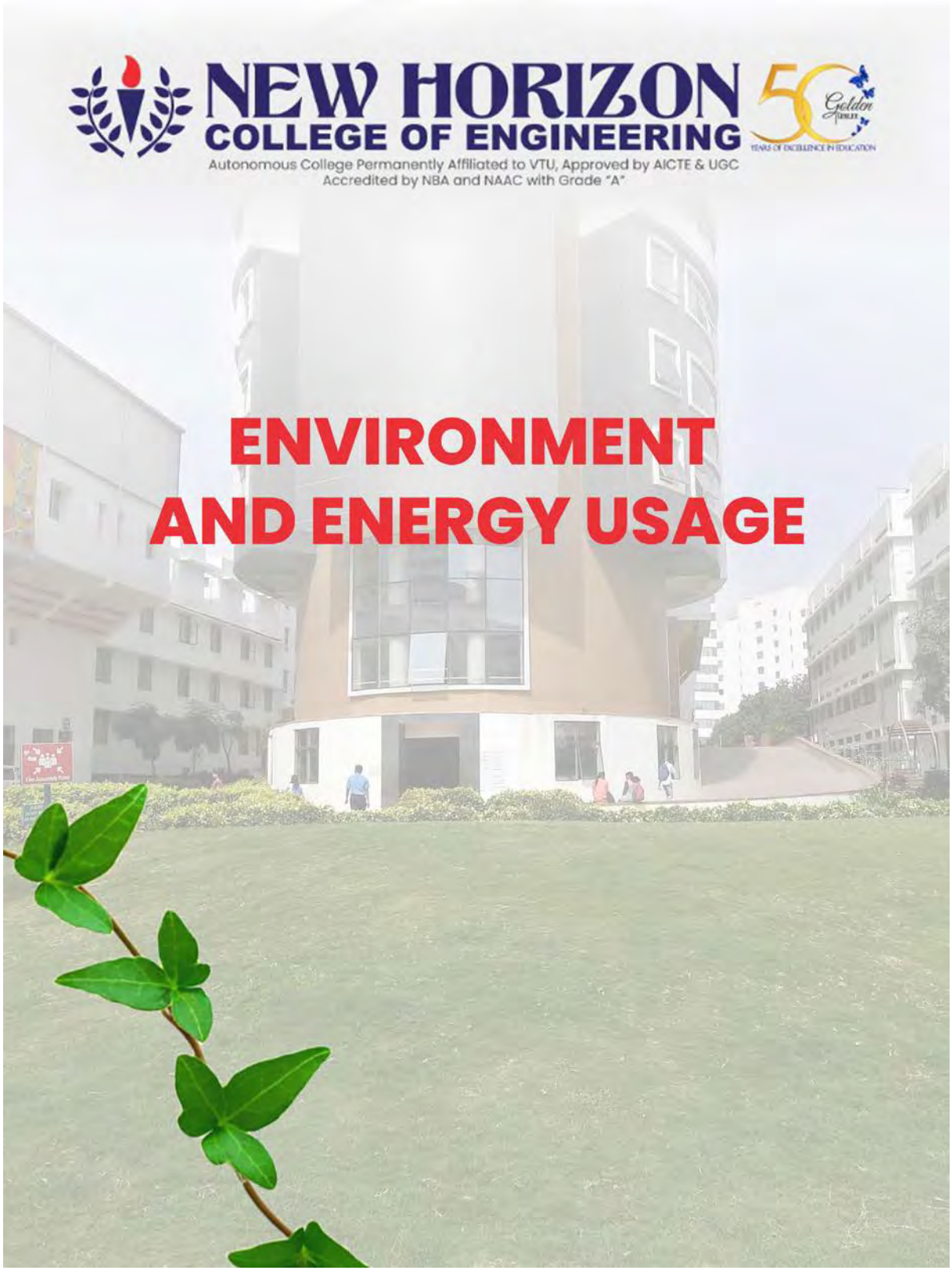

NEW HORIZON
COLLEGE OF ENGINEERING
Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NBA and NAAC with Grade "A"
50
Golden
YEARS OF EXCELLENCE IN EDUCATION
ENVIRONMENT
AND ENERGY USAGE

This Environmental and Energy Policy is binding for all associated with the institution and obligatory for all stake holders and the operations -, academic, curricular, co-curricular and procurement activities undertaken by the institution. It will help us to invigorate the need to mitigate climate change and ingrain the environmental awareness into our thought process , routine activities and in particular sensitizing our students in their social responsibility towards the society and predominantly towards nature.

Worldwide, buildings are responsible for approximately 40% of the total world annual energy consumption. Most of this energy is for the provision of lighting, heating, cooling, and air conditioning. Therefore there is an exigent need to mitigate the carbon emissions .

Our primary environmental and energy objectives are to

- To assess our energy usage and measure its impact on the environment.
- To purpose design landscape and trees straddle for Green Campus
- To reduce air pollution emissions using eco-friendly vehicles, including bicycles, promoting public transportation and institutional transport services
- To explore all possible alternate energy sources to reduce carbon footprint
- To develop systematic waste management mechanism.
- Commitment to water sustainability and dedicated water management system, along with explicit rain water harvesting unit.
- To take additional measures to continuously improve our energy consumption
- To encourage use of advanced technology to minimize energy consumption, atmospheric emissions and noise, particularly from our vehicle fleets

- To offer carbon -neutral and eco-friendly power generation harnessing solar and wind energy
- To engage with KSPCB and create awareness about sustainable development.
- To provide information and training opportunities on energy saving measures.
- To enlighten our students and faculty through Green Energy Club which mainly concentrates in Creating awareness regarding the importance and methods of Energy Conservation along with its effective utilization
- To create an awareness on the need for and methodologies of environment preservation for a better tomorrow through club "Prakruthi"
- To build eco-friendly attitude amongst stake holders in campus and beyond through "Green club"

This policy will be communicated to the employees via internal communication channels, and will be made available to all the stakeholders on the institutional website. The Environment and Energy Policy, objectives and targets will be reviewed on a regular basis by the Committee Convener and its members under the guidance of the Principal/Registrar of the institution.

The Institution has formed a Energy Conversion Audit Committee which monitors the objectives of the environment and energy usage.

https://newhorizonindia.edu/nhengineering/statutory-committee/#energy-conversion-audit-committee

And, we also have student clubs

1.Prakruthi Club - https://newhorizonindia.edu/co-curricular/prakruthi/

2.Green Energy Club - https://newhorizonindia.edu/cocurricular/greenenergy/

These student clubs are regularly conduct activities with regard to Environment and Energy usage.

Apart from this we have NSS students club which are taking care of Clean and Green campus. https://newhorizonindia.edu/extra-curricular/nss/

NEW HORIZON
COLLEGE OF ENGINEERING
New Horizon Knowledge Park, Ring Road, Marathalli
Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade, Accredited by NBA

Golden Jubilee
YEARS OF EXCELLENCE IN EDUCATION
Established in 1970

Beyond the campus environmental promotion activities

Electrical and Electronics department
GEC
NHCE

Through

GREEN ENERGY CLUB (GEC)

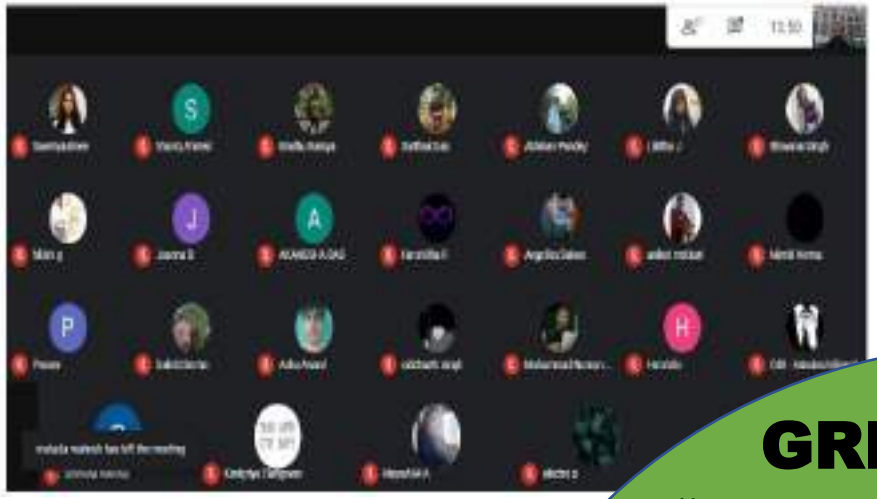
Date:04.03.2021
Venue: Jakkur Lake

CLEANLINESS DRIVE

Green energy took responsibility of volunteering and helping an NGO, **"Jala Poshan"** along with the Green Warriors Club, NHCE.

The main objective was to keep the **Jakkur Lake** surroundings clean and sustaining the plants and trees by mulching and watering them. Around 40 club members volunteered the event

CLEANLINESS DRIVE



Date:14.12.2020
Venue: ONLINE

GREEN FEST

"GREEN FEST' to bring out the best of the participants, to acquire knowledge on various topics and enhance the participants' communication skills, creative skills and their knowledge about various locations.

We had conducted 4 events in the fest

Poster making

Where I am??

Thought bulb

Decipher.

Around 50 Participants participated in the fest

GREEN FEST

Date:11.11.2021
Venue: ONLINE

WAR OF WORDS

"War of Words' is organised to bring out the enthusiasm and ability of the students towards communication and create awareness, also to acquire knowledge on various topics
Around 50 Participants participated in the Debate Competition

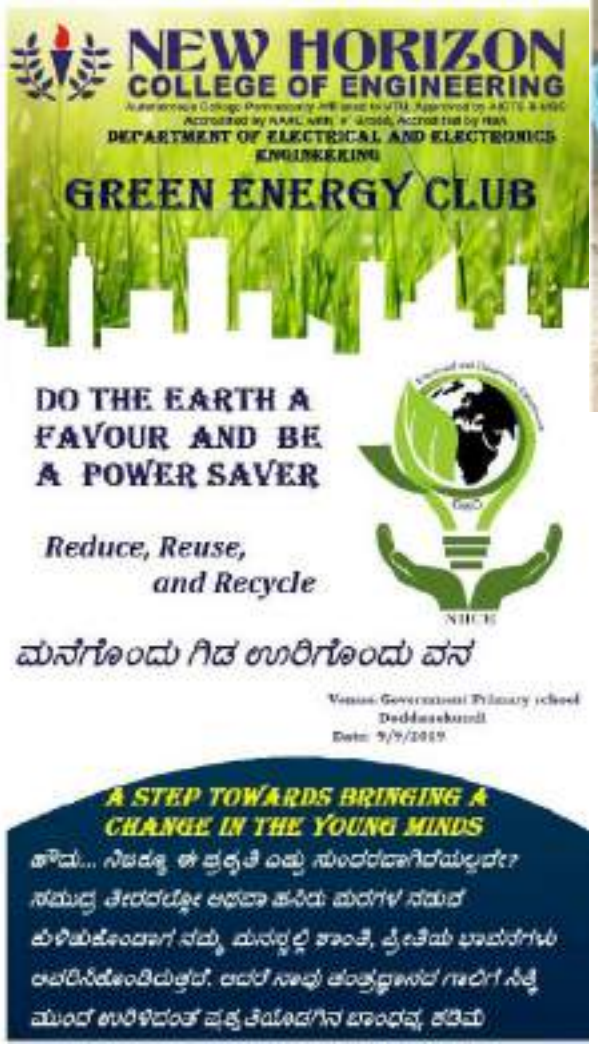
WAR OF WORDS

GUEST LECTURE ON "ECO BUILDING"

Date:06.11.2019
Venue:CTPS lab

GUEST LECTURE ON "ECO BUILDING"

The Guest talk on Eco Building was organized by Green Energy Club to create awareness on Eco-Building System and to cater knowledge on Green buildings by
Mr. P. Tarun Kumar S, Associate Engineer, CHUBB ALBA UTC ECO ENERGY. Around 35 students participated and benefited from the event.

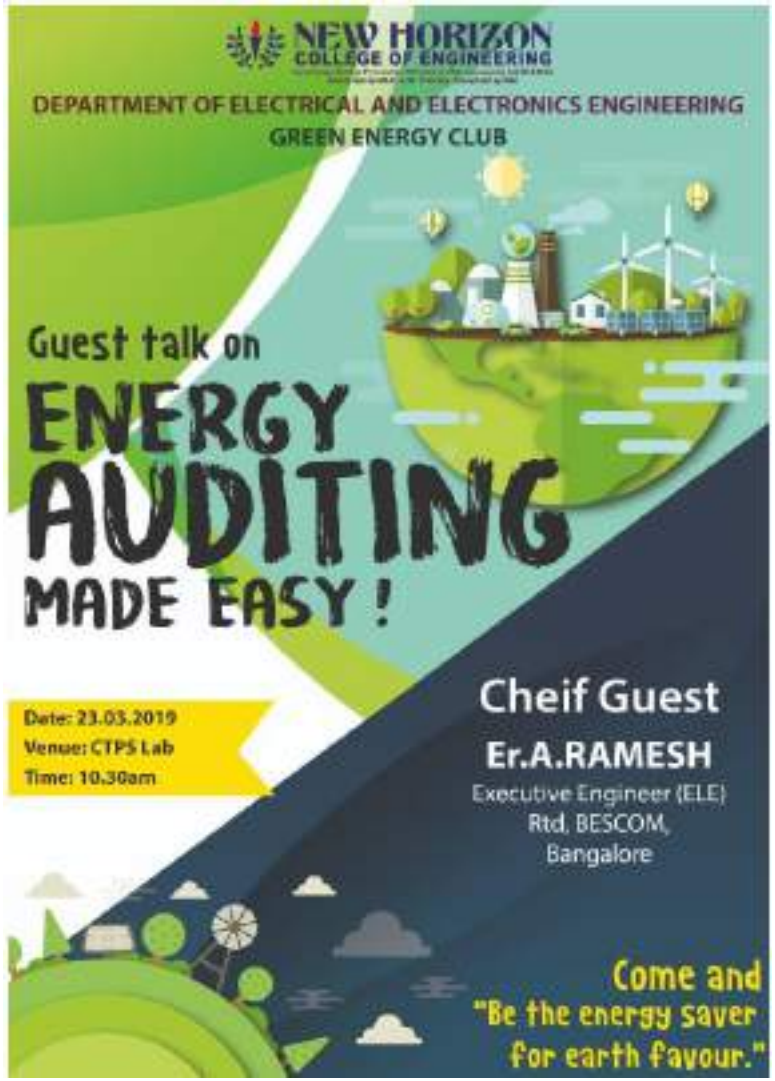


SCHOOL CAMPAIGN ON ENERGY CONSERVATION

Date:09.09.2019
Venue: Government Primary School, Doddenekudi

SCHOOL CAMPAIGN ON ENERGY CONSERVATION

The Green energy was organized SCHOOL CAMPAIGN ON ENERGY CONSERVATION To create awareness on energy conservation among school students. Explain the importance of electrical energy. To improve school student's knowledge about renewable energy Around 35 club members educated around 300 school students



GUEST TALK ON "Energy Auditing Made Easy"

Date:23.03.2019
Venue:CTPS lab

GUEST TALK ON "Energy Auditing Made Easy"

The Guest talk on Eco Building was organized by Green Energy Club to cater the basic knowledge on Energy Audit & Energy Conservation and To acquire knowledge on Power Distribution & Transmission. Er.A. Ramesh Executive Engineer (Ele), BESCOM, Around 35 students participated and benefited from the event.

GREEN WEEK

Date:29.10.2018
Venue: NHCE campus

GREEN WEEK

The Green energy was organized GREEN WEEK in college campus To create awareness about energy conservation in modern day lifestyle To educate the importance about energy resources To know necessity of energy conservation. Around 35 club members educated around 600 college students of various departments.

SCHOOL CAMPAIGN ON ENERGY CONSERVATION

Date:02.10.2018
Venue: Government school, Marathahalli, Bangalore

SCHOOL CAMPAIGN ON ENERGY CONSERVATION

The Green energy was organized SCHOOL CAMPAIGN ON ENERGY CONSERVATION To create awareness on energy conservation among school students. Explain the importance of electrical energy. To improve school student's knowledge about renewable energy Around 35 club members educated around 200 school students

NHCE-EEE
CLUB-E SOFT

NEW HORIZON COLLEGE OF ENGINEERING

Date:02.11.2018
Venue: Government Model Primary school Kudlu, Bangalore

SOCIAL AND GREEN OUTREACH PROGRAM

Social and green outreach program has been organized to government model primary school teachers by E-Soft club in association with green warrior club.

The program had three events Giving Training to school teachers on MS Excel. Giving awareness about the energy conservation to school students. Planting the green plants around the play ground

SOCIAL AND GREEN OUTREACH PROGRAM

NEW HORIZON COLLEGE OF ENGINEERING

Awareness in campus –corridors, rooms

AICTE National level

CLEAN & SMART CAMPUS AWARDS-2019

A CAMPUS FIRST STEP TOWARDS SUSTAINABILITY

CERTIFICATE

of Appreciation

Awarded to

NEW HORIZON COLLEGE OF ENGINEERING (E&T)
Karnataka

FOR THEIR SELECTION & ACTIVE PARTICIPATION
FOR CAMPUS VISIT

DATE : 03.12.2019

Prof. Anil D. Sahasrabudhe
Chairman, AICTE

NHCE organised Swachhta hi seva under SWACHHA BHARATH ABHIYAN to bring awareness about clean India on the occasion of Mahatma Gandhi Jayanthi on 2nd October at Bellandur

Categories: NEWS
Date: OCTOBER 2, 2017

i) Hygiene and cleanliness maintenance at college campus: "SWACHH BHARAT ABHIYAN" taken up by Government of India is a wonderful initiative of keeping our surroundings clean. As sole responsible citizens, NHCE has taken up this initiative to keep the campus clean. The college campus is well maintained. The corridors, classes and toilets are cleaned every day with regular check procedures as a part of hygiene management. There is a proper waste management procedure employed at NHCE, where the waste is segregated into domestic hazardous waste, biodegradable waste and non-biodegradable waste.

Instead of dumping the collected waste elsewhere and pollute the surroundings, NHCE cares for a proper management of the waste collected in campus, by further processing (the Biodegradable waste) in the treatment plant – THE ORGANIC WASTE CONVERTER, installed well within the campus. The converter is used for converting the entire biodegradable waste collected not only from all the green bins but also from the food waste collected at Boys & Girls hostels. After a three –four day treatment process that happens in the converter, we get organic manure, which is again used for the plants grown within the campus. Contents collected in Red Bin (domestic hazard waste) and Blue Bin (non biodegradable waste) will be dumped into the collection rooms present within the campus (painted in red and blue respectively) which will be cleared periodically.

SEARCH
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UNCATEGORIZED
UNNAT BHARAT ABHIYAN

ii) Plantation of trees and eco-friendly campus: NHCE has a very healthy environment with lush green landscaping. Regular tree plantation and maintenance activities are conducted in the campus and on 27th September 2017 Swachhta Hi Seva campaign was conducted where plantation activities were included.

Tree Plantation during *Swachhta Hi Seva* campaign conducted on 27th September 2017

iii) Rain water harvesting and Sewage treatment Plant: NHCE has a very efficient rain water
harvesting setup installed from all the building and a common drain and collection point for the water
to go for further filtration setup. The recycled water is used for flushing purposes in toilets and also
for watering the trees within the campus.

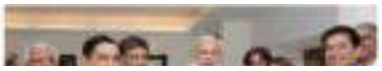
Rain Water Drinking Facility

Sewage Treatment Plant

iv) Swachhta Pledge: Swachhta Pledge was taken by all the students & staff of NHCE at the Swachhta
Hi Seva campaign conducted on 27th September 2017. The campaign was also marked by poster display by students
with slogans of Swachhta and importance of Hygiene Management.

v) Hygiene sensitisation programme at Bellandur Village, Bangalore – New Horizon college of
Engineering in collaboration with local youth and government officials of Bellandur Village took
initiative of cleaning the locality and further educated the people about the importance of cleanliness.

vi) Future plans & Initiatives taken up by New Horizon Educational Institutions (NHEI) for Swachh Bharath Abhiyan:



Dr. Mohan Manghnani, Chairman NHEI, handing over Rs.5 Crore cheque to the Honourable Prime Minister
of India Shri. Narendra Modi as a contribution towards Swachh Bharat Abhiyan

Requisition sent from NHEI to the concerned authorities for allocating a village in rural area for adoption
and carrying out developmental activities at the village, which is a Societal Outreach activity initiated by
the Trust.

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October 2, 2017

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October 3, 2017

YOU MAY ALSO LIKE

Dr. Mohan Manghnani, Chairman of New Horizon Educational Institutions, presented a cheque of Rs.5 Crores towards the Ram Mandir Trust
5 March, 2021

Commencement of NCC- Chapter in NHCE
1 March, 2021

Our sem mai 'Tim
24 F

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+91-9880534935 / +91-9740076446

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admissionsnhce@newhorizonindia.edu

Near Marathahalli, Bengaluru-
560103

New Horizon College of Engineering is an Autonomous college affiliated to Visvesvaraya Technological University(VTU).

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Draft Report
Project code: 2016IB15

January 2017

Energy Audit Report
of
New Horizon College of Engineering

The Energy and Resources Institute

...towards global
sustainable development

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Executive Summary

1.0 This section presents a brief summary of the results of the comprehensive energy audit carried out at New Horizon College of Engineering (NHCE) in November 2016. The study covered with a focus on energy conservation measures including performance assessment of vital energy consuming equipment.

2.0 A team of three consultants were involved in the comprehensive energy audit study. The energy audit was mainly targeted at identifying practical, sustainable and economically viable energy saving opportunities in all sections of the facility, resulting from a detailed study and analyses of technical parameters. The energy audit involved using a wide range of sophisticated, portable, diagnostic and measuring instruments to generate refined data and facilitate in complex analyses to give a more reliable basis for evaluation of performance, energy saving measures and economic viability.

3.0 Electricity & Diesel are the major sources of energy to the facility. Diesel procurement and consumption details are not readily available to estimate the fuel share.The daily diesel consumption has to be monitored for the better accounting. The study has identified eight energy conservation proposals. The EC proposals were grouped with respect to the small, medium and large investment and their paybacks were calculated. The table below gives the total number of proposals, savings, and investment with payback period.

The savings that can be achieved with small and large investment are sizable.

Type of Recommendations	No. of recommendations	Annual Saving Potential	Cost of Implementation Rs. in lakh	Payback Period, Years
		In Rupees	In Rupees	
Short term investment, payback less than 1 year	4	435100	164200	0.4
Medium term investment, payback period between 1-3 year	1	11940	24000	2
Long term investment, payback above 3 years	3	946000	4257000	4.5
Total	8	1393040	4445200	3.2

The energy audit study has identified an annual electrical energy saving potential of *1.67 Lakh kWh + 329kVA per annum*. The annual electrical energy savings works out to be 13.3% of the annual electrical energy consumption (*12.57 Lakh kWh**) for the year 2015-16. The total cost of implementation for the recommended proposals is estimated to be *Rs 44.45 Lakhs* with a simple payback period of *3.2 years*.

All energy conservation proposals fall in short and medium term investment oriented proposals and with simple payback period of varying from 1 to 3 years.

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4.0 During the study, there was continuous interaction with the facility personnel, all the recommendations have been thoroughly discussed with concerned facility officials and also at group meetings. There has been close involvement of senior officials, which ensured the necessary co-ordination required for the study.

5.0 A summary list of recommendations, the saving potential and implementation costs is given below:

S.No	Energy Conservation Measures	Annual Savings Potential		Investment	Simple payback period
		Electricity, kWh / kVA	Value, Rs	Rs Lakhs	Years
SHORT TERM MEASURES					
Electrical Systems					
1	Rectify the faulty capacitors in the APFC and improve the system power factor to unity.	49kVA	8820	9200	1.0
2	Minimising the Maximum demand by installing the Maximum Demand Controller	280 kVA	50400	30000	0.6
Electrical Drives					
3	Overhaul the aeration blowers for improved perfonnance in STP	3000	23880	25000	1
Solar Water Heater System					
4	Proper utilisation of Solar water heater and avoid Geyser operation in the morning	44,160	352000	100000	0.3
	Sub-Total	**47160kWh + 329 kVA**	**435100**	**164200**	**0.4**
MEDIUM TERM MEASURES					
5	Replace the existing old transfer pumps with new energy efficient pumps in STP	1500	11940	24000	2
	Sub-Total	**1500**	**11940**	**24000**	**2**
LONG TERM MEASURES					
	Lighting Systems				
6	Replace the existing T12/ T8 Fluorescent Tube Lights with 19W LED Tube Lights	76520	609000	1966000	3.2
7	Replacement of 400W Metal Halide with 200W Induction lamps	10,746	86000	320000	3.7
8	Replace the existing 65W conventional ceiling fans with BLDC Fan of 28W	31528	251000	1971000	7.9
	Sub-Total	**118,794**	**946000**	**4257000**	**4.5**
	Grand Total	**167454+ 329 kVA**	**1393040**	**4445200**	**3.2**

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Appendix List

Appendix No.	Description
3.	**Facility Overview**
3/1-3/3	Present Power Cost at New Horizon College of Engineering
4.	**Electrical systems**
4/1	Measured Power Parameters of EB Incomer (24-11-2016 to 25-11-2016)
4/2	Measured Power Parameters of EB Incomer (26-11-2016 to 27-11-2016)
4/3	Main DB Power distribution
4/4	Blockwise Power distribution
6.	**Electrical Drives**
6/1	Measured power parameters of Electrical Drives
6/2	Measured Load Parameters of STP
6/3	Performance analysis of AC Units
7.	**Lighting Systems**
7/1	Connected Light Load Details
7/2	Lux Details
7/3	Savings By Replacing T12/T8 Fluorescent Tube Lights by 19W LED Tube Light
8.	**Diesel Generator**
8/1	Measured power parameters of DG set
8/2	Performance test of the 500KVA dg set
8/3	DG LOG SHEET

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Present Power Cost at New Horizon College of Engineering, Bangalore

Bill for the month of September 2016	Type	HT2C	Tariff 1HT2C2
Contract Demand		400	KVA
75% CD		300	KVA
Recorded Demand		316	KVA

Consumption details	Consumption (KVAh)		Consumption (KWh)	
	119420	KVAh	111460	KWh
Less/ Add Consumption	0	kVAh	0	kWh
Total purchased power			111460	KWH
Average PF			0.98	

Sl. No.	Particulars	Qty.	Unit	Rate/unit (Rs.)	Amount (Rs.)
Demand Charges					
a)	Billing Demand Charge	316	KVA	180.00	56880.00
b)	Excess Demand Charge	0	KVA	360.00	0.00
c)	Total Demand Charges (a+b)				56880.00
Energy Charge					
d)	Energy Charge: First 100000kWh	100000	KWH	7.00	700000.00
e)	Energy Charge: More than100000kWh	11460	KWH	7.50	85950.00
f)	Total Energy Charge (d+e)				785950.00
g)	Interest on revenue				100.00
h)	Tax				47157.00
i)	**Current Bill Amount** (c+f+g+h)				890087.00
j)	Prompt Payment Incentive				2206.89
Net Payable Amount (i-j)					**Rs.887,880**
Overall energy cost per unit					**Rs.7.97**

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Present Power Cost at New Horizon College of Engineering, Bangalore

Bill for the month of October 2016			Type	HT2C	Tariff 1HT2C2
Contract Demand				400	KVA
75% CD				300	KVA
Recorded Demand				311	KVA
Consumption details		Consumption (KVAh)		Consumption (KWh)	
		117580	KVAh	116000	KWh
Less/ Add Consumption		0	kVAh	0	kWh
Total purchased power				116000	KWH
Average PF				0.98	

Sl. No.	Particulars	Qty.	Unit	Rate/unit (Rs.)	Amount (Rs.)
Demand Charges					
a)	Billing Demand Charge	311	KVA	180.00	55980.00
b)	Excess Demand Charge	0	KVA	360.00	0.00
c)	Total Demand Charges (a+b)				55980.00
Energy Charge					
d)	Energy Charge: First 100000kWh	100000	KWH	7.00	700000.00
e)	Energy Charge: More than100000kWh	16000	KWH	7.50	120000.00
f)	Total Energy Charge (d+e)				820000.00
g)	Interest on revenue				100.00
h)	Tax				49200.00
i)	**Current Bill Amount** (c+f+g+h)				925280.00
j)	Prompt Payment Incentive				2219.70
Net Payable Amount (i-j)					Rs.923,060
Overall energy cost per unit					Rs.7.96

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Present Power Cost at New Horizon College of Engineering, Bangalore

Bill for the month of November 2016	Type	HT2C	Tariff 1HT2C2
Contract Demand		400	KVA
75% CD		300	KVA
Recorded Demand		295	KVA

Consumption details	Consumption (KVAh)		Consumption (KWh)	
	117460	KVAh	115520	KWh
Less/ Add Consumption	0	kVAh	0	kWh
Total purchased power			115520	KWH
Average PF			0.98	

Sl. No.	Particulars	Qty.	Unit	Rate/unit (Rs.)	Amount (Rs.)
Demand Charges					
a)	Billing Demand Charge	300	KVA	180.00	54000.00
b)	Excess Demand Charge	0	KVA	360.00	0.00
c)	Total Demand Charges (a+b)				54000.00
Energy Charge					
d)	Energy Charge: First 100000kWh	100000	KWH	7.00	700000.00
e)	Energy Charge: More than100000kWh	15520	KWH	7.50	116400.00
f)	Total Energy Charge (d+e)				816400.00
g)	Interest on revenue				100.00
h)	Tax				48984.00
i)	**Current Bill Amount** (c+f+g+h)				919484.00
j)	Prompt Payment Incentive				2307.65
Net Payable Amount (i-j)					**Rs.917,176**
Overall energy cost per unit					**Rs.7.94**

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Measured Power Parameters of EB Incomer (24-11-2016 to 25-11-2016) During Working day

Date	Time	Hz	Voltage (V)			Vunb	%Vthd			Current (A)			Aunb	%Athd			kW	kVAr	kVA	PF			kWh
			L1	L2	L3	%	L1	L2	L3	L1	L2	L3	%	L1	L2	L3	Sum	Sum	Sum	L1	L2	L3	
24-11-2016	0:00	50.04	415	418	418	0.40	1.95	1.95	1.95	191	163	269	26.85	12.25	12.10	12.95	123	56	159	0.98	0.99	0.62	61
24-11-2016	0:30	50.02	414	417	417	0.40	2.00	2.00	1.95	182	152	326	43.00	12.90	13.50	13.80	116	37	161	0.99	0.99	0.59	120
24-11-2016	1:00	50.02	417	419	419	0.40	1.90	1.90	1.90	172	148	273	35.75	13.00	13.75	13.90	112	-29	147	0.99	0.99	0.75	176
24-11-2016	1:30	50.02	419	421	421	0.40	1.95	2.00	1.90	165	147	193	15.15	13.20	14.00	14.90	108	-41	122	0.99	0.98	0.72	230
24-11-2016	2:00	50.05	422	424	424	0.40	1.95	1.95	1.80	157	143	209	23.05	13.00	13.65	14.45	104	-10	124	0.99	0.99	0.62	282
24-11-2016	2:30	50.06	421	423	423	0.35	1.90	1.95	1.80	146	132	198	24.00	14.10	15.00	15.80	95	-43	116	0.99	0.99	0.64	329
24-11-2016	3:00	50.03	421	424	424	0.40	1.80	1.90	1.90	150	123	233	37.45	13.30	14.45	16.90	94	-49	124	0.99	0.99	0.52	376
24-11-2016	3:30	50.01	420	423	423	0.40	1.80	1.85	1.85	147	117	270	47.90	13.40	14.80	17.20	91	-55	130	0.99	0.99	0.51	421
24-11-2016	4:00	50.00	421	423	424	0.40	1.80	1.90	1.85	147	119	152	14.90	13.55	15.10	17.50	91	-27	102	0.99	0.98	0.73	457
24-11-2016	4:30	50.00	420	423	423	0.45	1.70	1.80	1.80	142	113	140	14.20	13.55	14.35	17.70	87	-21	98	0.99	0.99	0.75	510
24-11-2016	5:00	50.01	417	420	420	0.50	1.80	1.85	1.80	150	116	131	13.55	13.15	14.65	16.55	91	-15	96	0.99	0.99	0.88	556
24-11-2016	5:30	49.97	409	412	412	0.45	1.85	1.85	1.90	156	132	144	8.70	13.05	13.70	15.80	96	-18	103	0.99	0.99	0.88	605
24-11-2016	6:00	49.99	408	412	412	0.55	1.65	1.75	1.80	130	143	227	35.40	10.25	11.40	11.95	115	-41	131	0.99	0.99	0.78	662
24-11-2016	6:30	50.00	411	414	414	0.35	1.60	1.55	1.60	196	196	407	52.25	8.80	7.55	7.05	151	-41	196	0.99	0.99	0.69	738
24-11-2016	7:00	50.01	400	402	403	0.45	1.35	1.25	1.30	188	189	1183	127.20	8.70	7.40	9.85	134	108	405	0.99	1.00	0.30	805
24-11-2016	7:30	49.85	401	403	405	0.50	1.10	1.05	1.10	214	196	1339	125.40	7.40	7.25	11.35	139	106	438	1.00	1.00	0.19	876
24-11-2016	8:00	49.97	404	406	407	0.45	1.10	1.00	1.10	198	197	343	37.10	8.40	8.05	8.35	140	50	173	1.00	1.00	0.75	945
24-11-2016	8:30	50.00	402	404	405	0.45	1.05	0.95	1.05	240	250	257	4.85	7.50	7.00	7.15	172	24	174	1.00	0.99	0.97	1030
24-11-2016	9:00	49.98	398	400	401	0.45	1.00	0.95	1.05	287	281	350	14.20	6.25	6.35	6.45	197	38	216	1.00	0.99	0.94	1129
24-11-2016	9:30	50.00	392	393	395	0.40	0.95	0.95	1.00	305	331	1097	89.75	6.10	5.55	7.80	215	153	434	1.00	0.99	0.50	1237
24-11-2016	10:00	50.01	390	391	392	0.30	1.10	1.10	1.15	295	316	700	60.30	7.10	6.50	6.90	211	156	286	1.00	0.99	0.47	1342
24-11-2016	10:30	49.98	393	394	395	0.30	1.20	1.20	1.20	307	324	1537	110.80	7.20	7.05	9.95	218	185	524	1.00	0.99	0.40	1451
24-11-2016	11:00	49.98	394	396	397	0.30	1.15	1.10	1.10	338	353	520	28.90	5.90	5.90	6.20	239	106	277	1.00	0.99	0.69	1570
24-11-2016	11:30	50.02	393	394	395	0.30	1.20	1.15	1.15	328	344	503	28.35	6.10	6.00	6.40	231	98	287	1.00	0.99	0.69	1686
24-11-2016	12:00	50.00	392	394	394	0.30	1.25	1.25	1.25	331	338	433	17.85	6.20	6.30	6.50	230	72	260	1.00	0.99	0.81	1801
24-11-2016	12:30	49.95	394	396	397	0.35	1.20	1.20	1.20	315	288	417	22.85	6.20	7.30	7.15	211	68	233	1.00	1.00	0.77	1906
24-11-2016	13:00	50.03	401	403	404	0.40	1.35	1.30	1.35	295	280	469	36.45	7.25	8.40	8.50	197	83	239	1.00	1.00	0.68	2005
24-11-2016	13:30	50.02	409	412	412	0.40	1.50	1.45	1.50	283	261	1014	94.50	8.05	8.55	9.85	197	56	375	1.00	1.00	0.39	2100
24-11-2016	14:00	49.96	407	409	409	0.35	1.60	1.55	1.55	283	265	1183	104.75	8.50	9.15	10.00	197	227	410	1.00	0.99	0.27	2202
24-11-2016	14:30	49.95	401	404	404	0.40	1.60	1.60	1.60	277	260	526	49.70	8.30	9.25	10.05	190	61	245	1.00	0.99	0.55	2297
24-11-2016	15:00	49.98	399	401	402	0.40	1.35	1.45	1.45	287	271	554	49.45	7.35	8.35	10.40	192	53	257	1.00	0.99	0.58	2393
24-11-2016	15:30	49.88	396	398	398	0.40	1.40	1.45	1.45	281	270	380	22.45	7.45	8.50	9.90	191	60	214	1.00	0.99	0.75	2488
24-11-2016	16:00	49.92	393	395	395	0.40	1.45	1.45	1.45	239	218	364	33.00	8.20	9.45	11.35	158	32	187	0.92	0.92	0.65	2567
24-11-2016	16:30	49.93	397	399	399	0.40	0.70	0.65	0.70	0	0	230	200.00	0.00	0.00	24.65	0	-12	53	0.00	0.00	0.00	2567
24-11-2016	17:00	49.96	397	399	400	0.35	0.85	0.85	0.85	57	53	123	112.90	2.40	2.90	10.90	38	-12	53	0.27	0.27	0.26	2595

Scanned with CamScanner

Date	Time	Hz	Voltage (V)			Vunb	%Vthd			Current (A)			Aunb	%Athd			kW	kVAr	kVA	PF			kWh
			L1	L2	L3	%	L1	L2	L3	L1	L2	L3	%	L1	L2	L3	Sum	Sum	Sum	L1	L2	L3	
24-11-2016	17:30	50.00	396	398	399	0.50	1.15	1.15	1.15	241	214	259	10.55	6.75	8.80	8.30	155	16	164	1.00	0.99	0.87	2664
24-11-2016	18:00	49.99	399	401	402	0.50	1.15	1.15	1.20	245	231	271	8.75	7.45	8.05	7.50	166	22	173	0.99	0.99	0.99	2747
24-11-2016	18:30	50.05	403	406	407	0.50	1.15	1.20	1.25	307	273	299	6.75	6.90	7.15	7.25	199	49	205	0.99	0.99	0.92	2846
24-11-2016	19:00	50.03	407	411	419	0.55	1.25	1.35	1.40	331	265	312	11.70	6.95	7.45	7.35	209	46	215	0.99	0.99	0.94	2951
24-11-2016	19:30	50.02	412	416	416	0.65	1.40	1.45	1.50	326	251	296	14.05	7.00	7.90	7.95	203	47	210	0.98	0.99	0.93	3052
24-11-2016	20:00	50.02	413	418	418	0.70	1.40	1.55	1.60	322	243	280	17.20	7.15	8.05	9.75	191	49	198	0.98	0.99	0.91	3148
24-11-2016	20:30	50.01	417	421	422	0.65	1.55	1.75	1.75	299	220	241	18.05	7.75	8.90	10.95	177	47	184	0.96	0.99	0.90	3236
24-11-2016	21:00	50.08	419	423	422	0.60	1.65	1.85	1.90	264	199	236	14.75	9.45	10.70	11.60	162	48	170	0.98	0.98	0.89	3317
24-11-2016	21:30	50.09	417	421	421	0.60	1.70	1.90	1.90	256	187	231	16.65	10.10	11.60	12.45	154	48	163	0.98	0.98	0.87	3394
24-11-2016	22:00	50.05	416	420	421	0.60	1.80	1.95	2.00	241	178	207	15.75	11.20	12.35	14.85	142	-8	151	0.99	0.99	0.84	3465
24-11-2016	22:30	50.02	414	417	417	0.55	1.90	2.00	2.15	226	172	202	13.90	12.25	12.00	14.20	138	-9	144	0.99	0.99	0.90	3534
24-11-2016	23:00	50.00	420	423	423	0.50	1.95	2.00	2.10	218	176	194	11.20	12.35	10.90	14.10	138	-4	143	0.99	0.99	0.91	3603
24-11-2016	23:30	50.04	422	425	426	0.50	2.00	2.10	2.15	203	173	180	9.60	13.25	11.35	15.60	131	-20	136	0.99	0.99	0.89	3666
Average/Total		**50.01**	**407**	**410**	**410**	**0.44**	**1.48**	**1.51**	**1.53**	**231**	**208**	**414**	**40.08**	**9.10**	**9.55**	**11.42**	**153**	**36**	**204**	**0.95**	**0.95**	**0.68**	
Maximum		**49.96**	**394**	**396**	**397**	**0.30**	**1.15**	**1.10**	**1.10**	**338**	**353**	**520**	**28.90**	**5.9**	**5.9**	**6.2**	**239**	**106**	**277**	**1.00**	**0.99**	**0.69**	**3868**
Minimum		**49.91**	**397**	**399**	**395**	**0.40**	**0.70**	**0.65**	**0.70**	**0**	**0**	**230**	**200.00**	**0.0**	**0.0**	**24.7**	**0**	**-12**	**53**	**0.00**	**0.00**	**0.03**	

Scanned with CamScanner

Measured Power Parameters of EB Incomer (26-11-2016 to 27-11-2016) During Holiday

Date	Time	Hz	Voltage (V)			Vunb	%Vthd			Current (A)			Aunb	%Athd			kW	kVAr	kVA	PF			kWh
			L1	L2	L3	%	L1	L2	L3	L1	L2	L3	%	L1	L2	L3	Sum	Sum	Sum	L1	L2	L3	
26-11-2016	0:00	49.99	421	424	424	0.50	2.25	2.30	2.30	152.65	148.90	143.65	14.90	14.75	14.35	17.40	114.73	-11.79	116.67	0.99	0.99	0.97	57
26-11-2016	0:30	49.99	422	425	425	0.50	2.25	2.30	2.30	152.60	147.60	146.80	14.85	14.50	14.85	17.30	114.46	-19.30	116.67	0.99	0.98	0.97	115
26-11-2016	1:00	49.99	422	425	425	0.45	2.25	2.30	2.30	178.65	140.75	141.35	16.30	14.55	15.60	17.60	110.60	-15.46	112.75	0.99	0.98	0.97	170
26-11-2016	1:30	49.98	413	415	415	0.50	2.25	2.30	2.30	175.30	138.45	141.55	15.50	14.95	16.55	17.30	107.22	-9.53	108.97	0.99	0.98	0.98	224
26-11-2016	2:00	50.00	414	417	417	0.45	2.20	2.30	2.25	167.45	138.15	132.35	14.70	14.90	15.85	18.25	103.46	-13.11	105.17	0.99	0.99	0.98	275
26-11-2016	2:30	50.01	411	413	414	0.45	2.15	2.20	2.15	165.50	138.15	131.15	14.15	13.45	13.95	16.60	102.33	-0.44	103.60	0.99	0.99	0.98	326
26-11-2016	3:00	50.00	412	415	415	0.45	2.10	2.20	2.20	158.75	133.00	133.35	12.05	13.75	14.15	15.80	100.50	-4.53	101.71	0.99	0.99	0.98	377
26-11-2016	3:30	49.97	411	414	414	0.40	2.20	2.20	2.20	157.70	133.90	132.20	11.65	14.15	14.55	16.10	99.84	-11.35	101.11	0.99	0.99	0.98	427
26-11-2016	4:00	49.98	412	415	415	0.40	2.15	2.20	2.20	160.40	137.20	133.35	11.65	13.75	14.10	15.85	101.75	-5.28	103.01	0.99	0.99	0.98	477
26-11-2016	4:30	50.02	410	413	413	0.40	2.15	2.20	2.20	170.95	148.80	144.70	10.40	13.00	13.30	14.95	109.29	0.52	110.49	0.99	0.99	0.99	532
26-11-2016	5:00	50.02	407	410	410	0.40	2.10	2.15	2.20	170.75	148.05	144.30	10.60	12.70	12.95	14.55	108.23	3.92	109.32	0.99	0.99	0.99	586
26-11-2016	5:30	49.95	400	403	403	0.40	2.10	2.10	2.15	167.75	148.75	140.10	10.25	12.30	12.05	14.40	104.94	-1.02	106.05	0.99	0.99	0.98	639
26-11-2016	6:00	50.02	406	408	408	0.45	1.90	1.95	2.05	164.40	150.15	147.85	6.85	10.55	10.00	12.70	107.97	-5.06	108.88	0.99	0.99	0.99	693
26-11-2016	6:30	50.04	405	409	408	0.50	1.80	1.90	1.90	178.95	154.05	154.55	12.30	9.30	9.35	9.10	123.45	-8.59	124.22	0.99	0.99	0.99	764
26-11-2016	7:00	50.02	399	403	402	0.50	1.80	1.85	1.90	200.90	172.95	208.25	10.65	8.45	8.50	8.55	134.25	-2.20	134.89	1.00	1.00	0.99	822
26-11-2016	7:30	49.99	404	408	408	0.60	1.80	1.85	1.90	188.80	157.60	187.55	11.45	8.95	9.00	9.55	124.71	-8.05	125.48	1.00	0.99	0.99	864
26-11-2016	8:00	50.00	406	409	409	0.55	1.90	1.90	2.00	180.40	160.25	172.40	6.40	10.20	9.65	11.35	120.02	-11.24	120.93	0.99	0.99	0.99	944
26-11-2016	8:30	50.02	406	408	408	0.50	1.90	1.90	1.90	220.55	197.50	229.50	8.40	8.75	8.20	8.80	151.47	-8.25	152.28	1.00	0.99	0.99	1020
26-11-2016	9:00	50.02	403	407	407	0.60	1.80	1.80	1.90	284.80	240.35	259.20	8.95	6.90	6.70	8.30	183.12	0.04	183.80	1.00	1.00	0.99	1111
26-11-2016	9:30	50.00	400	404	406	0.70	1.85	1.90	1.95	340.70	273.30	277.20	14.65	6.05	6.45	8.60	206.58	5.04	207.37	1.00	0.99	1.00	1214
26-11-2016	10:00	15.24	125	126	126	0.50	0.65	0.65	0.65	56.95	50.70	58.55	10.85	1.65	1.55	2.00	36.91	2.48	37.59				1233
26-11-2016	10:30																						1233
26-11-2016	11:00																						1233
26-11-2016	11:30																						1233
26-11-2016	12:00																						1233
26-11-2016	12:30																						1233
26-11-2016	13:00											Supply Failure											1233
26-11-2016	13:30																						1233
26-11-2016	14:00																						1233
26-11-2016	14:30																						1233
26-11-2016	15:00																						1233
26-11-2016	15:30																						1233
26-11-2016	16:00																						1233
26-11-2016	16:30	25.41	207	209	209	0.70	1.35	1.35	1.35	109.40	90.65	116.55	106.40	5.50	6.80	6.00	72.79	4.36	73.63				1269
26-11-2016	17:00	49.92	404	408	408	0.60	2.10	2.20	2.20	279.75	233.50	267.65	10.35	7.35	8.30	9.05	182.61	10.19	183.34	1.00	1.00	0.99	1361

Scanned with CamScanner

Date	Time	Hz	Voltage (V)			Vunb	%Vthd			Current (A)			Aunb	%Athd			kW	kVAr	kVA	PF			kWh
			L1	L2	L3	%	L1	L2	L3	L1	L2	L3	%	L1	L2	L3	Sum	Sum	Sum	L1	L2	L3	
26-11-2016	17:30	49.88	404	407	408	0.50	1.90	2.05	2.05	239.20	223.90	231.15	3.45	8.40	8.30	10.20	162.12	3.39	162.95	1.00	1.00	0.99	1442
26-11-2016	18:00	49.97	404	407	408	0.60	1.85	2.05	2.10	225.60	211.95	187.15	10.90	9.80	9.50	12.95	145.57	-4.34	146.65	0.99	0.99	0.99	1514
26-11-2016	18:30	49.96	400	402	403	0.50	2.10	2.25	2.40	264.55	251.45	232.80	6.75	11.30	9.45	12.45	172.47	3.41	173.69	0.99	1.00	0.99	1601
26-11-2016	19:00	50.03	402	405	406	0.55	2.00	2.10	2.30	286.95	260.95	263.45	6.25	10.35	8.70	10.55	188.28	-3.03	189.39	0.99	1.00	0.99	1695
26-11-2016	19:30	49.97	407	410	409	0.50	2.10	2.20	2.30	266.50	240.50	290.90	9.75	11.50	9.60	9.35	187.16	-9.15	188.39	0.99	0.99	0.99	1788
26-11-2016	20:00	49.89	409	412	412	0.55	2.20	2.35	2.50	271.70	222.25	272.55	13.00	11.40	11.10	10.65	160.52	-9.44	161.97	0.99	0.99	0.99	1879
26-11-2016	20:30	49.91	414	417	417	0.55	2.30	2.50	2.60	269.95	216.50	238.75	14.40	11.95	12.45	13.30	171.12	-12.74	172.82	0.99	0.99	0.99	1964
26-11-2016	21:00	49.99	417	421	420	0.60	2.30	2.50	2.60	241.60	201.85	238.30	11.15	13.85	12.85	13.15	163.49	-6.26	165.21	0.99	0.99	0.99	2046
26-11-2016	21:30	50.03	412	416	416	0.65	2.40	2.60	2.70	251.55	191.20	196.30	17.90	13.35	13.90	16.60	151.26	-15.72	153.49	0.99	0.99	0.97	2122
26-11-2016	22:00	49.99	409	413	414	0.65	2.50	2.65	2.75	238.75	186.50	182.00	17.80	13.90	13.95	17.35	142.37	-11.66	144.54	0.99	0.99	0.97	2193
26-11-2016	22:30	49.96	403	406	407	0.60	2.50	2.55	2.75	208.35	162.60	168.25	15.95	14.70	14.75	17.10	123.98	-11.54	126.16	0.99	0.99	0.97	2255
26-11-2016	23:00	50.00	407	411	411	0.60	2.50	2.55	2.65	206.95	156.65	171.15	16.05	14.20	14.70	16.25	124.17	-14.64	126.56	0.99	0.98	0.98	2317
26-11-2016	23:30	50.03	409	412	412	0.60	2.50	2.50	2.60	189.95	148.25	159.25	14.55	14.80	14.85	16.40	115.46	-14.20	116.01	0.99	0.98	0.98	2375
27-11-2016	0:00	50.01	413	416	417	0.50	2.40	2.45	2.60	182.40	147.30	156.60	12.55	15.60	14.40	16.45	113.96	-21.27	116.65	0.99	0.98	0.96	2432
27-11-2016	0:30	49.98	412	415	415	0.55	2.40	2.50	2.65	181.55	140.65	144.30	16.80	14.85	15.35	17.95	108.70	-19.13	111.50	0.99	0.98	0.95	2486
27-11-2016	1:00	49.97	412	416	416	0.50	2.35	2.40	2.50	177.40	136.40	138.75	17.60	14.70	15.65	18.05	105.61	-16.66	108.32	0.99	0.98	0.96	2539
27-11-2016	1:30	50.00	415	418	418	0.50	2.30	2.40	2.40	178.30	134.15	137.85	18.80	13.40	14.95	17.40	105.88	-14.53	108.46	0.99	0.98	0.96	2592
27-11-2016	2:00	50.00	418	421	421	0.50	2.30	2.40	2.40	167.55	124.75	127.45	19.75	14.20	16.10	18.70	98.69	-17.72	101.73	0.99	0.97	0.94	2641
27-11-2016	2:30	50.02	416	419	419	0.50	2.15	2.25	2.30	150.65	119.00	116.75	16.95	14.50	15.35	18.65	91.23	-11.63	93.16	0.99	0.98	0.96	2687
27-11-2016	3:00	50.03	420	423	423	0.50	2.10	2.20	2.30	137.40	111.30	110.20	14.85	14.15	14.20	17.70	86.09	-5.58	87.44	0.99	0.99	0.97	2730
27-11-2016	3:30	50.00	420	422	423	0.50	2.10	2.20	2.30	134.90	108.50	106.70	15.60	14.60	15.00	18.75	83.69	-12.10	85.20	0.99	0.99	0.97	2772
27-11-2016	4:00	49.99	419	422	422	0.50	2.10	2.20	2.30	137.10	107.35	107.55	16.85	14.30	15.90	18.75	84.10	-6.33	85.60	0.99	0.99	0.97	2814
27-11-2016	4:30	49.98	416	419	419	0.50	2.05	2.15	2.20	135.80	111.85	106.00	15.20	14.55	15.20	18.95	83.92	-5.25	85.37	0.99	0.99	0.97	2856
27-11-2016	5:00	50.01	415	417	417	0.40	2.00	2.10	2.20	141.50	114.70	110.05	15.90	13.60	14.60	17.95	86.78	-2.04	88.08	0.99	0.99	0.98	2899
27-11-2016	5:30	49.99	410	413	413	0.40	2.00	2.10	2.20	142.25	116.50	113.40	14.65	13.25	14.00	16.85	87.36	1.90	88.55	0.99	0.99	0.98	2943
27-11-2016	6:00	49.99	413	416	416	0.45	1.90	2.00	2.05	128.90	108.05	115.85	11.05	12.00	12.65	14.80	83.16	0.33	84.18	0.99	0.99	0.98	2984
27-11-2016	6:30	49.99	417	420	420	0.50	1.90	2.00	2.00	146.30	121.55	143.05	11.70	10.25	11.25	12.00	99.05	-4.03	99.83	0.99	0.99	0.99	3034
27-11-2016	7:00	49.96	416	420	419	0.50	1.85	1.90	2.00	156.70	126.45	160.80	16.90	9.30	10.55	9.25	111.41	-1.15	112.13	0.99	0.99	0.99	3089
27-11-2016	7:30	49.91	415	416	416	0.50	1.90	1.95	2.00	147.85	113.20	168.60	20.95	10.30	12.20	10.40	102.79	-0.62	103.50	0.99	0.99	0.99	3141
27-11-2016	8:00	49.97	414	418	418	0.55	1.90	2.00	2.00	173.95	139.70	147.80	12.85	9.05	10.10	12.45	110.29	3.00	111.09	1.00	0.99	0.99	3195
27-11-2016	8:30	49.96	416	419	419	0.60	1.90	2.00	2.00	182.90	128.75	165.85	19.35	8.35	10.75	10.95	114.60	0.98	115.32	1.00	0.99	0.99	3253
27-11-2016	9:00	49.89	412	416	416	0.60	1.90	1.90	1.95	202.50	139.85	185.65	20.75	7.30	9.65	9.55	125.76	9.13	126.41	1.00	0.99	0.99	3316
27-11-2016	9:30	49.95	411	414	414	0.55	1.90	2.00	2.00	211.80	174.90	216.65	12.95	7.25	8.05	8.20	143.35	8.13	143.93	1.00	1.00	0.99	3388
27-11-2016	10:00	49.95	409	412	413	0.50	1.95	2.00	2.05	206.65	179.25	187.75	8.10	7.55	7.95	9.70	135.69	11.11	136.42	1.00	0.99	0.99	3456
27-11-2016	10:30	49.93	408	409	409	0.40	1.95	2.05	2.15	171.25	165.15	165.00	2.45	9.55	8.75	11.35	117.34	2.87	118.17	0.99	0.99	0.99	3514
27-11-2016	11:00	49.94	405	407	408	0.50	2.10	2.10	2.10	194.00	174.50	194.00	6.90	8.85	9.70	9.70	131.41	8.30	132.13	1.00	0.99	0.99	3580
27-11-2016	11:30	49.93	404	406	407	0.55	2.10	2.15	2.20	186.00	149.15	156.65	13.45	9.15	9.90	12.20	114.39	10.12	115.25	1.00	0.99	0.99	3637

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Date	Time	Hz	Voltage (V)			Vunb	%Vthd			Current (A)			Aunb	%Athd			kW	kVAr	kVA	PF			kWh
			L1	L2	L3	%	L1	L2	L3	L1	L2	L3	%	L1	L2	L3	Sum	Sum	Sum	L1	L2	L3	
27-11-2016	12:00	49.99	408	411	412	0.45	2.05	2.10	2.20	159.85	152.45	137.50	8.85	10.25	9.35	13.60	105.57	10.95	106.51	0.99	0.99	0.99	3690
27-11-2016	12:30	49.96	407	409	410	0.40	2.00	2.00	2.05	152.90	147.85	144.90	5.25	10.30	9.55	12.30	104.12	14.37	105.25	0.99	0.99	0.98	3742
27-11-2016	13:00	50.01	410	412	413	0.50	2.05	2.05	2.05	149.75	139.85	151.25	4.85	11.05	10.75	12.20	103.86	9.69	104.87	0.99	0.99	0.99	3794
27-11-2016	13:30	50.01	413	416	416	0.50	2.10	2.10	2.20	152.15	122.80	142.60	11.75	10.65	12.05	12.90	99.11	10.68	100.04	0.99	0.99	0.99	3844
27-11-2016	14:00	50.01	415	418	418	0.50	2.20	2.20	2.25	153.60	125.15	157.40	13.90	11.60	12.90	12.45	104.07	4.67	105.06	0.99	0.99	0.99	3886
27-11-2016	14:30	49.96	413	416	416	0.50	2.25	2.25	2.30	161.80	130.50	164.80	14.35	11.50	12.65	12.40	108.58	3.74	109.52	0.99	0.99	0.99	3950
27-11-2016	15:00	50.00	416	419	419	0.50	2.05	2.10	2.15	144.70	120.10	144.45	11.95	11.90	12.45	13.10	97.85	5.66	98.80	0.99	0.99	0.99	3999
27-11-2016	15:30	49.60	416	419	419	0.50	2.20	2.20	2.30	144.15	120.10	122.45	11.85	12.00	12.00	15.35	92.33	11.86	93.34	0.99	0.99	0.98	4045
27-11-2016	16:00	49.95	417	420	420	0.50	2.15	2.20	2.20	156.35	124.40	147.95	13.10	10.70	11.40	12.55	102.83	7.77	103.75	0.99	0.99	0.99	4095
27-11-2016	16:30	49.97	416	419	419	0.50	2.15	2.20	2.25	149.30	116.15	147.40	15.70	11.45	12.45	12.70	98.86	0.53	99.79	0.99	0.99	0.99	4146
27-11-2016	17:00	50.00	415	418	419	0.50	2.10	2.20	2.20	151.20	124.95	137.95	11.35	11.80	12.10	14.15	98.88	0.03	99.88	0.99	0.99	0.99	4195
27-11-2016	17:30	50.02	413	416	417	0.50	2.10	2.20	2.25	177.45	168.35	178.25	4.20	11.30	10.20	12.50	124.62	0.70	125.70	0.99	0.99	0.99	4258
27-11-2016	18:00	50.07	411	415	416	0.60	2.25	2.35	2.50	225.25	203.10	201.85	7.05	12.15	11.15	13.95	149.18	-5.44	150.86	0.99	0.99	0.98	4332
27-11-2016	18:30	50.00	409	413	412	0.60	2.40	2.60	2.75	274.15	232.30	246.45	9.20	12.50	11.95	14.35	177.05	4.11	178.75	0.99	0.99	0.99	4421
27-11-2016	19:00	50.04	412	415	415	0.50	2.40	2.55	2.65	311.00	259.20	277.05	10.30	10.15	10.05	11.60	201.03	5.43	202.49	0.99	0.99	0.99	4521
27-11-2016	19:30	50.01	413	416	416	0.50	2.40	2.55	2.65	313.20	274.40	296.70	6.85	10.10	9.40	10.75	210.49	3.08	211.92	0.99	1.00	0.99	4626
27-11-2016	20:00	50.01	415	419	418	0.60	2.40	2.65	2.70	304.45	256.25	256.25	11.80	10.40	10.25	13.15	195.14	6.80	196.82	0.99	0.99	0.99	4724
27-11-2016	20:30	49.99	415	419	418	0.65	2.40	2.70	2.70	299.05	229.95	266.70	13.30	10.85	11.55	12.30	189.93	8.91	191.79	0.99	0.99	0.99	4819
27-11-2016	21:00	50.00	417	421	421	0.60	2.45	2.70	2.75	252.50	206.00	215.25	12.45	13.35	12.75	15.70	161.11	-5.72	163.25	0.99	0.99	0.98	4900
27-11-2016	21:30	50.01	419	422	423	0.60	2.45	2.70	2.70	253.05	196.25	189.85	18.95	12.80	14.15	18.05	152.84	-9.46	155.17	0.99	0.99	0.97	4976
27-11-2016	22:00	50.05	412	415	415	0.60	2.55	2.70	2.80	228.05	178.75	189.15	14.75	14.70	15.45	17.45	140.03	-19.13	142.59	0.99	0.99	0.97	5046
27-11-2016	22:30	49.99	405	408	408	0.55	2.55	2.60	2.75	207.45	161.85	163.30	16.85	15.00	15.30	17.80	123.11	-10.82	125.23	0.99	0.99	0.97	5106
27-11-2016	23:00	50.00	410	414	414	0.50	2.45	2.55	2.65	196.45	157.75	155.50	15.55	15.25	15.05	17.90	119.15	-11.73	121.38	0.99	0.99	0.97	5167
27-11-2016	23:30	50.02	413	416	416	0.60	2.40	2.50	2.60	188.20	153.05	158.55	13.40	15.60	15.45	17.05	117.05	-17.51	119.41	0.99	0.98	0.97	5226
Average/Total		**49.28**	**405**	**408**	**409**	**0.52**	**2.12**	**2.20**	**2.26**	**193.90**	**161.25**	**172.80**	**13.75**	**11.63**	**11.93**	**13.69**	**124.42**	**-3.16**	**125.81**	**0.99**	**0.99**	**0.98**	
Maximum		**50.01**	**413**	**416**	**416**	**0.56**	**2.40**	**2.55**	**2.65**	**313**	**274**	**297**	**6.95**	**10.1**	**9.4**	**10.8**	**210**	**3**	**212**	**0.99**	**1.00**	**0.99**	**5226**
Minimum		**0.00**	**0**	**0**	**0**	**0.00**	**0.00**	**0.00**	**0.00**	**0**	**0**	**0**	**0.00**	**0.0**	**0.0**	**0.0**	**0**	**0**	**0**	**0.00**	**0.00**	**0.00**	

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Main DB Power distribution

Section/ Panel	Phase	Voltage (V)	Vthd (%)	Current (A)	Athd (%)	kW	kVA	PF	kVAr	Hz
Mechanical Block + Girls Hostel	R	227	1.5	63.5	6.1	13.6	14.4	0.95	4.7	50
	Y	225	2	60.2	5.8	12.1	13.6	0.89	6.1	49.9
	B	227	1.5	61.4	7.5	12.3	13.9	0.88	6.6	49.9
Server Room	R	226	1.4	3.81	51	0.72	0.86	0.83	0.15	49.9
	Y	224	1.5	10.6	17.3	2.3	2.4	0.95	0.6	49.9
	B	227	2	3.84	54.4	0.71	0.87	0.81	0.17	50
SVH Block	R	227	1.7	49.7	6	10.9	11.3	0.96	2.9	49.9
	Y	224	1.5	31.6	3.1	5.6	7.1	0.79	4.4	50
	B	227	1.4	57.6	2.1	12.9	13.1	0.98	2.5	50
HK block	R	226	1.6	12.9	14.3	2.7	2.9	0.94	0.9	49.9
	Y	224	1.8	11.3	32.2	2.3	2.5	0.89	0.8	49.9
	B	226	1.6	5.42	33.5	0.62	1.23	0.51	0.98	49.9
Library Block	R	226	1.5	21.3	18.5	4.1	4.8	0.86	2.4	49.9
	Y	225	2	17.1	23.9	3.6	3.8	0.93	1	49.9
	B	22.7	1.7	19.2	35.4	4.1	4.3	0.95	0.9	50
SBS Block	R	226	1.6	11.5	22.2	2.4	2.6	0.94	0.7	49.9
	Y	224	2	13.5	16.2	3	3	0.98	0.4	50
	B	226	1.8	15.7	14	3.5	3.6	0.99	1	50
CS Block	R	225	1.5	50.3	15.1	10.9	11.3	0.96	2.7	49.9
	Y	224	2	89.4	8.2	19.8	20	0.99	1.7	50
	B	226	1.8	72.3	10	16.2	16.3	0.99	0.8	49.9
Bank Block	R	225	1.7	18.4	17.1	4.1	4.1	0.99	0.1	49.9
	Y	224	2	12.4	10.7	2.7	2.8	0.99	0.3	50
	B	226	1.7	5.26	14.7	1.18	1.19	0.96	0.13	50
SCB Block	R	226	1.6	42.9	7.5	8.9	9.7	0.92	3.6	50
	Y	224	1.9	52.8	10.4	10.3	11.8	0.87	6.7	50
	B	226	1.5	52.7	9.4	11	11.9	0.92	4.4	50
SMV Block	R	226	1.3	29	8.4	6	6.5	0.92	2.6	50
	Y	225	1.5	9	21.4	2	2	0.96	0.1	50
	B	226	1.9	37	6.5	8.2	8.4	0.99	1.1	50

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Blockwise Power distribution

Section/ Panel	Phase	Voltage (V)	Vthd (%)	Current (A)	Athd (%)	kW	kVA	PF	kVAr	Hz	Remarks
HK Building											
UPS- 20kVA	3Ø	393	1.7	1.62	111.3	0.79	1.24	0.64	0.13	50	
UPS-3KVA	3Ø	No Load									
Building AC	1Ø	231	3.3	8.54	21.1	1.91	1.98	0.97	0.26	50	N-E :5V-15V
LDB + RPDB	R	226	1.2	7.55	7.1	1.69	1.71	0.99	0.18	50.1	
	Y	229	1.4	6.53	10.2	1.35	1.5	0.9	0.64	50	
	B	No Load									
Chhatrapati Shivaji Block (CS Block)											
Sub Panel A	R	226	2.4	6.39	33.4	1.36	1.45	0.94	0.12	49.7	N-E :0.4V
	Y	224	3	8.64	8.5	1.82	1.94	0.94	0.63	50	
	B	225	2.7	4.9	15.4	1.01	1.1	0.92	0.39	50	
Sub Panel B	R	225	2.2	43.6	15	9.5	9.8	0.97	1.9	50	
	Y	223	2	25.6	13.8	5.6	5.7	0.99	0.5	50	
	B	225	2.7	56.4	12.1	12.3	12.7	0.97	2.5	50	
Sub Panel C	R	224	2.3	5.82	22.3	1.09	1.3	0.84	0.65	50	
	Y	224	2.1	7.29	18.4	1.6	1.63	0.98	0.18	50	
	B	226	2.6	2.29	24.9	0.49	0.52	0.95	0.1	50	
Netaji Subhas Chandra Bose Block (NSCB Block)											
Feeder 1	R	227	1.4	8.55	2.5	1.72	1.94	0.89	0.87	50	N-E: 0.3V
	Y	226	2.6	8.48	3.1	1.69	1.91	0.88	0.92	50	
	B	226	2.5	8.64	2.9	1.75	1.95	0.9	0.86	50	
Feeder 4	R	227	1.5	2.91	11.8	0.49	0.66	0.74	0.44	50	
	Y	225	2.2	3.25	58.1	0.56	0.73	1	0.05	50	
	B	225	0								
Feeder 7	B	226	2.5	5.09	8.8	0.89	1.15	0.77	0.71	49.9	
Feeder-10	R	227	1.8	9.24	22.4	2	2.1	0.97	0.2	50	
	Y	226	2	18	9.4	3.5	4.1	0.86	2	50	
	B	226	2.1	13.8	20.6	3	3.1	0.96	0	50	
F11- UPS	3Ø	393	1.9	5.24	36.8	2.8	3.5	0.8	1.8	50	
F12- UPS	3Ø	393	1.8	3.97	96.5	1.66	2.7	0.62	0.86	50	
F15- UPS Main	R	228	1.4	6.63	21.2	1.1	1.51	0.73	0.96	50	
	Y	226	2.6	3.92	26	0.79	0.9	0.88	0.35	50	
	B	225	2.5	7.27	20.4	1.34	1.64	0.82	0.86	50	
Mechanical Block + Girls Hostel											
Canteen	R	224	2.5	17.4	8.6	3.5	3.9	0.9	1.7	50	
	Y	224	2.6	6.7	12	1.14	1.5	0.76	0.96	50	
	B	226	2.2	11.56	7.6	2.6	2.6	0.99	0.2	50	
Ladies Hostel 2	R	223	2.5	6.64	9.1	1.47	1.48	0.99	0.02	50	
	Y	223	2.5	3.01	7.9	0.63	0.67	0.94	0.23	50	
	B	223	2.9	7.53	8.3	1.67	1.68	1	0.02	50	

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Mech. Block O/G	R	225	2.5	19.2	12.4	3.6	4.3	0.82	2.4	50	N-E: 0.4V
	Y	223	2.6	20.6	10.2	4.1	4.6	0.9	2	50	
	B	224	2.9	21.5	10.8	4	4.8	0.84	2.6	50	
To Basic Sci. LDB	R	225	0								
	Y	222	2.4	9.99	11.5	1.44	2.22	0.65	1.69	50	
	B	224	2.2	3.06	7.5	0.68	0.69	1	0.01	50	
To Ladies Hostel 1	R	224	2.4	14.5	9.5	3	3.3	0.93	1.1	50	
	Y	223	2.5	14.6	3.1	3	3.3	0.93	1.2	50	
	B	226	2.4	16.9	8.3	3.6	3.8	0.94	1.3	50	
Mechanical Block											
F4 UPS	3Ø	390	2.2	5.06	66.2	2.65	3.41	0.78	0.96	49.9	N-E :0.4V
STP	3Ø	389	1.8	11.1	6.5	6.876	7.534	0.91	3.064	0.91	
F12	R	225	2.4	1.59	10.2	0.25	0.36	0.71	0.25	49.9	
	Y	225	0	0							
	B	226	2.3	3.31	12.2	0.86	0.75	0.9	0.32	50	
Library & Information Block											
Feeder 1	R	226	0								N-E: 5V
	Y	226	2.3	2.46	77	0.36	0.56	0.64	0.01	50	
	B	230	2.2	3.2	65.5	0.53	0.74	0.72	0.15	50	
Feeder 3 UPS 15kVA	3Ø	394	1.3	5.26	45	3.26	3.59	0.91	0.01	50	
Feeder 4 10kVA	R	228	2	2.69	52	0.2	0.61	0.32	0.47	50	
	Y	225	2.4	2.72	52.3	0.23	0.61	0.38	0.46	50	
	B	229	2.4	2.89	53.2	0.52	0.66	0.79	0.17	50	
Auditorium Total - DG Supply	3Ø	387	1.2	99.7	2	58	67	0.87	32	50	
Stage AC	3Ø	388	1.6	25.5	3	13.8	17.1	0.81	10	50.5	
Auditorium AC	3Ø	388	1.5	58.5	2.4	32.9	39.3	0.84	21.8	50	
Stage Lighting	3Ø	386	1.5	10.6	49.6	5.93	7.08	0.84	2.13	50	Only LED Load

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Measured power parameters of Electrical Drives

Sl No	Section/ Block	Motor Description	Motor Rating				Motor Operating Parameters							% Loading	Remarks
			kW	Eff(%)	V	Vthd (%)	A	Athd (%)	kW	kVA	PF	kVAr	Hz		
1	HK	Overhead Tank Pump	2.2	79.00%	390	1.40	3.25	3.60	1.79	2.20	0.81	1.26	50.00	84%	
		AC II 4TR			391	2.20	7.16	4.40	4.26	4.85	0.88	2.18	50.00		
		AC I 4TR			391	1.50	7.22	3.10	4.24	4.69	0.87	2.46	50.00		
2	SVM	Pump for solar system	2.2	79.00%	387	1.60	5.05	9.00	2.42	3.39	0.72	2.34	50.00	87%	
3		Overhead Tank Pump	2.2	79.00%	390	1.20	3.76	3.60	2.12	2.50	0.85	1.34	49.99	78%	
4		Cooler IInd Floor			221	-	1.68	-		0.26	0.37	0.69	0.28	50.00	
5		Cooler Ist Floor			223	-	1.50	-		0.20	0.34	0.59	0.27	50.00	
6	NSCB	Meeoblock pump	2.2	79.00%	388	1.60	6.09	2.40	2.87	3.42	0.84	1.83	50.00	103%	
7		Submersible pump-1	2.2	79.00%	388	1.70	6.61	2.70	3.35	4.44	0.75	2.90	50.00	120%	
8		Submersible pump-2	2.2	79.00%	390	1.50	4.64	3.30	2.57	3.14	0.82	1.74	50.00	92%	
9	CS Block	Overhead Tank Pump-1	7.5	88.00%	389	1.10	13.62	2.10	7.90	9.23	0.86	4.60	50.00	93%	
10		Overhead Tank Pump-2	7.5	88.00%	386	1.20	14.70	1.10	8.80	9.83	0.89	4.30	49.99	103%	
11		Water Cooler (Voltas)	1.55		209	-	5.88	-		1.18	1.19	0.99	0.02	50.00	
12		Water cooler A block (Voltas)	1.55		226	-	6.08	-		1.29	1.31	0.99	0.02	50.00	
		VRV III			398	2.30	5.30	75.80	2.87	3.65	0.79	0.50	50.00		
13	ZC	Blower	0.7	82.00%	370	2.10	3.27	3.60	1.52	2.09	0.72	1.42	49.99	34%	
14		Waste transfer pump	1.5	76.00%	387	2.20	2.01	5.00	0.56	1.26	0.44	1.14	50.00	29%	
15		Water Cooler			209	-	1.66	-		0.26	0.35	0.74	0.24	50.00	
16		Submersible pump	1.7	82.00%	372	2.20	6.96	2.30	3.98	4.45	0.89	2.01	50.00	98%	
17		Kitchen			372	2.20	3.65	3.20	1.69	2.36	0.60	1.43	50.00		
18		Cellar I	3		219	2.60	7.85	2.60	1.72	1.72	1.00	0.20	50.00		Part Load
19	KR	Submersible pump	2.2	79.00%	371	1.50	5.88	3.40	3.17	3.76	0.84	2.08	50.00	114%	
20		DW water pump	0.74	72.00%	208	-	2.98	-		0.58	0.61	0.94	0.19	50.00	56%	

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21		Cooler			209	-	1.73	-	0.26	0.36	0.71	0.26	50.00		
22	SES	Submersible pump	2.2	79.00%	385	1.90	7.61	1.80	4.32	5.20	0.83	2.89	50.00	155%	
23		Monoblock pump	2.2	79.00%	386	1.90	4.42	5.10	2.53	2.96	0.56	1.49	53.10	91%	
24	SWH	Hot water pump	3.7	82.00%	384	2.00	7.60	2.40	4.20	5.10	0.84	2.80	50.00	93%	
25		Screwell water pump	3.7	82.00%	383	2.30	9.15	2.10	5.30	6.12	0.87	3.10	50.00	117%	
26		Drinking water pump	2.2	79.00%	385	2.20	4.61	4.90	2.61	3.08	0.85	1.64	50.00	94%	
27	STP	Filter Pump I	2.2	79.00%	385	1.90	3.80	4.50	2.10	2.53	0.83	1.41	50.00	75%	
28		Filter Pump II	2.2	79.00%	384	2.00	3.38	4.60	2.02	2.25	0.90	0.96	50.00	73%	
29		Transfer Pump	3.7	82.00%	376	2.00	7.52	3.50	4.27	4.96	0.87	2.35	49.80	95%	
		Blower II	7.5	86.00%	381	2.00	15.00	5.10	8.60	9.99	0.87	4.80	50.00	99%	
30		Distribution Pump (1/3nos)	1.5	85.59%	386	1.70	2.34	6.50	1.26	1.57	0.81	0.91	49.50	72%	
31		Distribution Pump (2/3nos)			384	1.90	6.08	3.30	3.23	4.04	0.80	2.44	49.80		
32	Auditorium	Stage AC			388	1.60	25.50	3.00	13.80	17.10	0.81	10.00	50.00		Unload
33		Auditorium AC			388	1.50	58.50	2.40	32.90	39.30	0.84	21.80	50.00		Load
34	Kwany Tank	Pump (2/3)			373	1.40	8.68	3.00	4.50	5.63	0.81	3.20	50.00		
35		Pump (1/3)	2.2	79.00%	382	2.10	4.08	4.90	2.69	2.70	0.76	1.68	50.00	75%	
36	Centrifugal Machine	Blower+ Heater			376	1.90	6.01	2.70	3.77	3.92	0.96	1.00	50.00		
37		Rotor			376	2.00	1.30	2.80	0.31	0.84	0.36	0.78	50.00		
38	Upper Canteen	Cooler (Voltas)	1.55		209	-	5.84	-	1.19	1.20	0.99	0.23	50.00		
39	Library Hall	Library Hall AC 3TR			400	1.50	3.90	5.50	2.20	2.71	0.81	1.56	50.00		
40		Library Hall AC 4TR			399	2.20	5.73	10.30	3.44	3.96	0.87	1.36	49.90		

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Measured Load Parameters of STP

Date	Time	Hz	kVrms	%Vthd	Arms	%Athd	Power			PF	kWh
							kW	kVAr	kVA		
24-11-2016	11:00	50.01	379	1.40	26.00	4.00	15.27	7.74	17.12	0.89	1.27
24-11-2016	11:05	50.04	379	1.40	26.10	4.00	15.26	7.86	17.17	0.89	2.54
24-11-2016	11:10	49.96	377	1.50	26.50	4.00	15.41	7.97	17.35	0.89	3.83
24-11-2016	11:15	49.90	375	1.30	28.70	3.60	16.72	8.39	18.71	0.89	5.22
24-11-2016	11:20	49.93	375	1.30	28.60	3.60	16.67	8.33	18.63	0.89	6.61
24-11-2016	11:25	50.02	378	1.40	26.20	3.80	15.69	6.89	17.15	0.92	7.92
24-11-2016	11:30	50.06	378	1.40	33.50	3.80	18.77	8.63	20.66	0.91	9.48
24-11-2016	11:35	50.04	379	1.40	31.00	3.80	18.48	8.60	20.38	0.91	11.02
24-11-2016	11:40	49.99	378	1.50	30.30	3.80	18.01	8.37	19.86	0.91	12.52
24-11-2016	11:45	49.99	379	1.60	27.70	4.00	16.68	7.32	18.22	0.92	13.91
24-11-2016	11:50	50.00	376	1.50	26.90	3.90	16.20	6.76	17.55	0.92	15.26
24-11-2016	11:55	49.99	377	1.50	26.10	4.00	15.71	6.60	17.05	0.92	16.57
24-11-2016	12:00	50.00	377	1.50	26.40	4.00	15.85	6.87	17.28	0.92	17.89
24-11-2016	12:05	50.06	381	1.50	12.50	3.00	7.58	3.13	8.21	0.00	18.57
24-11-2016	12:10	50.05	382	1.60	6.90	2.30	4.25	1.68	4.57	0.00	18.88
24-11-2016	12:15	49.92	382	1.50	7.40	2.99	4.57	1.89	4.96	0.00	19.26
24-11-2016	12:20	49.80	380	1.50	7.80	3.30	4.74	2.05	5.19	0.00	19.65
24-11-2016	12:25	49.86	380	1.50	6.40	2.79	3.89	1.64	4.23	0.00	19.98
24-11-2016	12:30	49.96	382	1.40	4.60	1.80	2.87	1.16	3.10	0.00	20.22
24-11-2016	12:35	50.07	385	1.40	5.40	2.30	3.36	1.39	3.65	0.00	20.50
24-11-2016	12:40	49.97	386	1.40	4.20	1.80	2.58	1.22	2.86	0.00	20.71
24-11-2016	12:45	49.95	388	1.50	4.30	1.90	2.71	1.09	2.93	0.00	20.94
24-11-2016	12:50	49.97	386	1.50	4.50	1.90	2.79	1.16	3.03	0.00	21.17
24-11-2016	12:55	49.99	388	1.70	3.90	1.80	2.42	1.09	2.67	0.00	21.37
24-11-2016	13:00	50.00	389	1.50	4.30	1.70	2.60	1.32	2.91	0.00	21.59
24-11-2016	13:05	50.05	392	1.50	5.40	2.10	3.22	1.74	3.67	0.00	21.86
24-11-2016	13:10	50.12	396	1.60	5.90	2.40	3.70	1.74	4.09	0.00	22.17
24-11-2016	13:15	50.04	395	1.60	2.90	1.20	1.85	0.88	2.05	0.00	22.32
24-11-2016	13:20	49.94	395	1.60	0.70	0.30	0.44	0.21	0.49	0.00	22.36
24-11-2016	13:25	50.03	398	1.60	0.60	0.30	0.42	0.20	0.47	0.00	22.39
24-11-2016	13:30	50.08	402	1.70	0.40	0.20	0.30	0.16	0.34	0.00	22.42
24-11-2016	13:35	50.02	403	1.70	1.00	0.40	0.62	0.32	0.70	0.00	22.47
24-11-2016	13:40	49.98	403	1.70	0.00	0.00	0.00	0.00	0.00	0.00	22.47
24-11-2016	13:45	49.98	401	1.70	0.30	0.10	0.21	0.11	0.24	0.00	22.49
24-11-2016	13:50	50.01	401	1.70	1.50	0.70	0.96	0.50	1.09	0.00	22.57
24-11-2016	13:55	49.95	402	1.70	1.10	0.60	0.70	0.35	0.79	0.00	22.63
24-11-2016	14:00	49.93	401	1.90	0.40	0.20	0.31	0.15	0.34	0.00	22.65
24-11-2016	14:05	50.01	395	1.90	0.50	0.20	0.30	0.15	0.34	0.00	22.68
24-11-2016	14:10	50.02	395	1.90	0.50	0.30	0.36	0.18	0.41	0.00	22.71
24-11-2016	14:15	49.90	396	2.00	1.90	1.00	1.20	0.62	1.36	0.00	22.81
24-11-2016	14:20	49.85	396	1.90	4.40	2.20	2.70	1.34	3.02	0.00	23.03
24-11-2016	14:25	49.88	394	1.90	0.60	0.30	0.40	0.19	0.45	0.00	23.07
24-11-2016	14:30	49.98	395	2.00	1.50	1.00	0.93	0.45	1.03	0.00	23.14
24-11-2016	14:35	49.98	395	1.80	4.60	2.30	2.86	1.33	3.16	0.00	23.38
24-11-2016	14:40	49.92	391	1.90	8.50	4.70	5.34	2.27	5.80	0.00	23.83
24-11-2016	14:45	49.96	390	2.00	9.00	7.60	5.60	2.43	6.11	0.00	24.29
24-11-2016	14:50	50.02	389	1.80	16.30	7.20	6.40	2.79	6.99	0.00	24.82
24-11-2016	14:55	49.98	389	1.60	11.10	6.50	6.88	3.06	7.53	0.91	25.40
24-11-2016	15:00	49.92	388	1.90	13.80	5.50	8.41	3.95	9.31	0.00	26.10
24-11-2016	15:05	49.98	389	1.80	13.70	5.40	8.41	3.78	9.23	0.91	26.80
24-11-2016	15:10	50.02	389	1.70	15.30	5.00	9.32	4.36	10.30	0.91	27.58
24-11-2016	15:15	49.94	386	1.80	17.10	4.80	10.26	5.20	11.50	0.89	28.43
24-11-2016	15:20	49.92	386	1.80	15.60	5.00	9.40	4.61	10.47	0.90	29.21
24-11-2016	15:25	49.92	384	1.70	16.40	4.60	9.79	4.84	10.93	0.00	30.03
24-11-2016	15:30	49.85	382	1.80	17.20	4.80	10.24	5.04	11.41	0.90	30.88
24-11-2016	15:35	49.87	383	1.70	17.00	4.80	10.17	4.91	11.30	0.90	31.73
24-11-2016	15:40	49.84	385	1.70	17.00	4.70	10.17	5.07	11.37	0.90	32.58
24-11-2016	15:45	49.82	385	1.70	14.90	5.10	8.95	4.42	9.98	0.90	33.32

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Date	Time	Hz	kVrms	%Vthd	Arms	%Athd	Power			PF	kWh
							kW	kVAr	kVA		
24-11-2016	15:50	49.88	384	1.90	11.40	6.40	6.75	3.38	7.58	0.89	33.89
24-11-2016	15:55	49.86	383	1.80	10.80	5.40	6.80	2.42	7.22	0.94	34.45
24-11-2016	16:00	49.85	383	1.70	2.60	1.30	1.52	0.54	1.61	0.00	34.58
24-11-2016	16:05	49.99	386	1.70	0.40	0.20	0.27	0.13	0.31	0.00	34.60
24-11-2016	16:10	50.01	386	1.90	8.80	4.60	5.15	2.84	5.90	0.00	35.03
24-11-2016	16:15	—	376	0.10	12.30	0.10	7.47	0.00	8.20	0.00	35.65
24-11-2016	16:20	49.99	403	2.40	12.80	4.70	8.10	3.88	8.98	0.90	36.33
24-11-2016	16:25	49.98	403	2.00	13.20	4.10	8.36	3.91	9.23	0.91	37.03
24-11-2016	16:30	49.99	403	2.00	13.30	4.10	8.38	4.00	9.29	0.90	37.72
24-11-2016	16:35	49.98	402	2.20	13.00	4.40	8.17	3.95	9.08	0.90	38.41
24-11-2016	16:40	49.98	400	2.20	13.00	4.30	8.76	3.65	9.03	0.92	39.09
24-11-2016	16:45	49.98	400	2.10	13.10	4.10	8.29	3.71	9.08	0.91	39.78
24-11-2016	16:50	49.98	400	1.90	13.30	3.60	8.38	3.40	9.24	0.91	40.48
24-11-2016	16:55	49.99	401	1.90	13.80	3.50	8.66	4.20	9.63	0.90	41.20
24-11-2016	17:00	49.99	402	1.70	14.10	3.20	8.83	4.42	9.88	0.90	41.94
24-11-2016	17:05	49.99	402	1.50	14.00	2.90	8.73	4.40	9.78	0.89	42.67
24-11-2016	17:10	—	386	0.30	13.90	0.50	8.49	0.00	9.60	0.00	43.38
24-11-2016	17:15	49.90	385	1.70	27.50	3.40	16.25	8.56	18.37	0.88	44.73
24-11-2016	17:20	49.93	385	1.60	26.00	3.40	15.48	7.95	17.40	0.89	46.02
24-11-2016	17:25	50.00	386	1.50	20.50	3.40	12.26	6.22	13.75	0.89	47.04
24-11-2016	17:30	49.95	385	1.50	20.40	3.20	12.20	6.19	13.68	0.89	48.06
24-11-2016	17:35	50.07	385	1.40	26.70	3.00	15.93	8.05	17.85	0.89	49.39
24-11-2016	17:40	50.08	384	1.30	28.00	2.80	16.69	8.40	18.68	0.89	50.78
24-11-2016	17:45	49.93	382	1.30	27.90	2.70	16.57	8.32	18.54	0.89	52.16
24-11-2016	17:50	49.95	381	1.30	28.10	2.70	16.62	8.30	18.58	0.89	53.54
24-11-2016	17:55	49.92	383	1.40	22.80	3.20	13.54	6.56	15.14	0.90	54.68
24-11-2016	18:00	49.90	383	1.40	19.60	3.30	11.79	5.47	13.00	0.91	55.66
24-11-2016	18:05	50.15	391	1.40	15.00	3.80	9.51	3.71	10.21	0.93	56.45
24-11-2016	18:10	50.04	396	1.40	14.80	3.90	9.15	3.59	9.83	0.93	57.22
24-11-2016	18:15	49.96	394	1.50	14.50	4.00	9.26	3.55	9.92	0.93	57.99
24-11-2016	18:20	49.99	392	1.50	14.80	4.00	9.15	3.38	9.76	0.94	58.75
24-11-2016	18:25	50.09	392	1.50	14.50	4.10	9.27	3.39	9.87	0.94	59.52
24-11-2016	18:30	50.00	392	1.50	14.20	4.10	9.05	3.37	9.67	0.94	60.28
24-11-2016	18:35	50.05	392	1.50	14.30	4.20	9.16	3.37	9.76	0.94	61.04
24-11-2016	18:40	50.07	392	1.50	14.50	4.40	9.28	3.37	9.87	0.94	61.81
24-11-2016	18:45	50.03	393	1.50	14.40	4.40	9.26	3.36	9.85	0.94	62.59
24-11-2016	18:50	50.03	393	1.50	14.40	4.50	9.28	3.36	9.87	0.94	63.36
24-11-2016	18:55	50.04	396	1.50	14.30	4.50	9.30	3.29	9.86	0.94	64.13
24-11-2016	19:00	50.03	397	1.60	13.60	4.70	8.71	3.37	9.38	0.00	64.86
24-11-2016	19:05	49.99	397	1.70	12.90	5.00	8.25	3.24	8.87	0.93	65.55
24-11-2016	19:10	49.99	397	1.70	12.50	5.20	8.00	3.20	8.62	0.93	66.21
24-11-2016	19:15	50.04	398	1.70	12.20	5.30	7.84	3.13	8.45	0.93	66.87
24-11-2016	19:20	50.02	398	1.70	12.10	5.20	7.82	3.04	8.39	0.93	67.52
24-11-2016	19:25	49.98	399	1.70	11.90	5.40	7.69	3.01	8.25	0.93	68.16
24-11-2016	19:30	50.02	399	1.70	11.70	5.50	7.60	2.92	8.14	0.93	68.79
24-11-2016	19:35	50.02	401	1.70	11.80	5.50	7.65	2.91	8.22	0.94	69.43
24-11-2016	19:40	49.97	403	1.70	11.70	5.60	7.67	2.90	8.20	0.94	70.07
24-11-2016	19:45	50.04	403	1.80	11.80	5.60	7.71	2.95	8.25	0.93	70.72
24-11-2016	19:50	50.03	406	1.80	11.50	5.70	7.54	2.96	8.10	0.93	71.34
24-11-2016	19:55	49.92	403	1.80	11.60	5.50	7.53	2.94	8.09	0.93	71.97
24-11-2016	20:00	50.00	402	1.80	11.70	5.40	7.58	3.01	8.16	0.93	72.60
24-11-2016	20:05	50.08	401	1.80	11.80	5.40	7.68	3.03	8.26	0.93	73.24
24-11-2016	20:10	50.05	401	1.80	11.90	5.50	7.71	3.06	8.30	0.93	73.89
24-11-2016	20:15	50.01	405	1.90	11.80	5.70	7.72	3.09	8.32	0.93	74.53
24-11-2016	20:20	49.94	405	1.90	11.70	5.80	7.58	3.24	8.25	0.92	75.16
24-11-2016	20:25	49.98	406	1.90	11.80	5.90	7.70	3.15	8.32	0.93	75.80
24-11-2016	20:30	50.06	407	2.00	11.70	6.00	7.67	3.16	8.29	0.92	76.44
24-11-2016	20:35	50.07	409	2.00	11.90	6.00	7.81	3.20	8.44	0.93	77.09
24-11-2016	20:40	49.93	409	2.00	12.00	6.10	7.90	3.21	8.53	0.93	77.75
24-11-2016	20:45	50.00	410	2.00	11.70	6.20	7.73	3.24	8.38	0.92	78.40

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Date	Time	Hz	kVrms	%Vthd	Arms	%Athd	Power			PF	kWh
							kW	kVAr	kVA		
24-11-2016	20:50	50.08	411	2.00	11.80	6.20	7.77	3.24	8.42	0.92	79.04
24-11-2016	20:55	50.13	413	2.00	11.90	6.20	7.92	3.16	8.53	0.93	79.70
24-11-2016	21:00	50.13	413	2.00	11.80	6.30	7.89	3.15	8.49	0.93	80.36
24-11-2016	21:05	50.09	413	2.10	11.80	6.30	7.89	3.16	8.50	0.93	81.02
24-11-2016	21:10	49.96	405	2.10	11.80	5.70	7.78	3.01	8.34	0.93	81.67
24-11-2016	21:15	50.03	405	2.20	11.70	5.80	7.73	2.97	8.28	0.93	82.31
24-11-2016	21:20	50.11	408	2.20	11.70	6.00	7.76	2.93	8.30	0.94	82.96
24-11-2016	21:25	50.09	408	2.10	11.80	6.00	7.81	2.94	8.34	0.94	83.61
24-11-2016	21:30	50.04	409	2.10	11.70	6.00	7.77	2.91	8.30	0.94	84.25
24-11-2016	21:35	50.06	409	2.10	11.60	6.00	7.76	2.89	8.28	0.94	84.90
24-11-2016	21:40	50.13	411	2.10	11.60	6.10	7.74	3.00	8.31	0.93	85.55
24-11-2016	21:45	50.11	411	2.10	11.60	6.10	7.71	3.05	8.30	0.93	86.19
24-11-2016	21:50	50.06	412	2.10	11.50	6.20	7.65	3.11	8.26	0.93	86.83
24-11-2016	21:55	50.06	412	2.10	11.60	6.20	7.68	3.19	8.32	0.92	87.47
24-11-2016	22:00	50.10	413	2.10	11.70	6.20	7.78	3.23	8.43	0.92	88.12
24-11-2016	22:05	50.15	413	2.10	11.80	6.30	7.81	3.25	8.46	0.92	88.77
24-11-2016	22:10	49.98	404	2.30	12.20	6.20	7.97	3.19	8.59	0.93	89.43
24-11-2016	22:15	49.94	401	2.30	12.30	6.10	8.00	3.09	8.58	0.93	90.10
24-11-2016	22:20	50.01	402	2.30	12.40	6.10	8.12	3.08	8.68	0.93	90.78
24-11-2016	22:25	49.96	402	2.20	12.30	6.10	8.05	3.09	8.62	0.93	91.45
24-11-2016	22:30	50.01	404	2.20	12.30	6.20	8.10	3.10	8.67	0.93	92.12
24-11-2016	22:35	50.05	406	2.20	12.30	6.30	8.11	3.12	8.69	0.93	92.80
24-11-2016	22:40	49.98	407	2.20	12.20	6.40	8.05	3.15	8.64	0.93	93.47
24-11-2016	22:45	50.02	408	2.20	12.20	6.40	8.05	3.14	8.64	0.93	94.14
24-11-2016	22:50	50.04	409	2.20	12.10	6.50	8.03	3.15	8.62	0.93	94.81
24-11-2016	22:55	49.94	410	2.20	12.10	6.50	8.02	3.19	8.63	0.93	95.48
24-11-2016	23:00	49.99	410	2.20	12.00	6.60	7.96	3.18	8.57	0.93	96.14
24-11-2016	23:05	50.07	412	2.20	12.20	6.60	8.08	3.29	8.73	0.93	96.81
24-11-2016	23:10	50.02	413	2.20	12.10	6.70	8.02	3.39	8.70	0.92	97.48
24-11-2016	23:15	49.96	413	2.20	12.20	6.90	8.06	3.39	8.74	0.92	98.15
24-11-2016	23:20	49.97	414	2.20	11.90	6.90	7.85	3.38	8.55	0.92	98.81
24-11-2016	23:25	50.01	416	2.20	11.90	7.00	7.93	3.41	8.63	0.92	99.47
24-11-2016	23:30	50.06	417	2.30	11.90	7.00	7.93	3.43	8.64	0.92	100.13
24-11-2016	23:35	50.07	414	2.30	12.10	6.70	8.03	3.42	8.73	0.92	100.80
24-11-2016	23:40	50.01	413	2.20	12.00	6.60	7.94	3.35	8.62	0.92	101.46
24-11-2016	23:45	50.02	413	2.20	12.00	6.60	7.94	3.33	8.61	0.92	102.12
24-11-2016	23:50	50.07	414	2.30	12.10	6.70	8.01	3.39	8.70	0.92	102.79
24-11-2016	23:55	50.13	416	2.30	11.90	6.80	7.93	3.39	8.63	0.92	103.45
25-11-2016	0:00	50.13	416	2.30	12.00	6.90	8.02	3.38	8.70	0.92	104.12
25-11-2016	0:05	50.18	417	2.30	12.10	6.80	8.11	3.35	8.79	0.92	104.79
25-11-2016	0:10	50.15	416	2.30	12.30	6.70	8.24	3.40	8.91	0.92	105.48
25-11-2016	0:15	50.06	413	2.30	12.20	6.50	8.14	3.37	8.81	0.92	106.16
25-11-2016	0:20	50.07	409	2.30	12.60	6.10	8.31	3.34	8.96	0.93	106.85
25-11-2016	0:25	50.09	410	2.30	12.30	6.20	8.13	3.32	8.78	0.93	107.53
25-11-2016	0:30	50.08	410	2.30	12.10	6.20	7.98	3.30	8.63	0.92	108.19
25-11-2016	0:35	50.10	411	2.30	12.10	6.30	7.98	3.27	8.62	0.93	108.86
25-11-2016	0:40	50.07	411	2.30	12.30	6.10	8.15	3.32	8.81	0.93	109.54
25-11-2016	0:45	50.08	411	2.30	12.30	6.10	8.14	3.35	8.80	0.92	110.22
25-11-2016	0:50	50.05	411	2.30	12.40	6.10	8.22	3.31	8.88	0.93	110.90
25-11-2016	0:55	50.01	411	2.30	12.30	6.10	8.12	3.35	8.78	0.92	111.58
25-11-2016	1:00	50.03	411	2.30	12.10	6.10	8.00	3.33	8.66	0.92	112.24
25-11-2016	1:05	50.07	412	2.20	12.20	6.10	8.06	3.35	8.73	0.92	112.91
25-11-2016	1:10	50.04	412	2.20	12.00	6.10	7.95	3.35	8.63	0.92	113.58
25-11-2016	1:15	50.00	412	2.20	12.00	6.10	7.90	3.36	8.58	0.92	114.24
25-11-2016	1:20	49.99	414	2.20	11.90	6.20	7.89	3.35	8.57	0.92	114.89
25-11-2016	1:25	50.00	413	2.20	12.00	6.20	7.96	3.30	8.61	0.92	115.56
25-11-2016	1:30	50.03	415	2.30	11.90	6.30	7.88	3.34	8.56	0.92	116.21
25-11-2016	1:35	50.02	414	2.20	11.90	6.30	7.90	3.37	8.59	0.92	116.87
25-11-2016	1:40	50.00	415	2.20	11.90	6.20	7.88	3.34	8.55	0.92	117.53
25-11-2016	1:45	50.05	415	2.20	11.80	6.30	7.85	3.34	8.54	0.92	118.18

Scanned with CamScanner

Date	Time	Hz	kVrms	%Vthd	Arms	%Athd	Power			PF	kWh
							kW	kVAr	kVA		
25-11-2016	1:50	50.05	416	2.20	11.90	6.30	7.91	3.37	8.60	0.92	118.84
25-11-2016	1:55	50.03	416	2.20	11.80	6.40	7.84	3.36	8.53	0.92	119.49
25-11-2016	2:00	50.05	418	2.30	10.10	5.70	6.72	1.89	7.31	0.00	120.05
25-11-2016	2:05	50.12	424	2.40	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	2:10	50.05	424	2.40	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	2:15	49.99	419	2.30	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	2:20	50.03	419	2.30	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	2:25	50.03	420	2.30	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	2:30	50.02	420	2.30	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	2:35	50.02	419	2.30	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	2:40	49.98	419	2.30	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	2:45	50.02	419	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	2:50	50.00	419	2.40	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	2:55	50.00	419	2.30	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	3:00	50.08	420	2.30	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	3:05	50.07	420	2.40	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	3:10	49.98	419	2.30	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	3:15	49.96	417	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	3:20	50.02	417	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	3:25	50.00	418	2.30	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	3:30	49.99	418	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	3:35	50.01	419	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	3:40	49.97	418	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	3:45	50.03	419	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	3:50	49.98	419	2.30	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	3:55	50.01	418	2.30	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	4:00	50.03	418	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	4:05	50.03	419	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	4:10	49.99	418	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	4:15	49.94	417	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	4:20	50.04	418	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	4:25	50.07	418	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	4:30	50.02	417	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.05
25-11-2016	4:35	50.02	416	2.20	0.00	0.00	0.02	0.04	0.04	0.00	120.06
25-11-2016	4:40	50.02	415	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	4:45	49.96	414	2.30	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	4:50	50.02	414	2.30	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	4:55	50.04	413	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	5:00	50.03	412	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	5:05	50.06	410	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	5:10	50.05	409	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	5:15	49.92	407	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	5:20	49.95	406	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	5:25	49.93	406	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	5:30	49.94	404	2.20	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	5:35	50.07	403	2.00	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	5:40	50.01	403	2.00	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	5:45	49.95	403	2.00	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	5:50	49.93	400	2.00	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	5:55	49.94	399	2.00	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	6:00	49.94	397	1.80	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	6:05	50.11	404	1.80	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	6:10	50.13	413	1.80	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	6:15	49.97	411	1.70	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	6:20	50.02	409	1.70	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	6:25	50.03	405	1.70	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	6:30	49.93	400	1.60	0.00	0.00	0.00	0.00	0.00	0.00	120.06
25-11-2016	6:35	50.07	397	1.60	0.00	0.00	0.01	0.03	0.03	0.00	120.06
25-11-2016	6:40	50.00	392	1.60	0.00	0.00	0.01	0.03	0.03	0.00	120.06
25-11-2016	6:45	49.91	389	1.60	16.00	1.30	9.51	4.74	10.66	0.86	120.85

Scanned with CamScanner

Date	Time	Hz	kVrms	%Vthd	Arms	%Athd	Power			PF	kWh
							kW	kVAr	kVA		
25-11-2016	6:50	50.01	383	1.60	21.50	3.30	12.86	6.20	14.28	0.90	121.92
25-11-2016	6:55	49.99	380	1.50	21.40	3.20	12.65	6.25	14.11	0.90	122.97
25-11-2016	7:00	49.94	390	1.50	20.60	3.50	12.33	6.53	13.95	0.88	124.00
25-11-2016	7:05	49.98	391	1.30	20.40	3.30	12.25	6.51	13.87	0.88	125.02
25-11-2016	7:10	50.04	390	1.20	20.20	3.10	12.12	6.40	13.71	0.88	126.03
25-11-2016	7:15	49.93	390	1.30	20.30	3.10	12.11	6.49	13.74	0.88	127.04
25-11-2016	7:20	49.92	398	1.20	20.00	3.30	12.11	6.64	13.81	0.88	128.05
25-11-2016	7:25	49.92	398	1.20	22.00	3.30	12.90	7.97	15.17	0.85	129.13
25-11-2016	7:30	50.03	397	1.20	23.70	3.40	13.96	8.43	16.31	0.86	130.29
25-11-2016	7:35	50.06	395	1.20	28.40	3.00	17.01	9.45	19.47	0.87	131.71
25-11-2016	7:40	49.97	396	1.20	27.80	3.00	16.73	9.17	19.08	0.88	133.10
25-11-2016	7:45	50.01	394	1.20	23.80	3.00	14.60	7.18	16.28	0.90	134.32
25-11-2016	7:50	49.97	395	1.20	21.60	3.10	13.41	6.27	14.80	0.91	135.44
25-11-2016	7:55	49.97	396	1.10	21.70	3.00	13.56	6.22	14.91	0.91	136.57
25-11-2016	8:00	50.02	401	1.10	20.50	3.10	12.96	5.88	14.23	0.91	137.65
25-11-2016	8:05	50.06	402	1.20	14.30	3.30	9.29	3.65	9.98	0.93	138.42
25-11-2016	8:10	49.95	402	1.10	14.80	3.20	9.60	3.88	10.36	0.93	139.22
25-11-2016	8:15	49.91	401	1.00	14.80	3.20	9.56	3.85	10.31	0.93	140.02
25-11-2016	8:20	50.01	400	1.00	14.80	3.30	9.50	3.91	10.28	0.92	140.81
25-11-2016	8:25	50.01	400	1.10	14.40	3.40	9.26	3.80	10.01	0.93	141.58
25-11-2016	8:30	50.02	400	1.10	14.90	3.20	9.56	3.90	10.33	0.93	142.38
25-11-2016	8:35	49.96	398	1.00	14.60	3.30	9.42	3.71	10.12	0.93	143.16
25-11-2016	8:40	49.98	401	1.00	15.20	3.30	9.62	4.40	10.61	0.91	143.96
25-11-2016	8:45	49.93	401	1.00	15.00	3.20	9.63	4.04	10.44	0.92	144.77
25-11-2016	8:50	49.98	402	1.10	15.80	3.20	10.10	4.46	11.05	0.92	145.61
25-11-2016	8:55	50.00	400	1.20	16.10	3.30	10.29	4.34	11.17	0.92	146.47
25-11-2016	9:00	49.97	393	1.10	16.60	3.50	10.43	4.41	11.33	0.92	147.33
25-11-2016	9:05	49.94	393	1.10	17.20	3.50	10.57	5.02	11.71	0.90	148.21
25-11-2016	9:10	49.92	389	1.20	20.20	3.50	12.17	6.10	13.62	0.89	149.23
25-11-2016	9:15	49.89	385	1.10	24.30	3.30	14.79	6.68	16.23	0.91	150.46
25-11-2016	9:20	49.88	387	1.10	24.70	3.20	15.10	6.88	16.60	0.91	151.72
25-11-2016	9:25	49.93	387	1.00	25.20	3.10	15.39	7.01	16.91	0.91	153.00
25-11-2016	9:30	50.00	385	1.10	25.00	3.30	15.24	6.89	16.73	0.91	154.27
25-11-2016	9:35	50.10	385	1.10	23.90	3.50	14.67	6.29	15.96	0.92	155.49
25-11-2016	9:40	50.05	386	1.30	23.00	3.80	14.22	5.97	15.42	0.92	156.68
25-11-2016	9:45	50.00	390	1.30	22.50	3.80	14.04	5.87	15.22	0.92	157.85
25-11-2016	9:50	49.97	388	1.40	22.60	3.90	14.10	5.83	15.26	0.92	159.03
25-11-2016	9:55	49.96	387	1.50	23.00	4.10	14.26	5.99	15.47	0.92	160.21
25-11-2016	10:00	49.92	386	1.50	22.80	4.00	14.07	5.94	15.27	0.92	161.39
25-11-2016	10:05	50.05	387	1.50	22.90	4.10	14.18	5.97	15.38	0.92	162.57
25-11-2016	10:10	50.00	385	1.70	23.10	4.20	14.18	6.07	15.43	0.92	163.75
25-11-2016	10:15	49.92	383	1.60	23.70	4.10	14.44	6.32	15.76	0.92	164.95
25-11-2016	10:20	49.93	383	1.60	23.90	4.20	14.58	6.22	15.48	0.92	166.13
25-11-2016	10:25	49.95	382	1.60	23.30	4.20	14.17	6.13	15.44	0.92	167.31
25-11-2016	10:30	50.04	381	1.60	23.50	4.20	14.30	6.08	15.53	0.92	168.51
25-11-2016	10:35	49.98	382	1.80	23.30	4.40	14.15	6.22	15.45	0.92	169.68
25-11-2016	10:40	49.93	380	1.70	22.90	4.30	13.81	6.02	15.09	0.00	170.84
25-11-2016	10:45	49.94	380	1.70	22.60	4.50	13.80	5.73	14.95	0.92	171.99
25-11-2016	10:50	50.04	382	1.70	17.70	4.70	10.83	4.38	11.71	0.00	172.89
25-11-2016	10:55	49.99	380	1.80	21.60	4.80	13.17	5.50	14.28	0.92	173.99
Average/Total		50.01	484	1.84	11.63	3.65	7.36	3.20	8.03	0.64	#REF!
Maximum		50.06	378	1.48	31.50	3.80	18.77	8.63	20.86	0.91	

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Performance analysis of AC Units

Particulars	Unit	HK block			Daikin VRV-III	Library	VC hall
Design capacity, TR	TR	4	4	4	14 HP	3	11
Suction Filter area	m^2	0.19642	0.19642	0.19642	0.528605504	0.19642	0.39284
Average inlet velocity at filter	m/s	7	9.1	8.1	2.6	5.2	4.5
Inlet air flow	m^3/s	1.37	1.79	1.59	1.37	1.02	1.77
	m^3/h	4960	6435	5728	4948	3677	6364
	cfm	2911.6	3785.1	3369.2	2910.4	2162.9	3743.5
Inlet air conditions (Return)	dbt	27	27	27	27	27	27
	RH	65	65	65	65	65	63
Inlet air enthalpy	kJ/kg	68.7	68.7	68.7	68.7	68.7	67.4
Outlet air conditions (Supply)	dbt	33	38	36.5	37	38	36
	RH	34	22.5	25	22	23	26
Outlet air enthalpy	kJ/kg	62.4	64.3	63.99	61.2	65.47	63.8
Enthalpy difference	kJ/kg	6.3	4.4	4.71	7.5	3.23	3.6
Air density	kg/m^3	1.2	1.2	1.2	1.2	1.2	1.2
Air mass flow	kg/s	1.65	2.14	1.91	1.65	1.23	2.12
Cooling effect	kW	10.39	9.44	8.99	12.37	3.96	7.64
Tons of refrigeration	TR	3.0	2.7	2.6	3.5	1.1	2.2
Motor power	kW	4	4.3	4.2	3.8	3.2	3.8
Specific Energy Consumption	kW/TR	1.4	1.6	1.6	1.1	2.8	1.7

Particulars	Unit	HK block			Placement cell	Library	VC hall
Design capacity, TR	TR	4	4	4	14 HP	3	11
Inlet air flow	CFM	2912	3785	3369	2910	2163	3744
Inlet air conditions (Return) -	DBT, °C	27	27	27	27	27	27
Inlet air conditions (Return) -	RH, %	65	65	65	65	65	63
Outlet air conditions (Supply)	DBT, °C	33	38	36.5	37	38	36
Outlet air conditions (Supply)	RH, %	34	22.5	25	22	23	26
Tons of refrigeration	TR	3.0	2.7	2.6	3.5	1.1	2.2
Motor power	kW	4	4.3	4.2	3.8	3.2	3.8
Tons of refrigeration	TR	1.4	1.6	1.6	1.1	2.8	1.7

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CONNECTED LIGHT LOAD DETAILS

Sl. No:	Section	MH	FTL			CFL	LED	Fan	Computer	Total	Remarks
		400W	T12 (40W)	T8 (36W)	T5	11W	5W	70W	60W	kW	
1	SMV Block			159		431		103		12.923	
2	SBG Block			271		124		172		14.372	
3	SVN Block			163				109		7.824	
4	JKR Block			120		233		73		8.323	
5	RC Block			177				106		8.496	
6	CSE Dept.			146		67		123	203	7.745	
7	Library			181		24	30		87	9.102	
8	PK Block			116				144	90	5.568	
9	Placement Office					118		3		1.298	
10	EEE Dept.					15	6	95	34	6.331	
11	NSCB		118			22		72	159	6.378	
12	ISE Dept.		116					140		9.776	
13	BSHE, CS, VP Dept.		277		106			267	7	17.404	
14	Civil Engg. Dept.			150		12	6	90	32	7.362	
15	Hoarding Light	16								6.88	
Total		16	701	1483	106	1094	42	1526	612	125.8	
Total		6.59	38.452	71.184	3	12.858	0.21	106.75	36.72		
Total		5.3%	28.1%	54.8%	2.3%	9.3%	0.2%			100.9%	

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LUX DETAILS (Day Time)

Sl. No	Location	Lux levels		Remarks
		Min Value	Max Value	
1	Electrical Room	80	545	
2	CS Block Entrance	200	300	
3	General Enquiry	209	400	T5
4	Reception	166	200	LED
5	Administration dept.	200	300	T5, LED
6	Help Desk	249	300	T5
7	Accounts & Finance	130	370	
8	Stair Case	65	300	
9	First Floor (Training & Placement cell)	123	190	LED, CFL
10	Class Room	115	130	
11	Second Floor Physics Lab	130	400	T12
12	Chemistry lab	142	200	T12
13	Third Floor, Lecture Halls	116	120	
14	Staff Room	217	400	
15	Library	96	300	T8
16	Adobe digital Lab	75	100	
17	Conference Hall	158	190	CFL, Halogen
18	Library basement	80	91	T8
19	Reading hall	80	95	T8
20	SMV Hostel Room:3	70	90	T8
21	SBS	200	499	CFL
22	Simulation lab	100	194	

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Savings By Replacing T12/T8 Fluorescent Tube Lights by 19W LED Tube Light

a	Power consumption of 40 W fluorescent tube light with inductive ballast	=	52 W
b	Power consumption of 36 W fluorescent tube light with inductive ballast	=	48 W
c	Power consumption of 19 W LED tube light	=	19 W
d	Power savings by replacement of T12 with LED tube	=	33 W
e	Power savings by replacement of T8 tube with LED tube	=	29 W
f	Annual operating days	=	150 days
g	Cost of one LED tube Light	=	900 Rs.

Sl. No	Location	Number of 40W fittings with inductive ballast	Number of T8 fittings with inductive ballast	Operating hours/ day	Power savings Achived		Cost savings achieved @ Rs. 7.96/ kWh		Investment required	Simple payback period
		no's	no's	hrs.	Daily kWh	Annual @200 days kWh	Daily Rs.	Annual Rs.	Rs.	Year
1	SMV Block		159	7	32.28	6455	256.92	51384.98	143100	2.8
2	SBS Block		271	7	55.01	11003	437.90	87580.70	243900	2.8
3	SVN Block		163	7	33.09	6618	263.39	52677.69	146700	2.8
4	JKR Block		120	7	24.36	4872	193.91	38791.12	108000	2.8
5	RC Block		177	7	35.93	7186	286.01	57202.15	159300	2.8
6	CSE Dept.		146	6	25.40	5081	202.22	40443.17	131400	3.2
7	Library		181	16	83.98	16797	668.51	133702.53	162900	1.2
8	HK block		116	3	10.09	2018	80.33	16066.46	104400	6.5
10	EEE Dept.	118		3	11.68	2336	92.99	18597.74	106200	5.7
11	NSCB	118		3	11.68	2336	92.99	18597.74	106200	5.7
12	ISE Dept.	186		3	18.61	3722	148.15	29630.30	169200	5.7
13	BSHE, CS, VP Dept	277		3	27.42	5485	218.29	43657.42	249300	5.7
14	Civil Engg. Dept		150	3	13.05	2610	103.88	20775.80	135000	6.5
	Total	**701**	**1483**		**382.6**	**76520**	**3045**	**609098**	**1965600**	**3.3**

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Diesel Generator

Measured power parameters of DG set

Date	Time	Hz	Voltage (V)			Vunb	%Vthd			Current (A)			Aunb	%Athd			kW	kVAr	kVA	PF			kWh
			L1	L2	L3	%	L1	L2	L3	L1	L2	L3	%	L1	L2	L3	Sum	Sum	Sum	L1	L2	L3	
23-11-2016	11:15	49.98	410	411	411	0.2	1.9	1.8	2.0	324	329	326	66.0	4.1	4.0	5.5	222	197	297	0.98	0.92	0.75	3.70
23-11-2016	11:16	49.98	410	411	410	0.2	1.9	1.8	2.0	329	329	329	102.8	4.0	4.1	6.5	226	356	421	0.98	0.92	0.54	7.46
23-11-2016	11:17	49.98	410	411	411	0.1	1.9	1.8	1.9	336	347	341	107.4	3.8	3.8	5.9	232	377	443	0.96	0.93	0.52	11.33
23-11-2016	11:18	49.98	410	411	410	0.1	2.0	1.9	2.0	334	344	339	149.2	4.1	4.0	12.0	219	227	315	0.95	0.92	0.69	14.97
23-11-2016	11:19	49.99	410	411	410	0.1	2.1	2.0	2.1	331	348	339	119.4	4.2	4.0	7.2	221	108	246	0.95	0.92	0.90	18.68
23-11-2016	11:20	49.98	411	411	410	0.1	2.1	2.0	2.2	321	351	336	62.6	4.7	3.9	5.0	231	298	311	0.95	0.92	0.74	22.51
23-11-2016	11:21	49.98	410	411	410	0.2	2.1	2.1	2.2	339	353	346	63.5	4.3	3.9	4.7	236	215	321	0.95	0.92	0.74	26.48
23-11-2016	11:22	49.99	410	411	410	0.1	2.2	2.1	2.2	332	344	338	75.8	4.5	4.0	5.8	231	214	315	0.95	0.92	0.73	30.33
23-11-2016	11:23	49.98	410	411	410	0.2	2.0	2.0	2.1	344	352	348	114.7	4.0	3.7	6.1	229	-101	250	0.95	0.92	0.92	34.14
23-11-2016	11:24	49.98	409	411	410	0.2	2.1	2.0	2.2	346	349	348	162.3	4.2	3.9	23.5	229	276	359	0.95	0.92	0.64	37.98
23-11-2016	11:25	49.98	409	411	410	0.3	2.0	2.0	2.1	357	351	354	145.1	3.7	3.8	17.3	233	518	568	0.95	0.92	0.41	41.83
23-11-2016	11:26	49.98	409	411	410	0.2	1.9	1.8	2.0	353	362	358	112.0	3.4	3.3	5.1	237	176	295	0.95	0.92	0.80	45.79
23-11-2016	11:27	49.98	410	411	410	0.1	1.9	1.8	2.0	352	366	359	116.6	3.8	3.4	7.3	239	265	372	0.95	0.92	0.64	49.77
23-11-2016	11:28	49.98	410	411	410	0.1	1.8	1.8	1.9	347	362	355	111.9	3.7	3.4	6.1	240	340	416	0.95	0.92	0.58	53.77
23-11-2016	11:29	49.98	409	411	410	0.2	1.9	1.7	1.9	351	355	353	122.2	3.4	3.3	6.3	236	31	238	0.99	0.92	0.99	57.71
23-11-2016	11:30	49.98	409	411	410	0.2	2.2	2.0	2.2	361	368	364	15.7	3.5	3.6	4.5	247	124	277	0.95	0.92	0.89	61.80
23-11-2016	11:31	49.98	409	411	410	0.2	2.2	2.0	2.2	378	378	378	10.1	3.5	3.4	4.1	256	114	281	0.95	0.92	0.91	65.10
23-11-2016	11:32	49.98	410	411	410	0.2	2.1	2.0	2.2	371	386	378	37.0	3.5	3.3	4.2	258	180	315	0.95	0.92	0.82	70.40
23-11-2016	11:33	49.98	409	411	409	0.2	2.1	2.0	2.1	369	376	373	120.4	3.7	3.5	10.3	262	61	267	0.95	0.92	0.98	74.59
23-11-2016	11:34	49.98	409	411	409	0.3	2.2	2.0	2.2	357	353	355	17.9	3.9	3.8	4.3	243	124	273	0.95	0.92	0.89	78.64
23-11-2016	11:35	49.98	408	411	409	0.4	2.1	2.0	2.2	372	357	364	13.8	3.5	3.6	4.0	250	113	275	0.95	0.92	0.91	82.82
23-11-2016	11:36	49.98	409	411	409	0.3	2.2	2.1	2.3	363	353	358	10.9	3.9	3.8	4.2	246	104	267	0.95	0.92	0.92	86.92
23-11-2016	11:37	49.98	409	411	409	0.3	2.1	2.0	2.2	362	362	362	10.5	4.1	3.8	4.2	249	105	270	0.95	0.92	0.92	91.07
23-11-2016	11:38	49.98	409	411	410	0.2	2.1	2.0	2.2	363	370	366	6.8	4.0	3.3	4.1	251	98	269	0.95	0.92	0.93	95.26
23-11-2016	11:39	49.98	409	411	410	0.3	2.2	2.1	2.3	358	351	354	7.3	4.2	3.8	4.8	242	95	261	0.96	0.93	0.93	99.30
23-11-2016	11:40	49.98	409	411	410	0.2	2.0	2.0	2.2	355	353	354	57.5	4.0	3.7	4.5	243	200	314	0.96	0.93	0.77	103.34
23-11-2016	11:41	49.98	409	411	410	0.3	2.1	2.1	2.2	370	357	363	49.5	3.7	3.8	4.6	247	180	305	0.96	0.93	0.81	107.45
23-11-2016	11:42	49.98	408	411	410	0.3	2.4	2.3	2.5	380	363	372	5.2	3.8	3.9	4.5	251	100	270	0.95	0.92	0.93	111.84
23-11-2016	11:43	49.98	409	411	410	0.3	2.3	2.2	2.3	379	365	372	15.9	3.6	3.6	4.4	251	129	282	0.95	0.93	0.89	115.83
23-11-2016	11:44	49.98	409	411	410	0.3	2.0	2.0	2.1	364	353	358	24.1	3.6	3.6	4.6	242	141	280	0.95	0.93	0.86	119.86
23-11-2016	11:45	49.98	409	411	410	0.3	2.0	2.0	2.1	368	348	362	32.8	3.7	3.8	4.8	239	154	284	0.95	0.93	0.84	123.84
Average/Total		**49.98**	**409**	**411**	**410**	**0.22**	**2.07**	**1.98**	**2.14**	**353**	**356**	**355**	**66.32**	**3.87**	**3.70**	**6.45**	**240**	**175**	**311**	**0.95**	**0.92**	**0.83**	**123.84**
Maximum		**49.98**	**410**	**411**	**410**	**0.20**	**2.10**	**2.00**	**2.20**	**371**	**386**	**378**	**37.00**	**3.5**	**3.3**	**4.3**	**258**	**180**	**315**	**0.95**	**0.92**	**0.63**	
Minimum		**49.98**	**410**	**411**	**410**	**0.10**	**2.00**	**1.98**	**2.00**	**334**	**344**	**338**	**149.20**	**4.1**	**4.0**	**12.0**	**219**	**227**	**315**	**0.95**	**0.92**	**0.18**	

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PERFORMANCE TEST OF THE 500kVA DG SET

Capacity of DG set	=	500 kVA
Test duration	=	31 Minutes
Units generated	=	123.84 kWH
Average load	=	239.69 kW
Diesel consumed	=	29.76 Litres
Average PF	=	0.89
Average operating load	=	269.31 kVA
% Loading	=	54%
Specific power generation	=	**4.16** kWh /Ltr.

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DG LOG SHEET

CUSTOMER NAME:

DG SET RATING : KVA KW

ENGINE SR. NO: MODEL: ALTERNATOR MAKE: ALTERNATOR FRAME: ALTERNATOR Sr. No. :

BY CLOCK	LUBE PRES.	LUBE OIL TEMP.	WATER TEMP.	CURRENT(AMPS)			VOLTAGE (V)			POWER	POWER FACTOR	FREQ.	UNIT GENERATED	HOUR METER READING
Start Time	kg/cm2	Deg.C	Deg.C	R	Y	B	R-Y	Y-B	B-R	KW	(LEAD/ LAG)	Hz.	KWH	
12:00 AM														
1:00 AM														
2:00 AM														
3:00 AM														
4:00 AM														
5:00 AM														
6:00 AM														
7:00 AM														
8:00 AM														
9:00 AM														
10:00 AM														
11:00 AM														
12:00 PM														
1:00 PM														
2:00 PM														
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4:00 PM														
5:00 PM														
6:00 PM														
7:00 PM														
8:00 PM														
9:00 PM														
10:00 PM														
11:00 PM														

DG.STARTING TIME :	
DG. STOPPING TIME :	

SUMMARY

Hours Run	Today	
	Cumulative	
Units Generated(KWH) (based on Multiplying factor)	Today	
	Cumulative	
Total diesel filled today	Ltrs.	
Total Oil Topped today	Ltrs.	
Coolant topped today	Ltrs.	
B check - Last carried	Date	
	Hrs.	
B check - Next Due @ Hrs.	Date	
	Hrs.	
Air Cleaner Element - Changed	Date	
	Hrs.	
Air Cleaner Element - Cleaned	Date	
	Hrs.	
Diesel opening Stock	Ltrs.	
Receipt	Ltrs.	
Consumption	Ltrs.	
Closing Stock	Ltrs.	

ROOM TEMP. (DEG. C) : AMBIENT TEMP. (DEG. C) :

Leakage's condition (If Not OK, Give details)

Fuel system		Belt & Hoses	
Lube oil system		Safety Controls	
cooling system		Battery/ Charge / Alt.	
Air Intake/ Exh. System		Main Alt./ Panel	

Remarks:

Operator name/ Sign. / Date

Supervisor Name / Sign. / Date

TERI Report No. 2010/015

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WOW

AN ITC INITIATIVE

ASSESSMENT REPORT FOR NEW HORIZON COLLEGE OF ENGINEERING

Contents

Waste Scenario in India

India faces major crisis associated with waste generation and improper waste disposal system. Current practices cannot bring a sustainable solution for reducing the dumping wastes in the country. Waste management system in the country has to be reviewed seriously and has to bring suitable changes to ensnare better collection system according to the waste generated. The challenges and barriers are significant, but so are the opportunities. A priority is to move from reliance on waste dumps that offer no environmental protection, to waste management systems that retain useful resources within the economy. Waste segregation at source and use of specialized waste processing facilities to separate recyclable materials has a key role. Disposal of residual waste after extraction of material resources needs engineered landfill sites and/or investment in waste-to-energy facilities. The potential for energy generation from landfill via methane extraction or thermal treatment is a major opportunity, but a key barrier is the shortage of qualified engineers and environmental professionals with the experience to deliver improved waste management systems in India.

Who are we?

ITC's Well-being Out of Waste (WOW) programme is a flagship initiative that seeks to address the crucial issue of waste management in line with the Government's `Swachh Bharat' programme, ensuring the proper segregation and recycling of waste in a manner that protects and restores the environment, TC's WOW programme aims to create awareness among general public about the "Reduce-Reuse-Recycle" approach. The programme seeks to inculcate the habit of source segregation prior to collection of post-consumer waste.

Through WOW we support waste handlers who derive sustainable livelihood from this activity, recycling units who benefit from a steady source of identified and relevant waste, NGOs who train waste handlers and increase awareness about segregating waste among communities, and social entrepreneurs who avail of the opportunity to develop a sustainable business model out of waste collection. This programme is today being actively propagated and is receiving widespread support across 8 cities in South India, including Bangalore, Chennai and Coimbatore and 5 cities in Telengana with plans to extend it to other towns and cities as well. The WOW programme started with a collection of just 10 MT of recyclables in 2007 has now swelled to collections of over 20000 MT. Over 2100 waste handlers have gained sustainable livelihoods through this activity.

Purpose of the Assessment

The Purpose of the study is to understand and evaluate the waste disposal strategy adopted by different organizations. Analysis and observations will be purely based on the practices followed by organizations to reduce the risk of unsystematic waste disposal. Reports will be generated with appropriate suggestions to improve the Standards of waste management mechanism of within the organization. The process will help to access the organizational excellence in handling waste and further improve the quality of the process. The Reports with suggestions will be generated within 15 days of the process completion and the organization will be certified based on the Current practices adopted to manage the accumulated waste. The study will help Organizations to improve the standards of waste disposal in your organization.

Executive Summary

This waste assessment was conducted to determine the contents of the waste management strategy adopted **by New Horizon College of Engineering on the 22nd of November, 2018** in presenting a categorical analysis of this facility's waste, this report provides the necessary information to understand missed or underused recycling and waste management opportunities.

Areas of solid waste analysis provided in this waste assessment and recycling report include:

- ***Availability of Bins as per SWM Rules***
- ***Quality of Waste Disposal practised in the Organisation***
- ***Practice and Quality of dry waste processing***
- ***Practice and Quality of wet waste processing***
- ***Waste monitoring***
- ***Innovation***
- ***Usage of safety equipment by people Handling***
- ***IEC Programmes***

Rating Criteria

(Table. 0.1)

Marks Obtained	Stars	Grade
161-200		A
121-160		B
81-120		C
41-80		D
0-40		E

Rating

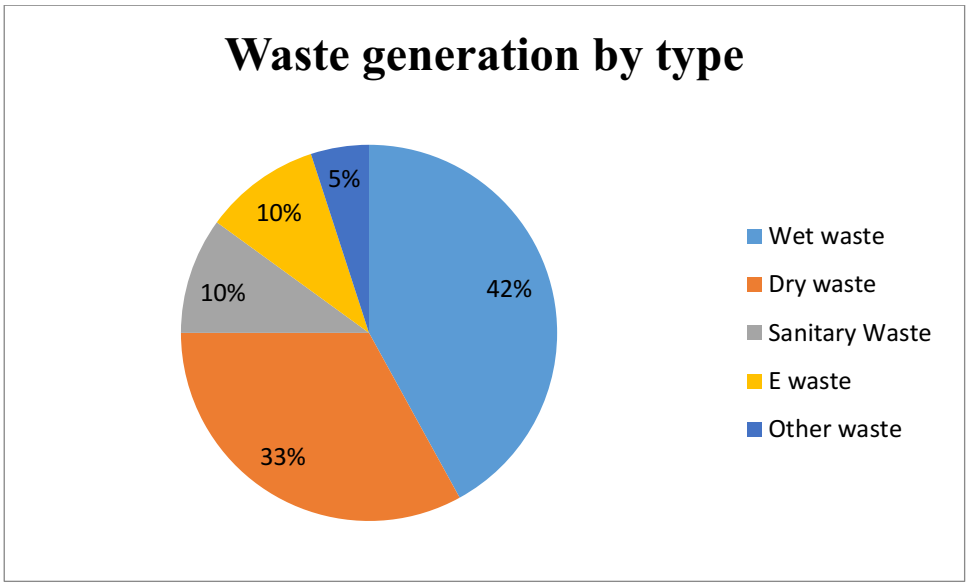
(Table. 0.2)

Total Marks Obtained: 56

Belt: BROWN

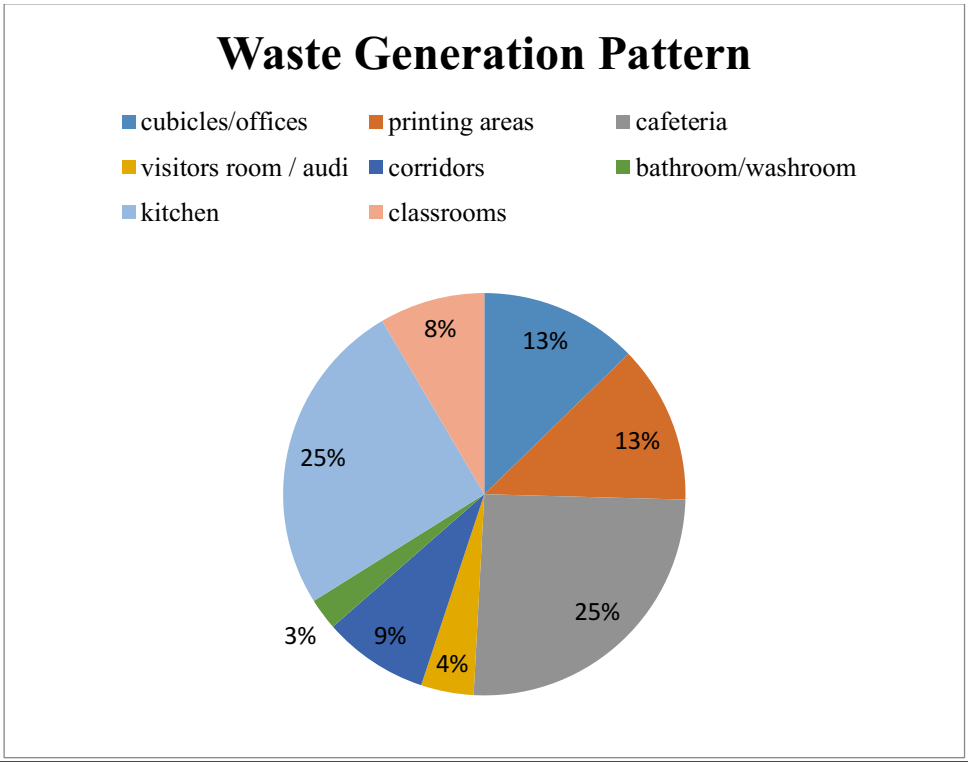
Streams	Grades
Availability of Bins as per SWM Rules	**B**
Quality of Waste Disposal practised in the Organisation	**C**
Practice and Quality of dry waste processing	**D**
Practice and Quality of wet waste processing	**B**
Practice and Quality of other category of wastes processing	**C**
Waste monitoring	**C**
Innovation	**C**
Use of safety equipment by people Handling	**C**
IEC Initiatives and Capacity building for waste handlers	**D**

Waste Audit



Waste Generation Pattern (Figure. 0.1)

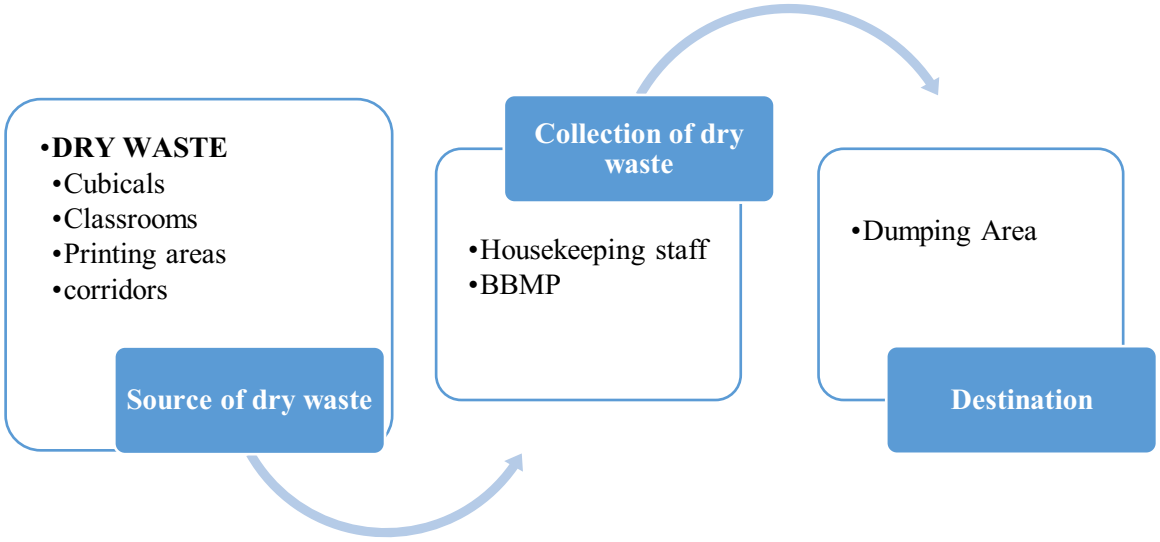
Out of the total waste generated from the organization, the highest amount of waste generated is the Wet waste comprising 42% of the total waste generated at the organization, followed by dry waste generation comprising 33% of the total waste generated in the organization. Sanitary waste comprises just about 10% of the total waste generated by the organization followed by E- waste comprising 10% and other waste occupies 5% of the total waste generated at the organization.

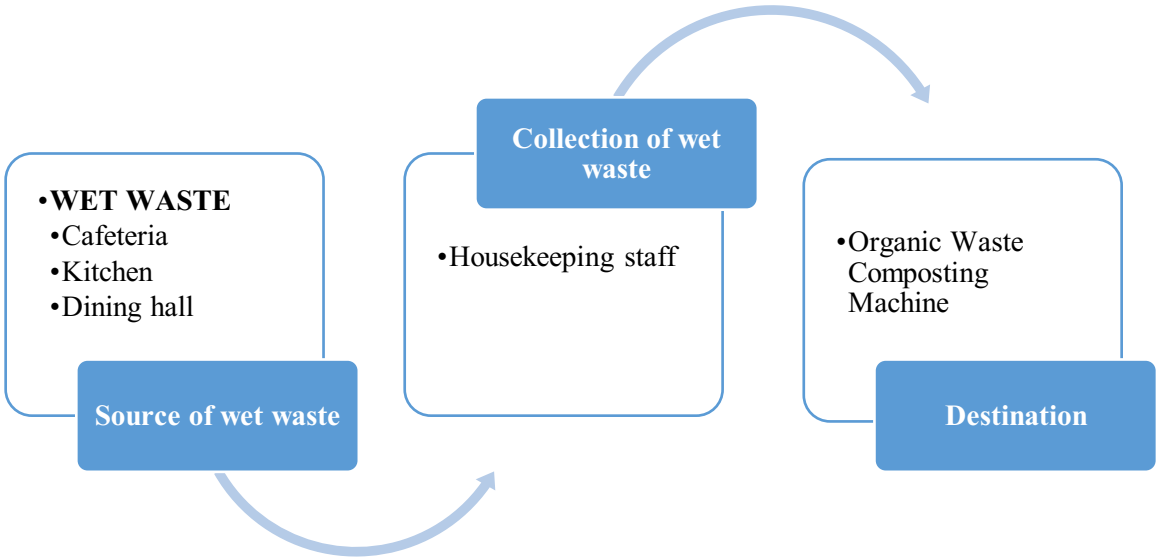


Sources of waste segregation (Figure. 0.3)

Out of the total waste generated from around the campus, the highest source of waste is generated from the cafeteria and the kitchen, comprising 25% each of the total waste generated around the campus, followed by the waste generated from the cubicles/office and the printing areas comprising 13% each of the total waste generated followed by the waste generated from the cubicles, the corridors and the classrooms generate relatively lesser waste comprising 9% and 8% respectively followed by the waste generated from the visitors room and the auditorium comprising 4% of the total waste generated in the organization. The least amount of waste is generated from the bathroom comprising just 3% of the total waste generated in the organization.

Waste disposing Cycle





OBSERVATIONS

- The availability of composting machine is seen as a good practice when it comes to handling the wet waste. The garden within the campus is provided with their share of manure from the wet waste converted into manure but only if 100% segregation is reached can the gardens get more manure.
- The availability of separate places allocated for the segregation before the collection is very helpful in many ways but again, segregation at source would make the process even smoother.
- Hence, proper monitoring and evaluation at the collection point of waste at the organization is needed for smoother functioning.
- The total area of the campus has been maintained very well when it comes to the cleanliness.
- The usage of the steel plates and spoons and forks in the cafeterias is a good practice as it contributes to the reduction of the waste generation in the organization to a certain decree. This brings about the reduction in the usage of plastic.
- The idea of segregation of waste at source has been implemented as there are separate bins such as: red for hazardous waste, blue for dry and green for wet waste, though it is yet to be implemented in the rest of the premises.
- The allocation of separate bin for the disposal of hazardous and E-Waste is also seen as a good practice ensuring safe disposal of the same.
- The organization should ensure that the cafeteria also implements the concept of waste segregation. The cafeteria has many dust bins but all contains mixed waste.
- The organization should ensure that separate bins with color codes needs to be allocated in and around the campus.
- It has been observed and learnt that there is a lack of written policies with respect to the waste management in the organization. There are rules regarding littering with penalties (the lawn in the campus and it has been well implemented), though the rules aren't specifically directed to waste segregation.
- Housekeeping staff have been rightly allocated the work and they are lifting the waste from various points. The staff has been provided with the various safety equipments such as safety gloves, uniforms and shoes.
- The organization has just one dust bin in the ladies washroom. Allocation of dustbins in every cube would be better for the Ladies.
- Housekeeping staffs requires trainings on waste management practices.

- There is a need for placing sign boards directing to the bins and CCTVs around the areas of the dust bins can have an effective implementation.

SWOT Analysis

Strength

- Openness to review the waste management system in the organization.
- Availability of infrastructure and resources to manage their waste in a more efficient manner.
- Usage of steel plates in the cafeteria thus reducing the waste.
- The organization has ensured proper safety measures for the housekeeping staff.

Weakness

- Not streamlined the processing of dry, wet and sanitary wastes in all the areas.
- Lack of awareness among the staff and students about the concept of waste segregation.

Opportunity

- 100% of the wet waste generated at the organization can be composted as there is a composting machine that is available at the organization.
- Interest in conserving the environment as the campus also follows certain eco friendly measures such as the usage of steel plates.
- 100% segregation of waste can help generate more resources.

Threat

- Mixed waste present in the various areas around the campus. (Lack of segregation at source).
- Lack of written policies with respect to waste management.

Recommendations and Action items

Streams	Action Items
Availability of Bins as per SWM Rules	• Recommend to maintain a database records/ Maps of places where bins are located and list of people attending each waste disposal points. • Need to Place and monitor the image of bins and signage in all the premises of the organization ensuring proper segregation of waste at source. • Need to have separate bins that clearly indicate the type of waste by following the colour codes. • It is highly recommended for the organization to have closed bins for Wet Waste Bins available in the organization. • There should be proper monitoring when it comes to the bins in the cafeteria as the buckets allocated for the purpose of putting the plates have been used for discarding the general waste as well. Hence, the allocation of separate containers for the plates and separate ones for the disposal of food waste is highly suggested.
Quality of Waste Disposal practised in the Organisation	• The organization should definitely take strict actions when it comes segregation at source. • The organization should ensure proper segregation and monitoring in the

	storage facility allocated for every category of waste. • A team can be formed from the employees to uphold this task.
Practice and Quality of dry waste processing	• Dry waste should be given to registered recyclers or recycling associates to ensure that the dry waste is not going to the landfill. • Confidential papers should be shredded. • The stakeholders should provide certificate of disposal along with the end-to-end data of the total waste collected and processed from their organization be it Dry, Wet and Sanitary, e-waste and hazardous waste.
Practice and Quality of wet waste processing	• **The organization should ensure that 100% of the wet waste should be composted since there is a composting machine available at the organization. This makes it possible for the organization to minimize their waste handling cost and the impact on the environment.** • Organisation should avoid the usage of liners. If at all there is a need for the use of liners, it should be of either paper or biodegradable plastics. • The biodegradable waste should be responsibly treated by the organization through approved methods such as composting by using authorized OWC machines, in-house composting, or

	covert the biodegradable waste into gas through the process of bio-methanation., etc
Practice and Quality of other category of wastes processing	• Source segregation is highly recommended. • A drive for the collection of E-Waste can be conducted to ensure that the e-waste has been collected. • The E-waste can further be treated scientifically. Hence being associated with approved vendors for the treatment of e-waste is highly recommended. • Sanitary waste needs to be scientifically disposed. Installment of sanitary napkins incinerators in the Ladies washroom is highly recommended so that sanitary waste can be disposed off at source, saving time and energy in the process. This would make the users/generators conscious about their own responsibilities.
Waste monitoring	• Develop a systematic waste management policy and execution plan in the organization. • Organisation should try to review the waste management strategy at least once in six months. • Availability of CCTVs at the collection points and other relevant areas.

Innovation	• Conduct a hack sessions, essay competition, art sessions, etc., among students and faculty members in alignment with the thought **green initiatives**. • The organization is recommended to develop replicable models and strategies in terms of waste management.
Use of safety equipment by people Handling	• Proper monitoring should be carried out to ensure that the housekeeping staff should follow all the measures of their safety and that it is taken seriously. • The organization should ensure that the employees working in handling the waste needs to be briefed about the importance of their own personal health and hygiene through training sessions etc.
IEC Initiatives and Capacity building for waste handlers	• Organisation should conduct training programmes for the house keeping staffs, and employees on source segregation, health and hygiene, environmental consciousness etc., on a regular basis. • Promote and implement the concept of Reduce, Reuse and Recycle ensuring circular economy within the organization in the process through the circulation of mailers among the students and employees.

	• Occasions such as World Clean Up Day, World Environment Day, World Recycling Day can be celebrated in ways that can bring about awareness and consciousness among the entire members in the organizations. • Clubs and groups and teams can be formed within the university and certify the students for their participation and contribution. • Regular trainings regarding the strictness among the housekeeping staff should be conducted for the smooth implementation of the waste segregation.

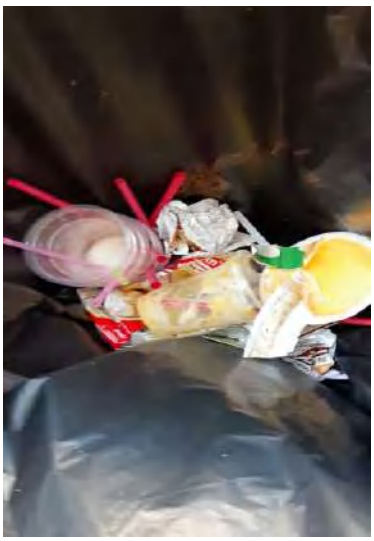
SNAPSHOTS

Segregated bins in the classroom and the corridors inside the buildings.

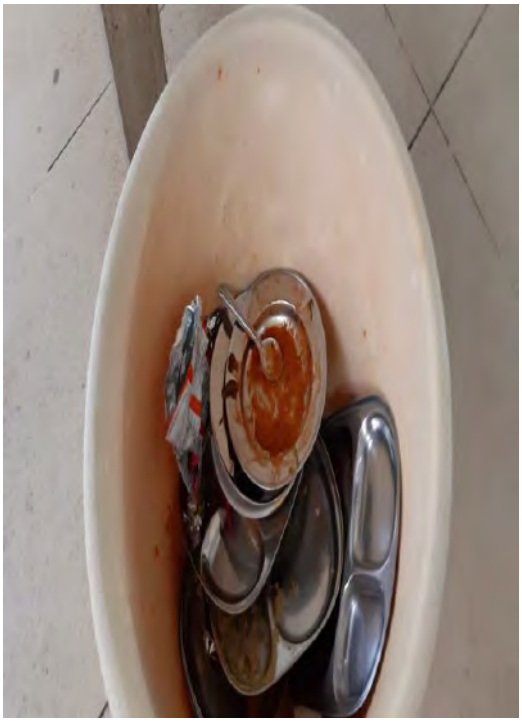




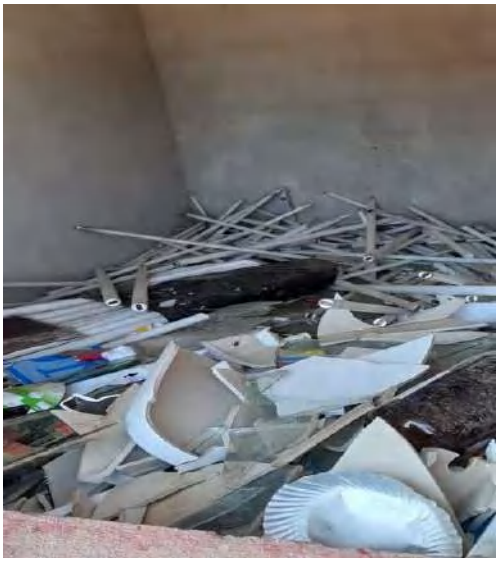


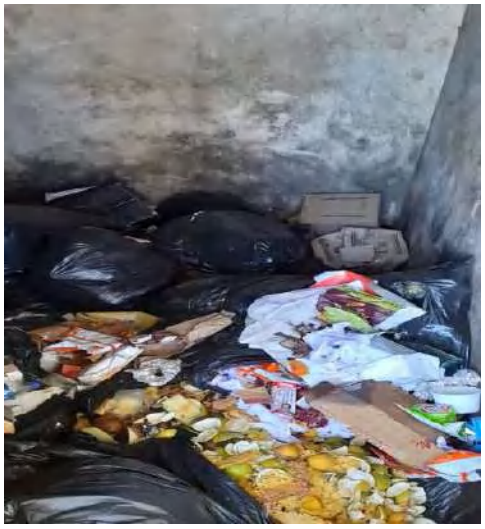



Snapshots of waste bins from around the campus.



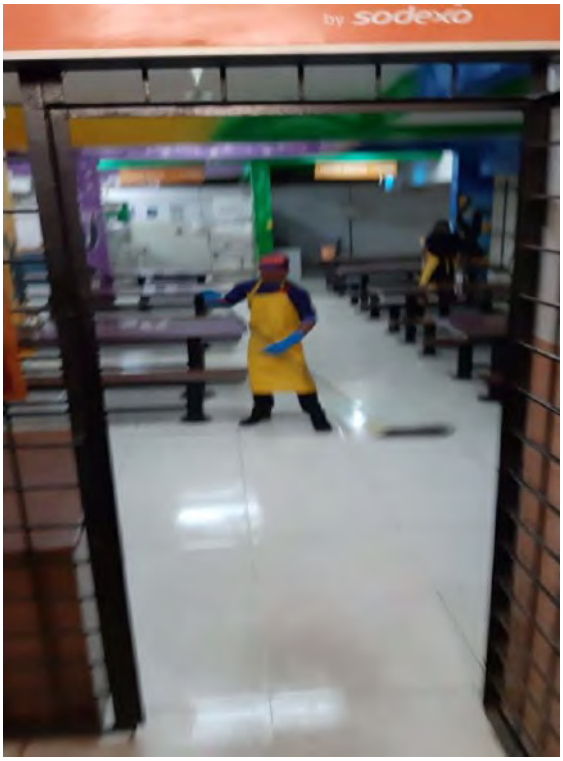
The scenario at the cafeteria and the eating places in the campus






The dumping point of the organization

The Availability of the OWC Machine in the dumping point for wet waste.



The housekeeping staff with their protective gears

Execution Timeline

Day 1- 30 (PHASE ONE)

- Training the housekeeping staff and the employees in the organization
- Team formation for monitoring the waste management system in the organization
- Preparing a plan for addressing the issues mentioned in the waste assessment report.
- Purchasing the necessary materials required for the same.
- Ensuring availability of dust bins in required spaces.
- Ensuring the maintenance of the color code of the dust bins.

Day 31 – 60 (PHASE TWO)

- Reviewing the dry and wet waste disposal system in the organization
- Reviewing the vendors dealing with the dry and wet waste.
- Coming up with a strategy to dispose dry wet and sanitary waste in a proper way.
- Sending mailers and putting posters around the campus ensuring awareness among the employees in the organization in terms of waste segregation

Day 60 – 90 (PHASE THREE)

- Periodic review of the Existing waste management system
- Constructing effort to reduce the plastic usage in the campus
- Implementing in house composting plan.
- Organizing training and awareness campaigns amongst the employees on waste segregation (refresher)
- Ensure the vendors are collecting dry waste at the right time and aproper certificates have been provided.

Day 91 – 120 (PHASE FOUR)

- Reviewing the waste management mechanism in the organization
- Team allotment for addressing the waste management issue. Team should come up with the challenges and other issues that needs to be addressed
- Ensure whether the issues related to dry waste and sanitary waste is managed properly.

- Ensure that the housekeeping staff is following proper safety measures by using proper safety equipments.

Day 121 – 180 (PHASE FIVE)

- Regular monitoring
- Ensuring the regularity in terms of collection of dry waste and composting of wet waste.
- Ensuring that the confidential papers are being shredded
- Planning for some innovative designs that can be improvised or used in the organization to ensure efficacy in their waste management system.

Disclaimers

- Analysis and observations will be purely based on the practices followed by organization with regard to waste management.
- The Report will be provided within 15 days after conducting the assessment
- The trainings for the house keeping staffs as well as for the employees will be scheduled according to the organizations preferences and availability of participants
- Re assessment will be done 6 months after the initial assessment and the organization will be certified as per the results of the second assessment
- The assessment report will be kept confidential and will not be shared with anyone
- Please discuss with the Assessment team in case of any dispute in terms of report generated.
- Please coordinate with the Assessment team for any support required in the area of waste Management