic									
Volts Harmonics1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Volts Harmonics3	0.20	0.19	0.10	0.22	0.22	0.16	0.27	0.26	0.20
Volts Harmonics5	0.49	0.38	0.32	0.50	0.41	0.37	0.66	0.53	0.49
Volts Harmonics7	0.58	0.42	0.57	0.58	0.43	0.58	0.71	0.57	0.58
Volts Harmonics9	0.13	0.05	0.02	0.14	0.09	0.03	0.15	0.12	0.13
Volts Harmonics11	0.01	0.07	0.01	0.05	0.12	0.05	0.14	0.14	0.01
Volts Harmonics13	0.17	0.03	0.17	0.21	0.07	0.24	0.26	0.10	0.17
Volts Harmonics15	0.09	0.03	0.07	0.10	0.05	0.08	0.12	0.08	0.09
Volts Harmonics17	0.18	0.09	0.10	0.21	0.11	0.11	0.26	0.15	0.18
Volts Harmonics19	0.08	0.13	0.15	0.10	0.16	0.18	0.12	0.19	0.08
Volts Harmonics21	0.04	0.01	0.03	0.06	0.03	0.04	0.07	0.04	0.04
Volts Harmonics23	0.06	0.07	0.01	0.10	0.09	0.02	0.10	0.11	0.06
Volts Harmonics25	0.02	0.03	0.00	0.04	0.06	0.04	0.08	0.09	0.02
Current Harmonic									
Amps Harmonics1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Amps Harmonics3	2.92	1.66	1.65	3.52	2.53	3.96	3.50	2.66	2.92
Amps Harmonics5	11.44	12.78	12.37	12.53	14.02	18.27	12.60	14.54	11.44
Amps Harmonics7	8.30	7.58	8.87	8.89	8.31	13.08	8.84	8.42	8.30
Amps Harmonics9	1.82	0.87	0.53	2.03	1.25	0.94	2.14	1.43	1.82
Amps Harmonics11	1.68	2.29	2.10	1.79	2.45	3.15	1.83	2.34	1.68

ANNEXURE- SOT BUILDING INCOMER SITE MEASUREMENTS

Vrms ph-n	244.96	246.61	247.58	245.88	247.21	248.10	246.87	248.15	248.63
Vrms ph-ph	425.18	428.48	426.67	426.61	429.48	427.68	428.26	430.81	428.65
Peak Voltage ph-n	344.40	347.10	347.80	346.44	348.74	349.30	350.40	351.00	386.80
Voltage Crest Factor	1.41	1.41	1.40	1.41	1.41	1.41	1.42	1.42	1.56
Current									
Current	16.10	17.50	20.80	18.53	21.43	21.76	21.20	26.20	26.70
Peak Current	35.40	46.20	46.60	40.66	54.57	50.50	48.40	64.00	61.00
Current Crest Factor	2.13	2.55	2.19	2.20	2.56	2.32	2.32	2.66	2.49
Frequency									
Frequency	49.97			50.01			50.02		
Power									
Active Power (KW)	2.87	3.10	3.59	3.44	3.75	3.75	4.00	4.97	4.95
Active Power Total (KW)	9.66			10.94			12.81		
Apparent Power (KVA)	3.96	4.32	5.17	4.56	5.29	5.39	5.23	6.48	6.61
Apparent Power Total (KVA)	13.65			15.30			17.49		
Reactive Power (KVAR)	1.53	1.62	2.63	1.85	2.78	2.70	2.20	3.74	3.41
Reactive Power Total (KVAR)	5.97			7.50			9.06		
Power Factor									
Power Factor	0.71	0.71	0.68	0.75	0.71	0.69	0.79	0.77	0.75
Power Factor Total	0.70			0.72			0.74		
THD									
THD V %	1.12	0.87	1.00	1.22	1.01	1.18	1.55	1.16	1.34
THD A %	60.76	61.38	54.62	61.62	55.41	57.20	60.89	54.41	61.75
Volts Harmonics									
Volts Harmonics1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Volts Harmonics3	0.13	0.18	0.16	0.18	0.21	0.17	0.22	0.30	0.19
Volts Harmonics5	0.65	0.43	0.42	0.65	0.48	0.43	0.61	0.47	0.31
Volts Harmonics7	0.32	0.31	0.39	0.46	0.44	0.52	0.66	0.58	0.70
Volts Harmonics9	0.27	0.09	0.07	0.28	0.11	0.08	0.31	0.13	0.07
Volts Harmonics11	0.07	0.23	0.09	0.14	0.28	0.16	0.17	0.32	0.20
Volts Harmonics13	0.30	0.09	0.57	0.36	0.22	0.69	0.34	0.22	0.60
Volts Harmonics15	0.29	0.17	0.01	0.44	0.22	0.11	0.74	0.32	0.28
Volts Harmonics17	0.30	0.25	0.16	0.47	0.32	0.30	0.97	0.59	0.70
Volts Harmonics19	0.10	0.20	0.13	0.14	0.33	0.33	0.24	0.56	0.78
Volts Harmonics21	0.06	0.09	0.06	0.11	0.14	0.07	0.14	0.21	0.10
Volts Harmonics23	0.07	0.68	0.00	0.13	0.14	0.03	0.20	0.20	0.07
Volts Harmonics25	0.03	0.04	0.03	0.08	0.07	0.05	0.13	0.09	0.10
Amps Harmonics									
Amps Harmonics1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Amps Harmonics3	14.83	6.06	5.37	17.32	8.09	7.80	20.51	11.36	11.79
Amps Harmonics5	42.77	46.82	39.04	42.65	41.47	41.22	41.80	41.24	44.88
Amps Harmonics7	25.65	34.18	32.09	36.53	30.65	33.40	36.82	30.07	35.91
Amps Harmonics9	5.85	0.54	2.20	6.31	1.22	2.95	7.63	1.74	3.81
Amps Harmonics11	10.72	15.03	13.54	12.09	14.19	15.08	17.41	14.17	16.76

ANNEXURE: LIGHTING DETAILS

Sr. No	Location	Application	Luminary Type	Name & Make	Wattage	Quantity	Working Hrs.
		General/Task/Outdoor					
GROUND FLOOR							
	Tutorial Room 2	Task	Tubelight	CG	50	6	8
	Tutorial Room 1	Task	CFL	Phillips	28	3	3
	Pantry	General	Tubelight	CG	50	1	3
	Engg. Mech. Lab	Task	CFL	Phillips	28	12	2
		Task	Tubelight	CG	50		
	Classroom 3	General	CFL	Phillips	28	18	2
		General	CFL	Phillips	28	3	2
	Block 8	General	CFL	Phillips	28	12	2
	Block 9	General	Tubelight	CG	50	6	2
		General	CFL	Phillips	28	6	2
		General	Tubelight	CG	50	1	8
	Chem Lab	Task	CFL	Phillips	28	6	2
		Task	Tubelight	CG	50	2	1
	Civil Lab	Task	Tubelight	CG	50	2	2
		General	CFL	Phillips	28	3	2
	Phy Lab	General	CFL	Phillips	28	6	5
	Elx Lab	General	CFL	Phillips	28	18	5
	Admin Office	General	CFL	Phillips	28	15	7
	Prinipal Office	General	LED		28	4	7
	Corridor	General	LED		28	5	2
	Gents Toilet	General	Tubelight	CG	50	2	7
WORKSHOP							
	Hod Cabin	General	CFL	Phillips	28	8	6
	Mech W/s	General	CFL	Phillips	28	2	4
	Tutorial Room	General	CFL	Phillips	28	8	2
	Heat Transfer Lab	General	CFL	Phillips	28	16	4
	Seminar Hall	General	Tubelight	CG	50	12	2
FIRST FLOOR							
	Library	General	CFL	Phillips	28	30	6
	Gents Toilet	General	Tubelight	CG	50	2	6
	Digital Library	General	CFL	Phillips	28	18	4
		General	Tubelight	CG	28	2	4
	Drwaing Hall	General	CFL	Phillips	28	15	8
	Faculty Cabin	General	CFL	Phillips	28	15	8
	Classroom 5	General	Tubelight	CG	50	6	6
	Classroom 6	General	Tubelight	CG	50	6	6
	CAD lab	General	Tubelight	CG	50	5	4
	CAM LAB	General	Tubelight	CG	50	5	4
	Computer Centre	General	Tubelight	CG	50	12	4
	HOD Cabin	General	CFL	Phillips	28	3	8
	BME Lab	General	Tubelight	CG	50	12	4

SECOND FLOOR

Tutorial Room	General	CFL	Phillips	28	12	2
SE Class room	General	CFL	Phillips	28	24	4
Simulation Lab	General	CFL	Phillips	28	18	2
Communication Lab	General	CFL	Phillips	28	12	2
Analog & Digital Lab	General	CFL	Phillips	28	12	2
Audio Video LAB	General	CFL	Phillips	28	24	2
Digital Logic Design La	General	CFL	Phillips	28	4	2
Power LAB	General	CFL	Phillips	28	12	2
Basic Electrical Lab	General	CFL	Phillips	28	18	2
Digital Signal LAB	General	CFL	Phillips	28	18	2
Gents Toilet	General	CFL	Phillips	28	6	6
Class Room 2	General	CFL	Phillips	28	12	4
Seminar Hall	General	CFL	Phillips	28	14	2
Exam Control room	General	CFL	Phillips	28	4	5
Analog Lab	General	CFL	Phillips	28	4	2

THIRD FLOOR

OOP & CG	Task	Tubelight	CG	50	4	2
Soft Engg.	Task	Tubelight	CG	50	4	2
BE Class	General	Tubelight	CG	50	8	4
ISDL Lab	Task	Tubelight	CG	50	4	2
TE Class	General	Tubelight	CG	50	3	4

FOURTH FLOOR

Lab 6	General	Tubelight	CG	50	8	2
Lab 5	General	Tubelight	CG	50	7	2
Classroom 3	General	Tubelight	CG	50	8	4
Project Lab	Task	Tubelight	CG	50	6	4
Network Lab	Task	Tubelight	CG	50	6	4
STDC Lab	Task	Tubelight	CG	50	8	4
Classroom 1	General	Tubelight	CG	50	6	4
Data Structure	Task	Tubelight	CG	50	5	4
Classroom 2	General	Tubelight	CG	50	6	4
HOD Cabin	General	Tubelight	CG	50	3	6
Seminar Hall	General	Tubelight	CG	50	5	2
Tutorial Room	General	Tubelight	CG	50	6	2
Faculty Room	General	Tubelight	CG	50	1	4
Faculty Room	General	Tubelight	CG	50	3	4
Room 1	General	Tubelight	CG	50	2	5
Room 2	General	Tubelight	CG	50	2	5
Room 3	General	Tubelight	CG	50	1	5
Room 4	General	Tubelight	CG	50	2	5
Room 5	General	Tubelight	CG	50	2	5
Room 6	General	Tubelight	CG	50	2	5
Room 7	General	Tubelight	CG	50	2	5
Room 8	General	Tubelight	CG	50	2	5
Room 9	General	Tubelight	CG	50	2	5
Room 11	General	Tubelight	CG	50	2	5

ANNEXURE: LIGHTING DETAILS SUMMARY

Location	FTL		CFL	
	No.	Wattage	No.	Wattage
Ground Floor	20	1060	125	3500
workshop	12	636	34	952
	18	954	12	336
First Floor	36	1908	83	2324
Second Floor			194	5432
Third Floor	23	1219		
Fourth Floor	122	6466		
Total	231	12243	448	12544
LED Luminaries 4 Nos in Principal's Office and 4 Nos. In corridor				

Observations

There are 231 FTLs and 448 CFLs fitted and in use

There are only 10 nos of LED luminaries are fitted and in use

Wattage of FTL and CFL is 24787

Wattage of LED is 140

Conclusion

LED luminaries utilization is less than 2%

LED luminaries power consumption is less than 1%

There is a huge scope for savings in replacement of conventional luminaries by LED luminaries with involving cost of replacement

ANNEXURE: LUX LEVEL DETAILS

Ground floor:



Admin office:

Lux range	Section 1	
	ON	OFF
2000	4922	4900
	362	250
	250	62

Classroom 3:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	76	2	193	9
	97	9	102	8
	43	30	88	33

Medical Room:

Lux range	Section 1	
	ON	OFF
2000	77	5
	2	112
	1	11

Pantry room:

Lux range	Section 1	
	ON	OFF
2000	77	5
	2	112
	1	11

Chemistry Lab:

Lux Range	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	115	21	54	47	342	290
	70	45	85	80	597	480
	45	33	86	84	486	315



Tutorial Room 2:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	35	20	23	15
	115	67	60	44
	533	496	235	203

T&P cell:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	166	144	116	88
	79	18	70	10
	36	11	34	12

Classroom 2:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	54	46	92	28
	54	21	108	19
	208	163	63	17

Classroom 1:

Lux Range	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	323	240	402	306	123	45
	177	027	88	18	123	27
	75	88	133	12	105	50

Civil lab:

Lux Range	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	1253	940	321	256	162	40
	4836	4800	230	170	207	40
	243	150	191	32	123	34

Principle office:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	326	23	336	36
	352	27	310	31

Engg Physics lab:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	360	252	580	503
	45	55	140	53
	213	196	206	150

Dark Room:

Lux range	Section 1	
	ON	OFF
2000	20	1
	110	0
		0

Main Office:

Lux range	Section 1	
	ON	OFF
2000	550	540
	133	83
	142	80

Account section:

Lux range	Section 1	
	ON	OFF
2000	660	640
	209	103
	250	132

Mechanics and electrical lab wasn't available .

ANNEXURE: 2000 LEVEL DETAILS

1st floor

Faculty Cabin:

LR	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	480	420	295	205	132	102
	352	288	193	163	218	185
	182	102	181	81	280	248

Computer lab:

LR	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	40	13	60	10
	60	9	70	4
	35	7	80	7

Gents Toilet:

LR	Section 1	
	ON	OFF
2000	71	15
	120	35
	106	33

HOD cabin:

LR	Section 1	
	ON	OFF
2000	46	6
	62	8
	56	6

Library:

LR	Section 1		Section 2		Section 3		Section 4	
	ON	OFF	ON	OFF	ON	OFF	ON	OFF
2000	142	56	172	75	231	138	561	540
	162	78	282	171	262	171	181	176
	282	250	6210	6120	5710	568	741	72

Drawing hall:

LR	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	510	452	270	165	208	105
	6363	6300	298	187	580	508
	310	278	240	113	160	122

Digital library:

LR	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	68	60	72	45	63	31
	52	23	125	28	120	28
	55	43	52	29	57	28

Classroom 5 - BE div A:

LR	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	98	10	92	9
	82	32	83	18
	395	250	82	22

Classroom 6 - BE Div B:

LR	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	98	10	92	9
	82	32	83	18
	395	250	82	22

CAD/CAM Lab 1:

LR	Section 1	
	ON	OFF
2000	72	3
	61	4
	132	78

CAD/CAM Lab 2:

LR	Section 1	
	ON	OFF
2000	72	3
	61	4
	132	78

ANNEXURE: LUX LEVEL DETAILS

Second floor

- Digital Signal Lab:-

Lux Range	Section 1	Section 2	Section 3	Section 4
	290	209	191	202
2000	1646	560	272	217
	1012	411	289	181

- Basic Electrical Engg. Lab:-

Lux Range	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	108	82	229	121	123	106
	219	105	172	157	142	126
	226	205	882	866	1034	930

- Power laboratory:-

Lux Range	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	108	82	229	121	123	106
	219	105	172	157	142	126
	226	2052	882	866	1034	930

- Digital logic design laboratory:-

Lux Range	Section 1	Section 2	Section 3
	1895	527	265
2000	1850	480	340
	1693	450	338

- Audio & Video Lab:-

Lux Range	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	108	82	229	121	123	106
	219	105	172	157	142	126
	226	205	882	866	1034	930

• Gent's Toilet:-

Lux Range	Section 1
	1980
2000	1920

• Exam control room:-

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	60	53	73	61
	30	21	86	72
	21	9	20	7
	13	7	10	5

• Language Lab:-

Lux Range	Section 1	Section 2	Section 3	Section 4
2000	189	201	445	288
	187	215	193	125
	109	119	117	147

• Seminar hall :-

Lux Range	20,000 × 10	2000	2000
section	1	2	3
	41	1287	763
	27	1174	844
	34	1884	1920

• Tutorial room:-

Lux Range	Section 1		Section 2	
2000 (on Lux meter)	ON	OFF	ON	OFF
	152	120	236	193
	457	403	468	420
	5694	5670	5069	5040

ANNEXURE: UG LEVEL DETAILS

• 3rd Year

1. OOP5 Lab:

Lab Range	Section 1		Section 2	
	On	Off	On	Off
2000	142	55	582	508
	180	76	213	180
	169	109	208	2016
	186	128	902	883

2. Software Lab:

Lab Range	Section 1		Section 2	
	On	Off	On	Off
2000	136	84	139	86
	181	132	152	102
	322	315	159	132
	1071	1065	1008	1026

3. Microprocessor Lab:

Lab Range	Section 1		Section 2	
	On	Off	On	Off
2000	136	84	139	86
	181	132	152	102
	322	315	159	132
	1071	1065	1008	1026

4. Test And Measurement Lab/ Hardware Lab:

Lab Range	Section 1		Section 2		Section 3	
	On	Off	On	Off	On	Off
	188		215		224	
2000	179		184		177	
	189		53		79	

5. IT LAB - Lab No 5:

Lab Range	Section 1		Section 2		Section 3	
	On	Off	On	Off	On	Off
2000	246	182	136	94	172	138
	192	327	168	162	420	378
	508	462	112	88	828	788

6. IT Lab - Lab No. 7:

Lab Range	Section 1		Section 2		Section 3	
	On	Off	On	Off	On	Off
2000	246	182	136	94	172	138
	192	327	168	162	420	378
	508	462	112	88	828	788

7. Seminar hall:

Lux Range	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	321	273	278	237	326	281
	862	852	538	520	691	676
	6598	6590	7226	7210	7203	7198

8. SE classroom 1:

Lux Range	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	321	273	278	237	326	281
	862	852	538	520	691	676
	6598	6590	7226	7210	7203	7198

9. TE Classroom:

Lux Range	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	321	273	278	237	326	281
	862	852	538	520	691	676
	6598	6590	7226	7210	7203	7198

10. ISDL :-

Lux Range	Section 1	Section 2
	1200	99
2000	166	199
	560	187

BE Classroom 3:

Lux Range	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	30	12	32	16	42	23
	89	19	38	49	88	48
	212	142	169	146	132	98

◊ Remaining Labs and Class rooms were closed.

• S.E Class room1:-

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000 (on Lux meter)	152	120	236	193
	457	403	468	420
	5694	5670	5069	5040

• Class 2:-

Lux Range	Section 1	Section 2	Section 3
	220	516	482
2000	127	647	372
	609	568	384

• Simulation Lab:-

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000 (on Lux meter)	462	418	167	120
	1147	1112	172	150
	368	337	92	78

• Communication Lab:- [Total tubes (L)- 12
Working - 5]

Lux Range	Section 1	Section 2	Section 3	Section 4
20000×10	4	6	5	4
(on Lux meter)	3	4	3	3
	3	3	3	4

• Analog Lab :-

Lux Range	Section 1	Section 2	Section 3
	406	347	55
2000	450	127	112
	219	78	102

ANNEXURE: LUX LEVEL DETAILS

STD Lab:

	With Light	Without Light
STD Lab	236,212,206	103,116,147
	288,456,458	186,400,450
Project Lab	130,275,560	79,125,326
	431,260,160	262,120,74
Network Lab	170,314,580	70,160,100
	575,250,230	370,130,78

Lab 5:

Lux Range	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	182	76	154	88	185	102
	274	108	244	118	205	150
	605	328	345	316	426	350

Lab 6:

Lux Range	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	178	132	2681	2650	1277	1230
	1592	1560	194	168	1593	1560
	1532	1490	248	210	178	140
	183	130	134	102	249	204

Lab 7:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	115	4	29	5
	102	5	37	12
	215	93	70	51

Gents Toilet:

Lux Range	Section 1	
	ON	OFF
2000	198	7

HOD cabin:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	42	6	21	8
	124	7	68	9
	124	7	134	12



Seminar hall	Section 1		Section 2		Section 3
	ON	OFF	ON	OFF	
Lux Range	34	20	38	30	254
2000	114	30	53	40	266
	126	84	180	70	66

Tutorial Room:	Section 1		Section 2	
	ON	OFF	ON	OFF
Lux Range	188	96	260	90
2000	394	225	384	183
	850	590	640	500

Classroom 1:	Section 1		Section 2	
	ON	OFF	ON	OFF
Lux Range	225	128	148	139
2000	309	275	1018	275
	880	550	340	1512

Classroom 2:	Section 1		Section 2		Section 3
	ON	OFF	ON	OFF	
Lux Range	870	710	485	350	335
2000	1200	950	570	400	410
	700	420	730	600	580

Faculty Room:	Section 1	
	ON	OFF
Lux Range	125	40
2000	170	75

Data structure lab:	Section 1		Section 2	
	ON	OFF	ON	OFF
Lux Range	115	4	29	5
2000	102	6	37	12
	215	93	70	51

ANNEXURE: LUX LEVEL DETAILS

5TH floor

Room No.1:

LR	Section 1	
	ON	OFF
2000	14	20
	84	75

Room No.2:

LR	Section 1	
	ON	OFF
2000	14	20
	84	75

Room No. 3:

LR	Section 1	
	ON	OFF
2000	138	121
	146	110

Room No. 4:

LR	Section 1	
	ON	OFF
2000	178	98
	126	102

Room No.5:

LR	Section 1	
	ON	OFF
2000	178	98
	126	102

Room No. 6:

LR	Section 1	
	ON	OFF
2000	186	109
	146	95

Room No.7:

LR	Section 1	
	ON	OFF
2000	186	100
	146	95

Room No.8:

LR	Section 1	
	ON	OFF
2000	186	109
	146	95

Room No.9:

LR	Section 1	
	ON	OFF
2000	186	109
	146	95

Room No.10:

LR	Section 1	
	ON	OFF
2000	186	109
	146	95

Room No.11:

LR	Section 1	
	ON	OFF
2000	126	56
	152	32

Room No.12:

LR	Section 1	
	ON	OFF
2000	126	56
	152	32

Room No.13:

LR	Section 1	
	ON	OFF
2000	126	56
	156	32

Room No.14:

LR	Section 1	
	ON	OFF
2000	126	56
	156	32

Room No.15:

LR	Section 1	
	ON	OFF
2000	126	56
	156	32

• BLOCK NG 2 and 3 are not occupied

Workshop

Classroom 1:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	120	46	222	165
	214	157	192	117
	162	98	155	62

Classroom 2:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	118	04	108	3
	132	12	242	7
	74	30	102	36

Classroom 3:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	118	04	108	3
	132	12	242	7
	74	30	102	36

Workshop- Machine shop:

Lux Range	Section 1		Section 2		Section 3	
	ON	OFF	ON	OFF	ON	OFF
2000	876	834	503	425	579	526
	642	618	378	305	32	256
	828	792	338	275	249	200
	931	888	343	291	264	193
	577	526	173	117	342	268

SDM lab:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	94	14	102	18
	317	72	225	32
	370	304	328	326

Metallurgy lab:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	94	14	102	18
	317	72	225	32
	370	304	328	326

Hydraulics and pneumatics lab:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	94	14	102	18
	317	72	225	32
	370	304	328	326

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	94	14	102	18
	317	72	225	32
	370	304	328	326

Refrigeration and air conditioning:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	94	14	102	18
	317	72	225	32
	370	304	328	326

Fluid and turbo machine lab:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	65	22	92	26
	156	60	162	46
	357	256	339	237

Dynamic of machinery lab:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	65	22	92	26
	156	60	162	46
	357	256	339	237

TOM lab:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	65	22	92	26
	156	60	162	46
	357	256	339	237

Mechatronics lab:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	120	46	222	166
	214	157	192	117
	362	98	155	62

MQC Lab :

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	118	04	108	3
	132	12	242	7
	74	30	102	30

HOT Cabin:

Lux Range	Section 1		Section 2	
	ON	OFF	ON	OFF
2000	238	23	322	29
	344	96	335	97

ANNEXURE: MACHINE/MOTOR DRIVE DETAILS

Sr.No.	Location	Purpose	Quantity	Name Plate Rating (kW/HP)	Hrs. Of Operation
Ground Floor					
1	tutorial room 2	pc	2		8
2	tutorial room 1	pc	1		8
3	pantry	fridge	1	220-240	24
4	engg mech	-	-	-	
5	class room 3				
6	chem lab	hot air	2		
7		oven			1hr/week
8		purifier	1		1hr/day
9	civil lab	pc	1		2hr/day
10	elex lab	pc	1		1hr/day
11	admin office	pc	5		
13	principal office	pc	1		8hr/day
14					
		Fan	4		
16	Corridor	TUBELIGHT	6		
First Floor					
1	Library	PC scanner ,printer	3	230VF,4A	
2	Digital Library	PC	11		6hr/day
3	Faculty cabin	LAN	1		24hrs
4	CAM lab	LAN	1		
5	Comp centre	PC	25		
		UPS	2	20KVA	24hrs
		batteries	72	12V,26AH	24hrs
6	HOD cabin	PC	1		
7	BME lab	fridge	1	DC19/2008	
Third floor					
8	OOP and CG	practical monitor printer	21		3hrs
		LAN connection	1		
9	soft engg	monitor LAN connection	20		
10	ISDL lab	monitor	1		2hrs
11	Corridor	Water Purifier	1		

WORKSHOP				
15	Heat Transfer Lab	Blower	1	260 W, 20 A
		Wall Apparatus	1	300V, 12 A
		Pod Boiling Apparatus	1	
		HT Natural	1	200V, 20 A
		Emissivity measurement	1	
		Boltzmann Apparatus	1	
16	workshop	lathe	13	3ph, 415V, 50Hz
		CNC	1	

ANNEXURE: MACHINE/MOTOR DRIVE DETAILS

Sr.No.	Location	Purpose	Quantity	Name Plate Rating (kW/HP)	Hrs. Of Operation
Fourth Floor					
1	project laboratory	computer	17	lenevo	4 hrs
2	network lab	computer	11	lenovo	4 hrs
3	SDTC lab	computer	17	lenevo	4-5 hrs
		printers	2	canon	
				Epson	
4	DATA structure	computer	19	lenovo	4 hrs
5	HOD cabin	computer	1		
		printer	1		
6	seminar hall	CPU	1		
		Projector	1		
Second Floor					
7	Tutorial room				
	Simulation lab				
	1.Monitor	Task	11		6 hrs
	2.printer	Task	1		
8	communication lab	Task			2 hrs
9	audio and video lab	Task	11		2 hrs
10	digital logic design	Task	19		2 hrs
11	laboratory				
	1.power laboratory	practical	80+		2 hrs
		Dc motor	3	1 kw-1,2 kw-2	
		AC motor	1	3 hp	
		Dc generator	1	1.5 kw/hp	
12	Basic electrical Lab				2 hrs
	1.monitor	Task	1		
13	digital signal processing lab	practical			
	1. monitor		10		2 hrs
15	exam control room	Task			
	1. monitor		4		
	2. printer		1		
	3. Xerox Machine		1		
16	Analog Lab	Task			
	Monitor		1		2 hrs
	Printer		1		2 hrs

ANNEXURE: FAN DETAILS

Sr. No.	Type of Fan	Location / Application	Quantity	Operational Hrs.
Ground Floor				
1	Ceiling Fan	Dies Lab	4	
		Admins Office	5	
		Tut Room 1	1	3
		Tut Room 2	2	3
		Pantry	1	3
		Engg Mech	2	3
		Class Room 3	2	8/week
		Block B	6	8/week
		Block 9	6	8/week
		Civil lab	4	4/day
		Physics Lab	2	
2	Wall Mount	Principal Office	1	
		Class Room 3	2	8/week
		Pantry	1	3
3	Table Fan	Class Room 3	2	2/week
4	Exhaust Fan	Chem Lab	3	1/week
1st Floor				
1	Ceiling Fan	Library	14	
		Digital Library	4	
		Drawing Hall	4	
		Faculty Room	4	
		Class room 5	6	
		Class room 6	6	
		CAD Lab	6	
		CAM Lab	6	
		Camp Centre	4	
		HOD Cabin	1	
		BME Lab	4	
		2nd Floor		
1	Ceiling fan	Tutorial room	2	
		IT classroom 1	3	
		Simulation room	5	2
		Communication lab	8	2
		Audio and video lab	4	2
		Digital logic design lab	5	2
		Power laboratory	4	2
		Basic electrical	4	2
		Digital signal processing lab	4	2
		Gents toilet	0	
		Classroom 2	4	
		Seminar hall	6	2
		Analog lab	4	2

3rd Floor				
1	Celling Fan	OOP & CG	3	2
		Soft Engg	4	
		BE Class1	4	
		ISDL Lab	4	
		TE Class2	3	
4th Floor				
1	Celling Fan	Lab 6	6	
		Lab5	5	
		Class room3	6	
		Project Lab	6	
		Network Lab	4	
		STD Lab	6	
		Class room 1	4	
		Data Structure	4	
		HOD Cabin	4	
		Seminar Hall	6	
		Tutorial	3	
		Faculty cabin	1	
		Class room 2	4	
		Faculty room	2	
		Room no. 1	2	
		Room no. 2	2	
		Room no. 3	1	
		Room No. 4	2	
		Room No. 5	2	
	Wall Mounted	Room No.6	2	
		Room No.7	2	
		Room No.8	2	
		Room No.9	2	
		Room No.21	2	
		Room No.25	2	
		Room No.13	2	
		Room No.12	2	
		Room No.11	2	
		Room No.20	2	
		Room No.22	2	
		Room No.23	2	
		Room No.24	2	
		Room No.15	2	
		Room No.16	2	
		Room No.17	2	
		Room No.18	2	
		Room No.19	2	

WORKSHOP			
		HOD Cabin	2
		Mechanics Workshop	2
		Tutorial room	2
		Seminar hall	10

FLUID & TURBO Machinery Lab							
Sr. No.	Location	Application	Luminary Type	Name & Make	Year of Installatio	Watts	Qty.
		General/Task/Outdoor					
	SBMS		Tubelight			50	6
			Fan			60	3
Reciprocating Pumpstest, Jet Apparatus, Pelton Wheel Apparatus, Reynolds Apparatus, Francis Turbine, Hydraulic Bench							

IC Engine							
Sr. No.	Location	Application	Luminary Type	Name & Make	Year of Installatio	Watts	Qty.
		General/Task/Outdoor					
	IC Engine		Tubelight			50	6
			Fan			60	3
				PC			

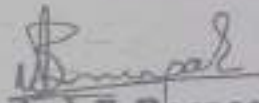
Applied Thermodyanmics							
Sr. No.	Location	Application	Luminary Type	Name & Make	Year of Installatio	Watts	Qty.
		General/Task/Outdoor					
	APTHERM O		Tubelight			50	6
			Fan			60	3

It is strongly recommended to carry out Surveillance Energy Audit annually to ensure the proper working of the systems.

The audit team would like to thank the staff of the College for providing the necessary information/data and the cooperation extended to the audit team during visit and work.

Place : Pune

Date :



Ashok P. Borgaonkar
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