HEI Response to DVV Findings

Criteria Number: 7 **Criteria Name:** Institutional Values and Best Practices

Sub criteria Number: 7.1.3 **Sub-criteria Name:** Institutional Values and Social Responsibilities

7.1.3. Quality audits on environment and energy regularly undertaken by the Institution.
The institutional environment and energy initiatives are confirmed through the following

1. Green audit / Environment audit
2. Energy audit
3. Clean and green campus initiatives
4. Beyond the campus environmental promotion and sustainability activities

This document contains the supporting documents for DVV clarification.

Following table summarizes the data required in clarification:

Sr. No.	Details	Page No. for supporting Documents
1	Policy document on environment and energy usage	1 - 8
2	Action taken reports and achievement report as clear and Green campus initiatives	9 - 44
3	Reports of the Audits	Green Audit Reports: 45 -142 Energy Audit Reports: 143 - 337
4	Certificate from the external accredited auditing agency (preferably government, concern department of affiliating university).	464 - 465
5	Geo tagged photographs with caption and date.	470 - 500
6	Any other supporting document for beyond the campus environmental promotions.	345 - 469

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY ★ VASAI ROAD ★

Dr. Harish Vankudre
Principal

Criteria Number: 7 Criteria Name: **Institutional Values and Best Practices**

Sub criteria Number: 7.1.3 Sub-criteria Name: **Institutional Values and Social Responsibilities**

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This document contains the Policy document on environment and energy usage certificate from the auditing agency

VIDYAVARDHINI'S COLLEGE OF ENGINEERING & TECHNOLOGY
Founder President Late Padmashri H. G. Vartak
(Approved by AICTE and Affiliated to the University of Mumbai)
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Green Campus Policy

List of Contents

- Introduction
- Vision and Mission
- Objectives
- Scope
- Responsibility and Accountability
- Green Campus Initiatives
- Monitoring and Reporting
- Compliance and Enforcement
- Conclusion

- **Introduction**

Vidyavardhini College of Engineering and Technology (VCET), Vasai recognizes its responsibility to create and maintain an environmentally sustainable and responsible campus. This Green Campus Policy Document outlines our commitment to adopting and implementing environmentally friendly practices and principles throughout the institution.

- **Vision and Mission**

Vision

VCET aims to become a leader in sustainable and environmentally responsible education, fostering an eco-conscious community and contributing to a greener future.

Mission

VCET is committed to creating a green campus by adopting sustainable practices, reducing our environmental footprint, and inspiring students, staff, and the community to embrace eco-friendly values.

- **Objectives**

✓ Reduce energy and resource consumption.
✓ Minimize waste generation and promote recycling.
✓ Encourage the use of renewable energy sources.
✓ Foster a culture of sustainability.
✓ Promote environmental education and research.

- **Scope**

This policy applies to all aspects of VCET operations, including academic, administrative, and support activities.

- **Responsibility and Accountability**

a. Green Campus Committee

VCET will establish a Green Campus Committee responsible for the planning, implementation, and monitoring of green initiatives. The committee will consist of faculty, staff, and student representatives.

b. All Stakeholders

Every member of the VCET community, including students, faculty, staff, and visitors, is responsible for adhering to the green campus principles and taking actions to support sustainability.

- **Green Campus Initiatives**

VCET will implement the following initiatives to create a sustainable and eco-friendly campus:

a. Energy Efficiency

- ✓ Regular energy audits to identify and address inefficiencies.
- ✓ Installation of energy-efficient lighting and HVAC systems.
- ✓ Encouragement of responsible energy consumption.

b. Water Conservation

- ✓ Efficient water management practices.
- ✓ Promotion of rainwater harvesting and use of recycled water.

c. Waste Management

- ✓ Implement a waste segregation and recycling program.
- ✓ Reduce single-use plastics on campus.
- ✓ Promote composting and responsible waste disposal.

d. Sustainable Transportation

- ✓ Encourage the use of public transportation, cycling, and carpooling.
- ✓ Install bicycle racks and electric vehicle charging stations.

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e. Green Spaces

- ✓ Maintain and expand green areas on campus.
- ✓ Promote biodiversity and native plant species.
- ✓ Limit the use of chemical pesticides and fertilizers.

f. Renewable Energy

- ✓ Explore opportunities for on-site renewable energy generation.
- ✓ Support and promote the use of solar power and other renewable sources.

g. Environmental Education

- ✓ Integrate environmental education into the curriculum.
- ✓ Organize seminars, workshops, and events related to sustainability.

- **Monitoring and Reporting**

VCET will regularly monitor and assess the progress of its green campus initiatives. Reports will be prepared and made available to the campus community and stakeholders annually.

- **Compliance and Enforcement**

Non-compliance with this Green Campus Policy may result in appropriate disciplinary actions, as per the existing institutional guidelines. All stakeholders are expected to comply with and support the implementation of green initiatives.

- **Conclusion**

VCET is committed to creating a sustainable, eco-friendly, and environmentally responsible campus. This Green Campus Policy Document outlines our commitment to embracing and implementing green initiatives and encouraging the VCET community to take part in building a greener future.

This document is a living framework, subject to regular review and adaptation as our green initiatives evolve to meet the needs of the environment and our community.

Date of Approval:

Approved by:

PRINCIPAL
VIDYAVARDHINI'S COLLEGE
OF
ENGINEERING & TECHNOLOGY
VASAI ROAD 401 202.

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY ★ VASAI ROAD ★

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Energy Policy

'Vidyavardhini' is a body committed to enhancement of knowledge. Vidyavardhini was established as a registered society in the year 1970 by late Padmashri H.G. alias Bhausaheb Vartak for the noble cause of the education in rural areas. Vidyavradhini's College of Engineering and Technology, Vasai is located on the sprawing campus of Vidyavardhini, spread over an area of 12.27 acres. VCET is approved by AICTE and affiliated to the University of Mumbai for the bachelor's degree in seven Programs Mechanical, Electronics and Telecommunication, Computer Engineering, Information Technology, Civil Engineering, Computer Science & Engineering (Data Science), Artificial Intelligence & Data Science Engineering and Post Graduate program in Civil Engineering (Structural Engineering).

Mission

1. Minimize Energy consumption by use of Energy efficient equipment's and maximize the use of day light, natural ventilation.
2. Maximize use of renewable energy.
3. Create Awareness about Energy Conservation.

This we Plan to Achieve

- Manage efficient utilization of energy resources by use of cleaner and more efficient technologies.
- Train faculty students and industry professionals to make institute the pace setter in energy conservation.
- Promote awareness related with energy conservation among various sections of society.
- Enrich our experience on energy conservation by its change of ideas with other organization.
- Encourage faculty members to obtain certification as certified energy auditors and energy manager.
- Carry out regular internal energy audit to identify energy conservation opportunities.
- Provide expertise to industry and other organization in energy management by offering energy audit services.

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VASAI ROAD

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VASAI ROAD 401 202.

Energy management action plan

- Improvement in energy efficiency
- Use of start labelled equipment's such as refrigerator and air conditioners.
- Replacement of conventional fluorescent tube light by LED tubes.
- Replacement of HPSV streetlights fixture by LED light fixtures
- Use of TFT computer monitors
- Replacement of conventional ceiling fans by BLDC ceiling fans

Elimination of energy wastage

- Maximise use of energy daylight for indoor illumination.
- Use of natural ventilation.
- Use of timer switch to street light control.
- Use of timer switch in classroom.
- Good Housekeeping practices.
- Fine tuning of temperature setting of air conditioners and water coolers.

Energy Substitution

- Use of solar water heater in place of electric geyser
- Maximise use of renewable energy (solar PV system at rooftop)

Energy cost optimization

- Maximise demand optimization by adequate reactive power management.
- Power factor incentives by maintenance of power factor above 0.995
- Use of detuned Real Time Power Factor Correction (RTPFC) to eliminate risk of resonance.
- TOD tariff benefits by operating flexible load during off paid.
- Use of dual trigger RTPFC panels to optimise DG fuel consumption.

Training and Awareness programmes

- Conducting awareness programme for faculty, student and society.
- Active involvement of UG/PG students in awareness program in schools.
- Conduct faculty development program to faculties from various engineering college.
- Conduct competence enhancement program for industry professional in the area of energy management.

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- Conduct workshops on Grid interactive solar PV system and renewable energy .
- Organise seminar and poster presentations in the area of renewable energy and Environmental Protection.
- Encourage students to undertake UG projects in the area of Energy Management.

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1. Green audit / Environment audit
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This document contains the Action taken reports and achievement report as clear and Green campus initiatives

Green Club Committee

VIDYAVARDHINI'S COLLEGE OF ENGINEERING & TECHNOLOGY
Founder President Late Padmashri. H.G. VARTAK

(Approved by AICTE and Affiliated to the University of Mumbai)

Four Branches Permanently Affiliated by University of Mumbai

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Phone:0250-2338234 (6 Lines) •Fax:0250-2339486 •Website: www.vcet.edu.in •Email:vcet_inbox@vcet.edu.in

Date: 11-08-2023.

Notice No.36

All the Students, teaching and non-teaching staff are hereby informed that the "Green Club" VCET Committee has been formed. The tenure of the Committee members is for two years. The following persons are the members of the Committee:

Sr. No	Name of the Member	Post/Responsibility	Mobile No
1	Ms. Puja C. Kadam	Faculty Coordinator	9049987618
2	Mr. Tanzil Sayed	President (Youth)	8689988443
3	Mr. Atharva Jadhav	Vice President (Youth)	8767209801
4	Ms. Samiksha Jagne	Coordinator (Campaign)	7620979617
5	Ms. Sakshi Navle	Coordinator (Documentation)	8010620754

P.T. Lavoy

I/C Principal

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY * VASAI ROAD *

GREEN CLUB OF VCET, VASAI

Need of Green Club:

Climate change is one of the critical challenges of the times we live in. Every component of the environment, including the water cycle, rising heat levels, biodiversity, and soil is affected by environmental degradation and these changes, in turn, impact our living, food, health, employment and almost every aspect of our life.

Hence, these changing times call for coordinated interventions to combat and face climate change. Young people are playing and going to play a crucial role in addressing climate change globally, nationally, and at their local level.

Maharashtra is the third most climate-vulnerable state in India after Assam and Andhra Pradesh. The state has nine agro-climatic zones, and the third-longest coastal belt in the country. It is the second most populous state with a significantly large population living in low-income settlements, and tribal pockets that are vulnerable to climate impacts. At the same time, many places in the state are exposed to recurrent hazards such as cyclones, landslides, floods, droughts, climate-induced disease spikes, and so on. Children, adolescents, and youth face a combination of exposure and a very high vulnerability to multiple hazards and environmental shocks due to inadequate or inaccessible and sometimes disruptive essential services especially related to water, sanitation, healthcare, and education. These challenges become even more threatening for children from vulnerable and disadvantaged backgrounds.

Maharashtra ranks 38 among the world's regions at-risk of damage to the built environment due to climate change, states a report published on February 23 according to the Gross Domestic Climate Risk Report which states that the more developed or 'built-up' a particular region is, the more vulnerable it will be to climate change-induced natural disasters by 2050. Mumbai's vulnerability assessment has predicted that the metropolitan city will face two major climate challenges - a rise in temperature and extreme rain events which can result in massive flooding. The six key action areas and strategies laid out to combat the effect are:

1. Urban Flooding & Water Resource Management

2. Sustainable Waste Management

3. Urban Greening & Biodiversity

4. Energy & Buildings

5. Air Quality and

6. Sustainable Mobility

Tackling climate change requires concerted and coordinated government action as well as conscious and informed efforts by individuals. Therefore, it is essential to strengthen both formal and informal education on climate change and viable lifestyles. Green club aims at building the capacity of youth as future leaders and driving forces behind a new climate change regime, where college students can diversify their careers and abilities by learning new skills whilst tackling environmental and climate change issues.

Aim and Objectives of Green Club:

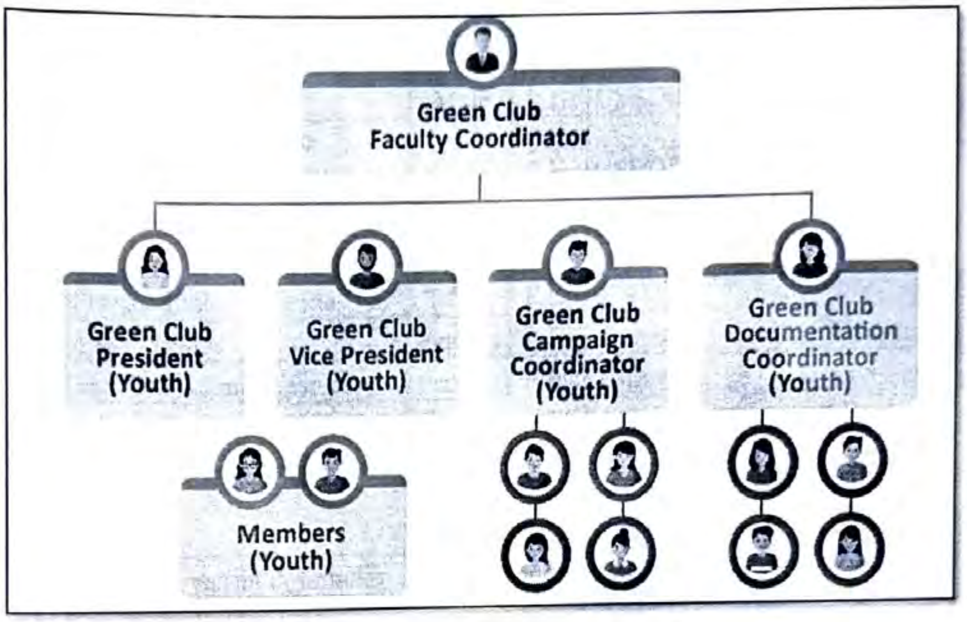
The Green Club (GC) is established to provide the values of environmental stewardship among the students. It aims to work towards an eco-friendly environment in and around colleges and education institutions by efficient use of resources like water, waste, energy, and circularity.

The formation of Green Clubs will primarily focus on coordinating with youth in the colleges to support environmental activities and projects within colleges and communities as extension services. Under this program, the aim is to empower students to participate in and take up meaningful environmental activities and projects. Green Club would be imbibed in college-level curricular activities to ensure effective implementation and act as a platform to develop sustainable lifestyles, knowledge, and leadership skills.

Formation of Green Club:

As stated in the objectives, the overall effort is to institutionalize the environment and climate change mitigation and adaptation activities in college. Any college student interested in and committed to addressing environmental issues and learning about climate adaptation solutions can become a member of the Club. The Club should ensure a balance of all genders and have maximum volunteers registered in the Club. The Club's membership will be for two years. The participation of members will be recognized at different stages by giving badges during this period and they will get a certificate for participation after the completion of two years.

One or two faculty members who have a long-term vision of climate change should lead Green Club activities. However, the vision should be shaped and articulated in coordination with all the student members. The Club will have meetings every week to discuss and take reviews of environmental sustainability and climate change adaptation activities. The activities aim to create climate change-sensitive youth and inculcate green habits through various innovative and classical methods.



Structure of Green Club

The Green Club of VCET was formed on 11/08/2023 and the club consists of following members:

Vidyavardhinis College of Engineering and Technology, Vasai (W)					
VCET- GREEN CLUB (2023-2024)					
Sr. No.	**Full Name of the Participant**	**Gender**	**Class**	**Branch**	**Role**
1	**Ms. Puja Kadam**	**Female**	**-**	**Civil**	**Green Club Faculty Coordinator (GCFC)**
2	**Mr. Tanzil Sayed**	**Male**	**S.E.**	**Comp**	**President (Youth)**
3	**Mr. Atharva Jadhav**	**Male**	**S.E.**	**EXTC**	**Vice-President (Youth)**
4	**Ms. Samiksha Jagne**	**Female**	**S.E.**	**CSEDS**	**Coordinator (Campaign)**
5	**Ms. Sakshi Navle**	**Female**	**S.E.**	**I.T.**	**Coordinator (Documentation)**
6	Ashutosh Singh	Male	F.E.	AIDS	Member
7	Satyasheel Ajit Mohite	Male	F.E.	EXTC	Member
8	Siddhi Vilas Bhosale	Female	F.E.	Comp	Member
9	Mrunal Nagesh Chorghe	Male	F.E.	Civil	Member
10	Abhishek Yadav	Male	F.E.	Comp	Member
11	Atharva Susheel Kumar Tripathi	Male	F.E.	Civil	Member

12	Swapnil Vitthal Sawant	Male	S.E.	Comp	Member
13	Hemant Chandraprakash Mishra	Male	F.E.	CSEDS	Member
14	Ansari Mohd Ahmed Mohmmed Yunus	Male	S.E.	CSEDS	Member
15	Shatakshi Harshal Raut	Female	F.E.	Mech	Member
16	Harsh Gangavane	Male	F.E.	EXTC	Member
17	Pranav Sudhir Balgude	Male	F.E.	EXTC	Member
18	Sjasta Jadhav	Female	F.E.	Mech	Member
19	Sara Vivekanand Gorule	Female	F.E.	Comp	Member
20	Laxmikant pal	Male	F.E.	Mech	Member
21	Swapnil mangalampalli	Male	S.E.	CSEDS	Member
22	MANAV MOHAN NIVATE	Male	S.E.	Mech	Member
23	Siddharth vasant deshmukh	Male	F.E.	CSEDS	Member
24	Chaitanya Suryawanshi	Male	S.E.	Mech	Member
25	Jayesh bhagat	Male	S.E.	Mech	Member
26	Siddhi Vijay Chavan	Female	S.E.	IT	Member
27	Deep patel	Male	F.E.	Comp	Member
28	Krishna Hanuman Parkad	Male	S.E.	Mech	Member
29	Omkar Ganesh Mhalungekar	Male	S.E.	Civil	Member
30	Atre Bhargavi Mandar	Female	S.E.	EXTC	Member
31	Yadav Priya	Female	F.E.	CSEDS	Member
32	Jaysurya Nadar	Male	S.E.	Mech	Member
33	Rushikesh Vikram Dhangar	Male	F.E.	CSEDS	Member
34	Siddharth Nagsen Phulambrikar	Male	F.E.	Comp	Member
35	Yadav Niraj Subedar	Male	S.E.	Mech	Member
36	Bhakti Bosamiya	Female	S.E.	EXTC	Member
37	Radhika	Female	F.E.	EXTC	Member
38	Monalika Sanjay Pingale	Female	S.E.	Comp	Member
39	DIYA SANJAY KORE	Female	F.E.	EXTC	Member
40	Soham dattaram bhuvad	Male	F.E.	Civil	Member
41	Shriya Prakash Sawant	Female	F.E.	EXTC	Member
42	Sushant Shantaram Shetty	Male	F.E.	EXTC	Member
43	Manswi Mahendra Sutar	Female	F.E.	EXTC	Member
44	Jheel Pankaj Siddhpura	Female	F.E.	EXTC	Member
45	Amit Chandrakant Pednekar	Male	F.E.	EXTC	Member
46	Tejas Vinod Rathod	Male	F.E.	EXTC	Member
47	Yuvraj Singh	Male	S.E.	Mech	Member
48	Mitesh Yadav	Male	S.E.	Mech	Member

49	Rohit yadav	Male	S.E.	Mech	Member
50	Anil Yadav	Male	S.E.	Mech	Member
51	Swarup Satish Kakade	Male	S.E.	AIDS	Member
52	SHRUTI GAUCHANDRA	Female	F.E.	AIDS	Member

Activities to be done under Green Club:

The following activities are planned for the implementation phase of Green Club.

Water conservation activities

- Avoid wastage - Fix leakages, fix flow of taps, be more conscious
- Take shorter showers
- Turn off the water while brushing your teeth
- Turn off the water while shaving
- Run washing machine only in full capacity/ full loads
- Access to individual soak pit
- Access to community soak pit

Waste Management activities

- Plastic waste collection drive and awareness on Single-Use Plastic ban.
- Plastic Free College campus, village
- Zero Waste College Campus Make your Institution a 'Zero Waste Institution'.
- Organic waste composting

Energy Conservation activities

- Analysis of Energy usage
- Awareness creation on efficient energy usage
- Share skilling and entrepreneurship opportunities in renewable energy sector.
- Organise discussion around means and ways to minimize emissions as a college/ institution and as individuals.

Biodiversity protection Activities

- Biodiversity register
- Tree census of College Campus, Village, Taluka
- Butterfly garden
- Adopt, plant, nurture a native tree.
- Promote tree plantation and biodiversity protection in ther respective localities

Ms. Puja Kadam
Green Club Faculty Coordinator
VCET, Vasai

VIDYAVARDHINI'S COLLEGE OF ENGINEERING & TECHNOLOGY

Founder President Late Padmashri H. G. Vartak

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Department of Civil Engineering

Date-17/07/2023

To

The Principal

VCET, Vasai (w)

Subject – Permission for conducting Expert lecture on Rainwater Harvesting

Respected Sir,

We request you to grant us the permission for conducting Guest Lecture for Civil Engineering students on Rainwater Harvesting. The lecture will be delivered by Mr. Sandeep Adhyapak, Chartered Engineer and Director, Water Field Technologies, Pvt. Ltd on **20/07/2023, Thursday** from 11:00am - 1:00 pm.

Water Field Technologies Pvt. Ltd is the key contributor towards the acquisition and high-level utilization of Water Resources. They deal with water management solutions all over the world .

Also we request you to sanction the amount of Rs. 3000/- against honorarium and travelling expenses. We would be grateful if you permit us for the same.

Thanking You

Permitted
From Dept
Activity fund

Regards,

Dr. Ajay S. Radke

H.O.D (Civil Engineering)
VCET, Vasai (W)

VIDYAVARDHINI'S COLLEGE OF ENGINEERING & TECHNOLOGY
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Department of Civil Engineering

Date-07/09/2023

To

The Principal

VCET, Vasai (w)

Subject – Permission for organizing Expert session on Rainwater Harvesting

Respected Sir,

We, on behalf of Civil Engineering department of Vidyavardhini's college of Engineering, Vasai (W) and also a Green Club Faculty Coordinator(GCFC), hereby request you to grant a permission for organizing Expert session for Engineering students on **Rainwater Harvesting** on **08/09/2023, Friday** from 11:00am - 1:00 pm by Mr. Sandeep Adhyapak, Chartered Engineer at Water Field Technologies, Pvt. Ltd. This session was previously organized on 20/07/2023 but due to heavy rainfall, holiday was declared by government and the session got postponed.

Water Field Technologies Pvt. Ltd is the key contributor towards the acquisition and high-level utilization of Water Resources. They deal with water harvesting in India and worldwide and they have Memorandum of Understanding (MOU) with our Civil Engineering Department

Also we request you to sanction the amount of Rs. 3000/- against honorarium and travelling expenses. We would be grateful if you permit us for the same.

Thanking You

Regards,

permitted
Asuf

Dr. Ajay S. Radke

H.O.D (Civil Engineering)
VCET, Vasai (W)

Vidyavardhini's College of Engineering & Technology

Department of Civil Engineering

Report of Expert session on Rainwater Harvesting- An effective tool for water management

Objective of the Session: To provide a platform for the dissemination of knowledge, discussion, and awareness-building regarding the importance and implementation of rainwater harvesting as a sustainable water management technique.

Date of Session: 08th September 2023, Friday at 11:00 AM

No. of Participants: 40

Name of the Speaker: Mr. Sandeep Adhyapak, Director of Water field Technologies Pvt. Ltd.

About the Speaker:

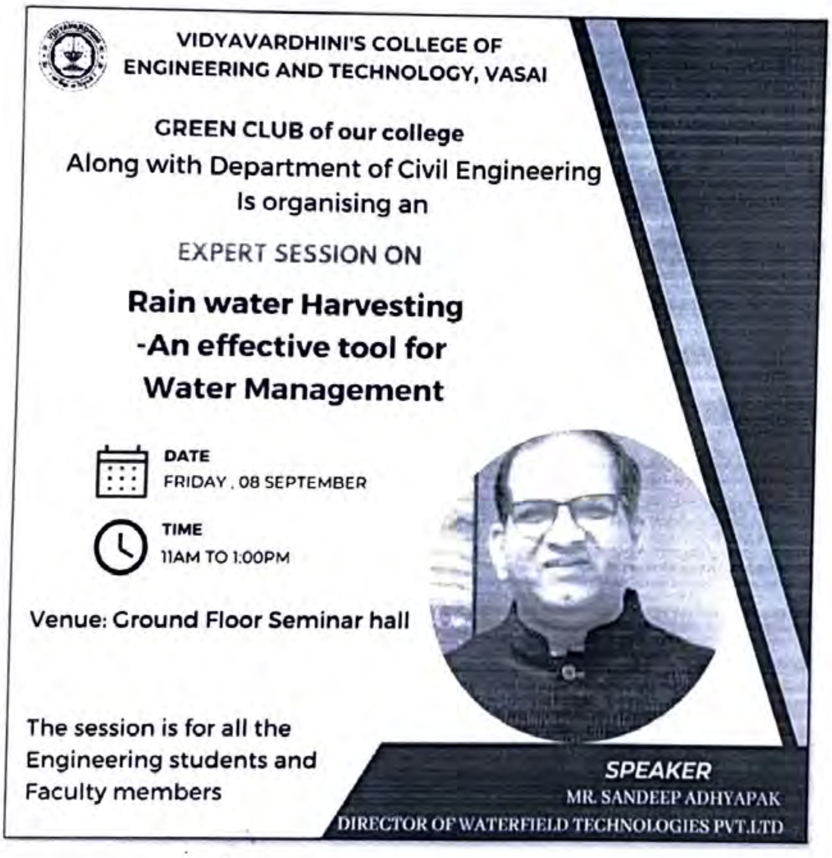
Mr. Sandeep Adhyapak is a bachelor's in civil Engineer from Mumbai University (1994). As a Rainwater Harvesting Expert / Consultant he has created various success stories with many Organizations/Govt. Departments and industries all over country. He advocates Rainwater Harvesting through his Company - Water Field Technologies Pvt. Ltd.-Mumbai, the Projects implementation for augmentation of Ground Water sources to meet the needs of Water supply in Industries, Urban Development projects and drinking Water supply schemes in rural area. He is Life member of Indian Waterworks Association (IWWA) Mumbai Centre. He has presented the case studies in a Workshop on Rainwater Harvesting under National Environmental Awareness Campaign 2003-2004 (Ministry of Environment & Forest) Organized by Govt. Polytechnic, Bombay. He was appointed by Thane Municipal Commissioner, as an empaneled consultant (2005), Expert on Rainwater Harvesting, for creating awareness in Thane city and in 2012 on Vasai-Virar City Municipal Corporation (VVCMC). He is Winner of Special Mention Prize in H2H-2005 Competition for Turnkey Project designed and implemented at Maharashtra Nature Park At Sion-A Rainwater Harvesting Project In Mumbai, Funded By MMRDA. He Also made other presentations and attended Exhibitions, Training programs, Lectures and Workshops Rainwater Harvesting, conducted by various organizations.

Vidyavardhini's College of Engineering & Technology

Department of Civil Engineering

Description of the Session:

Green Club of VCET in collaboration with Department of Civil Engineering had organized an Expert session on Rainwater Harvesting for all the Faculty members and students. The expert for the session, Mr. Sandeep Adhyapak, is, a renowned expert in the field of water resource management and a distinguished advocate of rainwater harvesting, delivered an engaging and informative presentation during the expert session. The key highlights of his presentation and the discussions that followed are summarized below:



Importance of Rainwater Harvesting:

Mr. Adhyapak emphasized the critical significance of rainwater harvesting as a solution to the growing water scarcity issue in many regions. He stressed the importance of harnessing rainwater as a valuable source of freshwater that could supplement the existing water supply systems.

Benefits of Rainwater Harvesting:

The expert session detailed the various advantages of rainwater harvesting, including its potential to reduce the strain on traditional water resources, mitigate flooding, and contribute to groundwater recharge. Moreover, it was highlighted that this method can lead to significant cost savings and promote water self-sufficiency at both individual and community levels.

Techniques and Technologies:

Mr. Adhyapak provided insights into different rainwater harvesting techniques, such as rooftop rainwater harvesting, surface runoff harvesting, and groundwater recharge systems. He discussed the technological advancements in rainwater harvesting equipment and systems that can enhance efficiency and sustainability.

Case Studies:

The expert session featured several successful case studies of rainwater harvesting projects from around the world. These real-world examples demonstrated the feasibility and positive outcomes of adopting rainwater harvesting practices.

Regulatory and Policy Framework:

The importance of supportive regulatory and policy frameworks for the promotion of rainwater harvesting was emphasized. Mr. Adhyapak discussed the need for governments and local authorities to implement incentives, regulations, and standards to encourage and regulate rainwater harvesting.

Community Engagement and Education:

Mr. Adhyapak stressed the importance of community engagement and education to promote the widespread adoption of rainwater harvesting. He highlighted the role of educational institutions, NGOs, and local communities in creating awareness and building capacity.

Q&A Session:

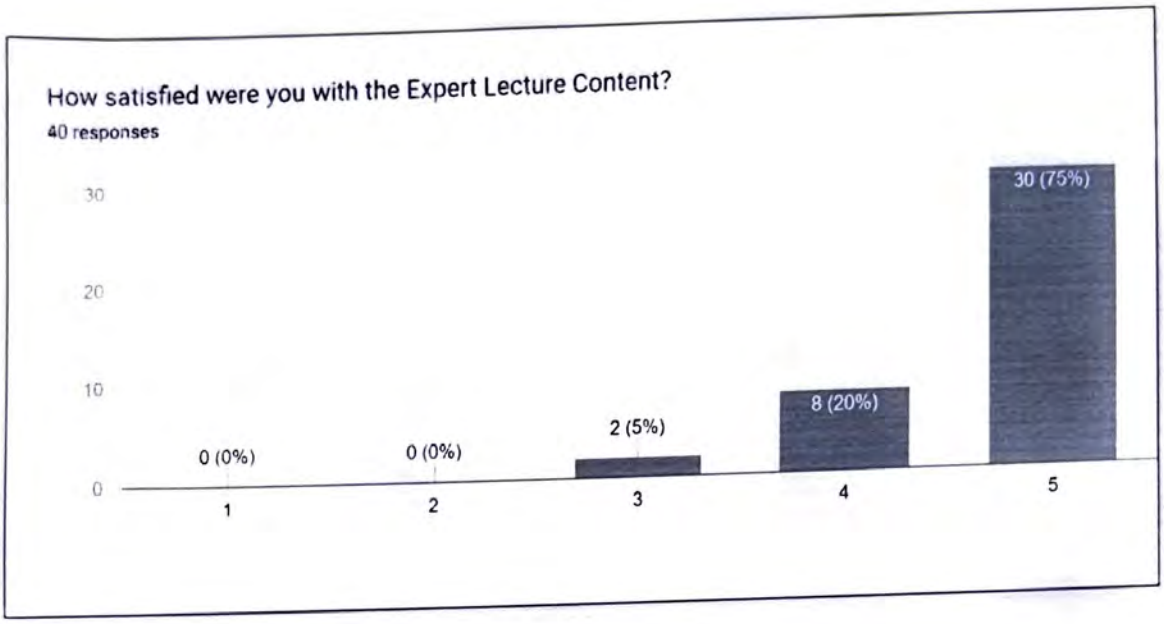
Following the presentation, there was a lively and interactive question and answer session where participants had the opportunity to seek clarifications and delve deeper into specific aspects of rainwater harvesting.

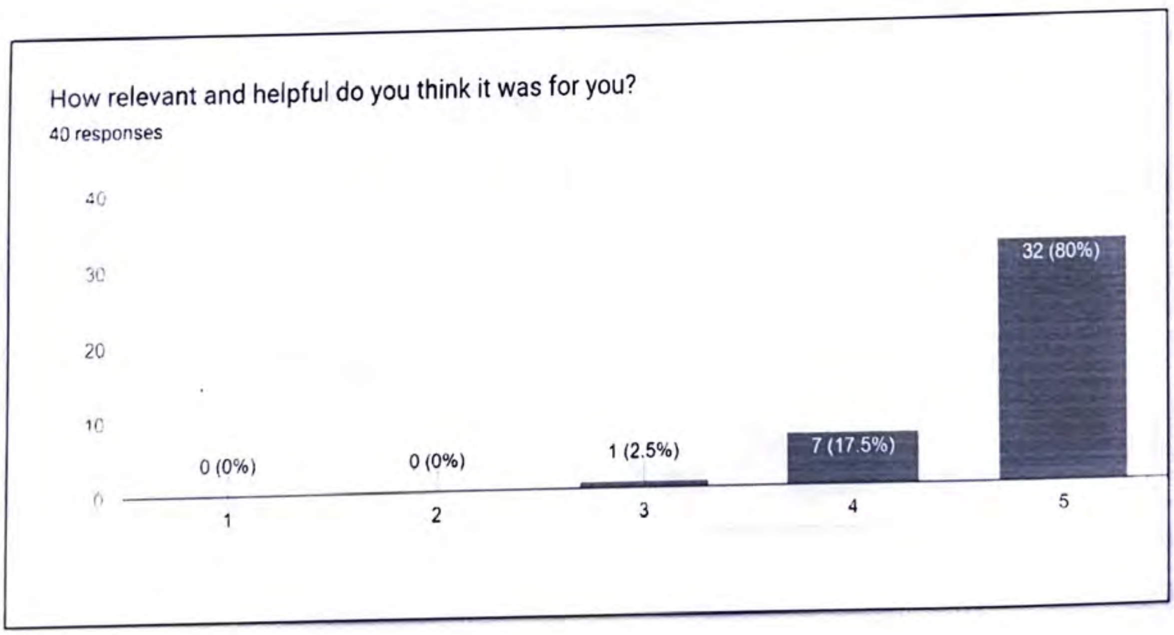
Conclusion:

In conclusion, the expert session on rainwater harvesting by Mr. Sandeep Adhyapak was highly informative and well-received by the participants. It shed light on the potential of rainwater harvesting as an effective tool for water management, addressing water scarcity issues, and promoting sustainable water use practices. It also underscored the importance of collaborative efforts between governments, organizations, and communities to implement and encourage rainwater harvesting.

The knowledge and insights shared during this expert session will undoubtedly contribute to advancing the cause of sustainable water management and the widespread adoption of rainwater harvesting techniques.

Feedback:


How satisfied were you with the Expert Lecture Content?
40 responses
30
20
10
0
0 (0%)
0 (0%)
2 (5%)
8 (20%)
30 (75%)
1
2
3
4
5


How relevant and helpful do you think it was for you?
40 responses
40
30
20
10
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0 (0%)
1 (2.5%)
7 (17.5%)
32 (80%)
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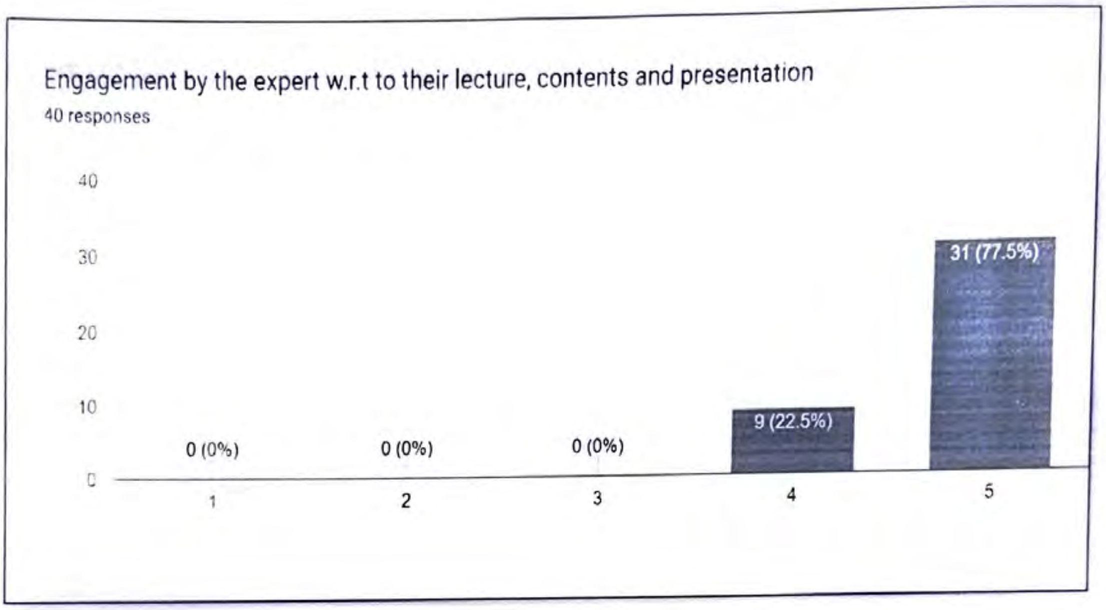
Engagement by the expert w.r.t to their lecture, contents and presentation
40 responses
40
30
20
10
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9 (22.5%)
31 (77.5%)
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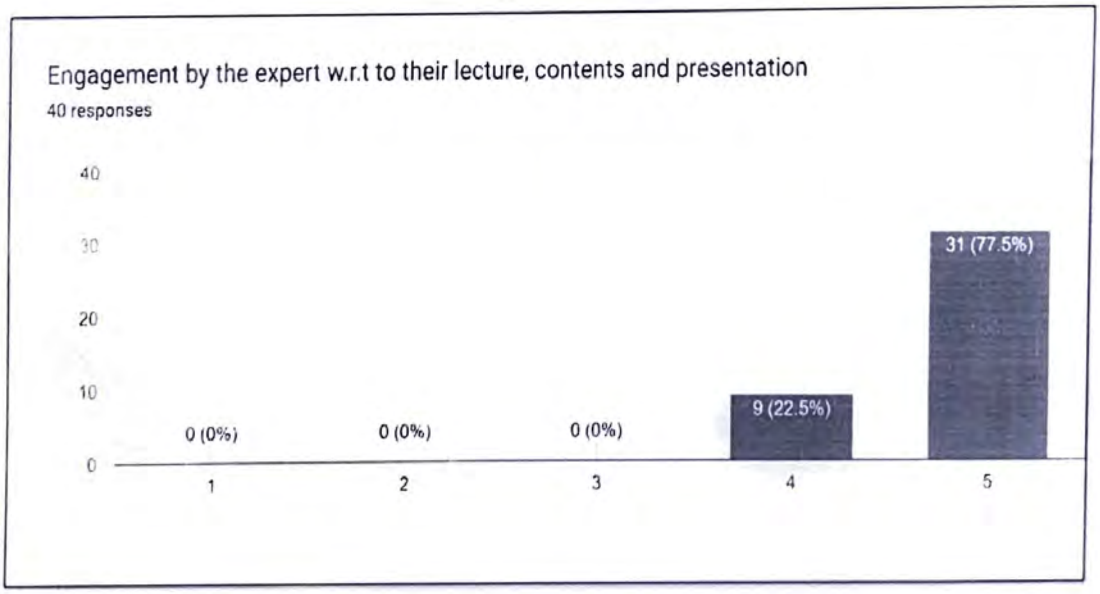
Engagement by the expert w.r.t to their lecture, contents and presentation
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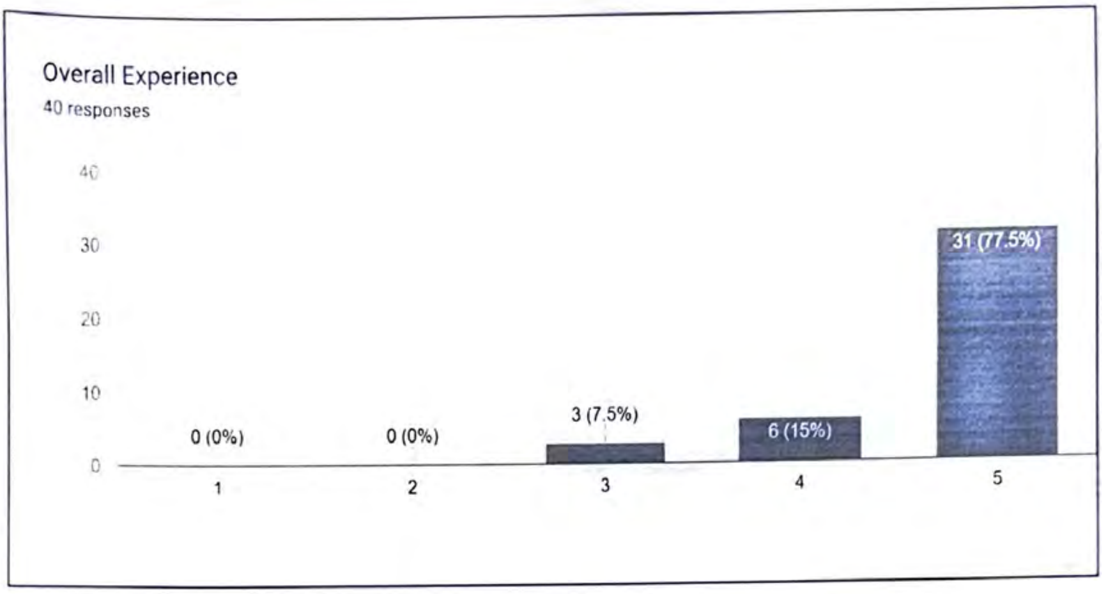
Overall Experience
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30
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10
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0 (0%)
3 (7.5%)
6 (15%)
31 (77.5%)
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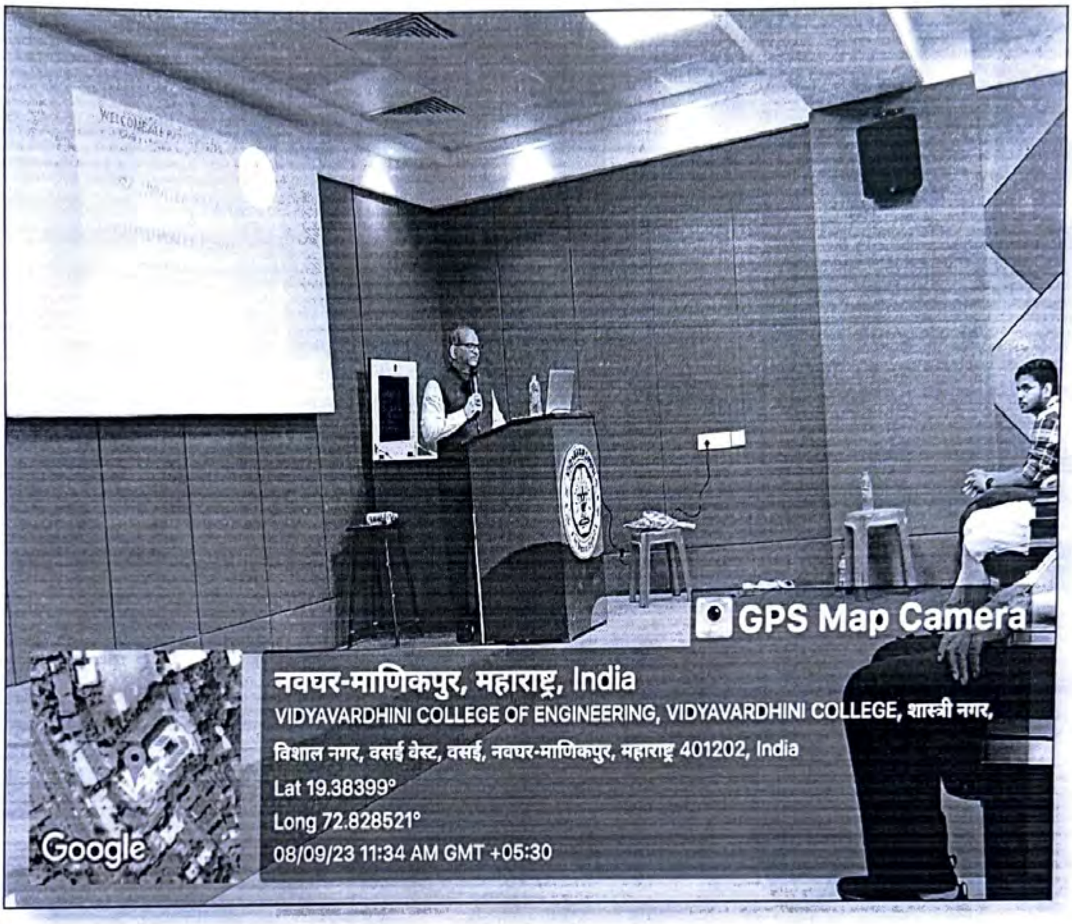
2
3
4
5

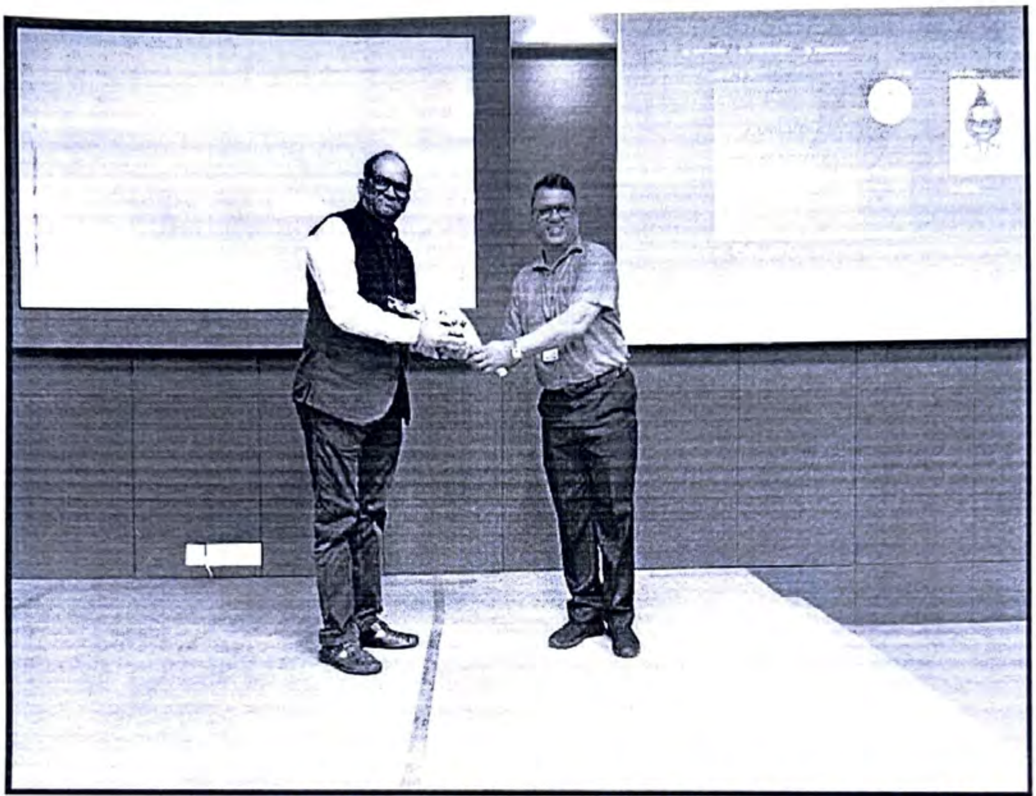
Vidyavardhini's College of Engineering & Technology

Department of Civil Engineering

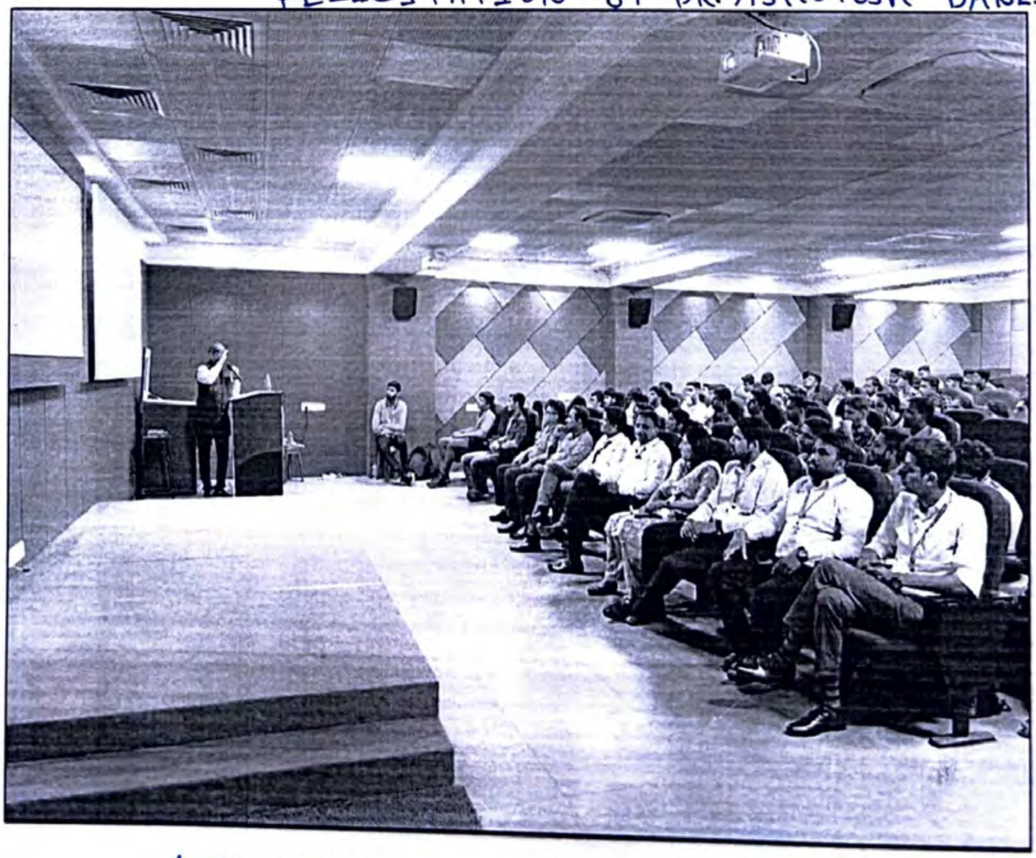
Glimpses of Session:



LECTURE BY MR. SANDEEP ADHYAPAK



FELICITATION BY DR. ASHUTOSH DABLI



ATTENDANCE OF CIVIL ENGINEERING STUDENTS

Vidyavardhini's College of Engineering & Technology, Vasai Road,(W.)

Department of Civil Engineering in collaboration of GREEN CLUB of VCET

Expert Session on Rainwater Harvesting- An effective Tool for water management

Attendance Sheet

Sr.No.	Name of Student	Class	Signature
1	Omhari Choke	T E	Omhari
2	Aryan Rajesh Sankhe	S E	Aryan
3	Sarthak Joshi	S E	
4	Kavya Kiran Lakde	S E	Kavyak
5	Ajit Rajkumar Gupta	S E	
6	Prerna Rajendra Kasar	B E	
7	Chetan Ramdas Lande	B.E	
8	Vishal Asaram Rathod	B E	
9	Aniruddha Rane	T E	F. Rane.
10	Shreya Jagdish Bari	B E	
11	Pratham solanki	T E	P.solanki
12	Farhaan Sayed	S.E	
13	Jeet Vipul Ghelani	B.E	
14	Jeevan Ramchandra Medge	B.E	Jeevan
15	Pawaskar Rashi Dinesh	B.E	PR.D.
16	Chetan Digambar Barhate	B.E	Chetan
17	Kunal Suresh Misal	S.E	
18	Kimaya Satish Salunkhe	B E	
19	Vaishnavi Eknath Patil	B E	Vaishnavi
20	Sushma Mahu Gaikawad	B E	
21	Meghana Fakir Mohite	S E	
22	A[illegible] Bahale	B E	
23	Shubham Dayanand Goriwale	T E	
24	Anuja Manu Gaikawad	B E	
25	ANIKET VITTHAL CHOLE	S E	AVC
26	VIKRANT ATHAWALE	S E	
27	Charat Supreet Kishor	S E	
28	Arshat Santosh Soni	S E	
29	Prasham Kirat Gandhi	T E	
30	[illegible] SANTOSH PATIL	S E	
31	[illegible] Ravindra Bhoi	S E	
32	RANJANA MAURYA SHYAMBAHADUR	S E	
33	[illegible] Dave	B E	
34	Prem Santosh Shinde	S E	
35	Avanta Anil Dothe	B E	
36	Kritika Kailas Chavan	T E	Kritika
37	SHAIKH HAMZA HAM	S E	
38	Saloni Shivaji Pundpal	B E	
39	Ayushi Anil Karawde	S E	Ayushi
40	Sagar Ajay Shastri	S E	

Report on Training Programme on **" Youth Engagement & Water Stewardship – Training Progarm of Green Club faculty Co Ordinator"**

Title: " Youth Engagement & Water Stewardship – Training Program of Green Club faculty Co Ordinator "organized by UNICEF and Higher and Technical Education Department of Government of Maharashtra

Venue: Bharati Vidyapeeth Institute of Technology , Kharghar, Navi Mumbai

Time: 9:00 A.M. to 4:30 P.M.

Objective:

1. Appoint the Green Club Faculty Coordinators of each Institution and given them training
2. Mandatory to make Green Club of each Institution with minimum 100 students
3. Conduct activities under Green Club and submit the report monthly to the Master Trainer

Description:

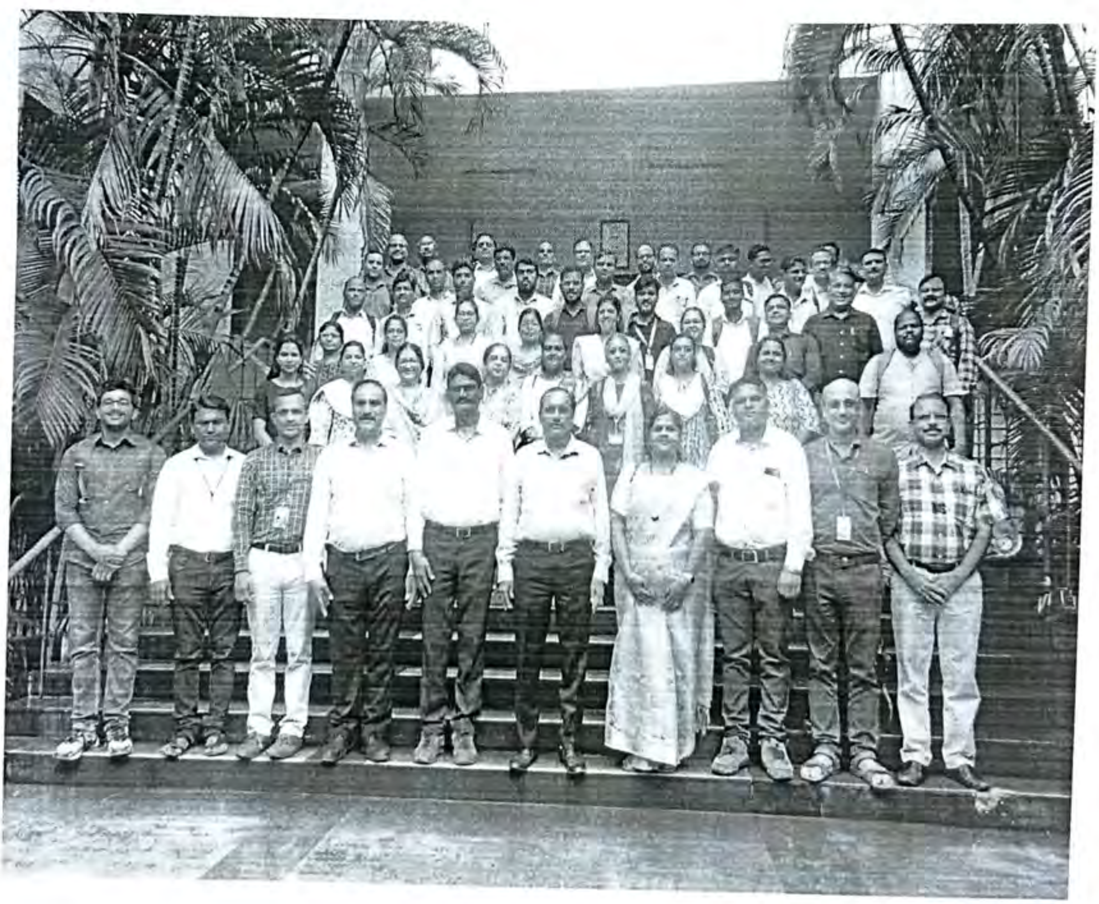
Youth Engagement & Water Stewardship – Training Program of Green Club faculty Co Ordinator was organized by UNICEF and Higher and Technical Education Department of Government of Maharashtra . Ms. Puja Kadam, Assistant Professor from Civil Engineering is the Green Club Faculty Coordinator (GCFC) for Vidyavardhinis College of Engineering and Technology. This is an Initiative of Government where its is mandatory to make a Geen Club in the Institution with minimum 100 students and 1 or 2 Green Club Faculty Coordinator. Out of the total students members in the Green Club, 1 elected students will be Green Club President , 1 as Green Club Vice President, 1 as Green Club Campaign Coordinator and 1 AS Green Club Documentation Coordinator . The confirmation of the formation of the club along with the name of the Green Club Faculty Coordinator (GCFC) and 4 elected students for the above posts has to be submitted by 15/08/2023, Tuesday. This club will be active for 2 years from 2023-2025.

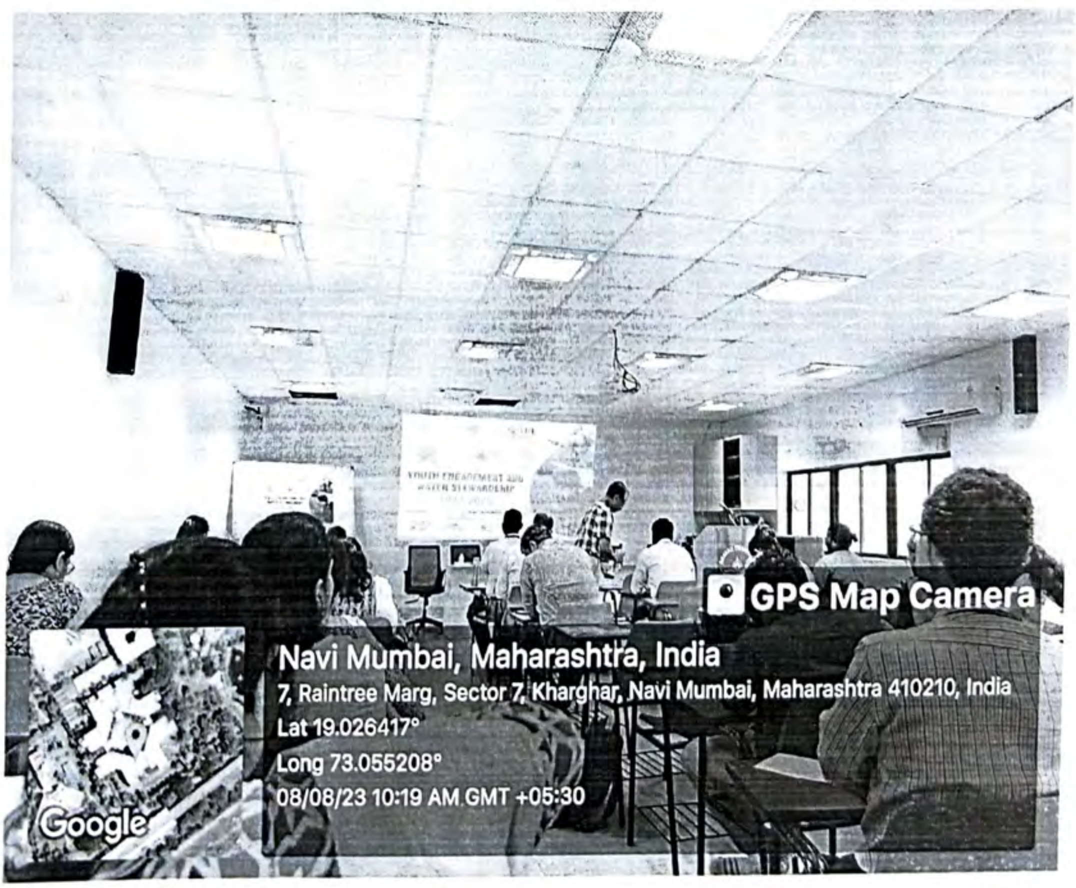
Green club activities will be focused on the following themes: Water Conservation, Waste Management and Circularity, Energy Efficiency, Circularity and Biodiversity Conservation.. The club is expected to have an Annual Activity Calendar and deliverables to measure the impact of the activities. Interested students can enroll themselves in the respective activities.

The Campaign Coordinator can chalk out the campaigns from the idea suggested by the majority of student members and will plan the details by consulting the President and Vice President and Faculty Coordinators.

Minutes of all meetings and reports of activities should be documented on paper and supported with photographs and videos. The Documentation Coordinator is responsible for it. Experiences, testimonies, and reports regarding water conservation activities need to be shared in the 'Why Waste?' mobile application and overall activities on the Green Cub social media handles and U-Report. U-Report is a mobile empowerment program that connects young people all over the world to information that will change their lives and influence decisions.

Photos of the training Program




GPS Map Camera
Navi Mumbai, Maharashtra, India
7, Raintree Marg, Sector 7, Kharghar, Navi Mumbai, Maharashtra 410210, India
Lat 19.026417°
Long 73.055208°
08/08/23 10:19 AM GMT +05:30
Google

Date: 07/08/2023, Monday

To

The Principal

VCET, Vasai.

Subject: Application for OD on 08/08/2023 for attending the training program arranged by UNICEF, Palghar District through DTE at Bharati Vidyapeeth College of Engineering, Kharghar.

Respected Sir,

I, Ms. Puja C. Kadam, Assistant Professor from Civil Engineering Department, is appointed as program officer for Green club of Palghar District and hence I am supposed to attend a training program of the same on 08/08/2023 for attending the training program at Bharati Vidyapeeth College of Engineering, Kharghar. I request you to grant exam OD for the same.

Thanking you,

Regards

Ms. Puja C. Kadam

Assistant Professor

Civil Engineering Department

Dr. Ajay Radke

H.O.D.(Civil Engg)

महाराष्ट्र शासन
शासकीय तंत्रनिकेतन, ठाणे.
फडकेपाडा, भारतगिअर्स कंपनी समोर, खार्डीगाव, मुंब्रा, ठाणे ४०० ६१२
principal.gpthane@dtemaharashtra.gov,in Web: www.gpthane.org.in

जा.क्र.शातंनिठा/भांडार/२०२३/ 1464 दिनांक : 08/08/2023

DUTY CERTIFICATE

Prof. Puja Kadam

(DTE Code 3194) has participated in the Training Programme on "**Youth Engagment & Water Stewardship – Training Program of Green Club Faculty Coordinator**" organized by UNICEF and Higher & Technical Education Department of Government of Maharashtra at Bharati Vidyapeeth Institute of Technology, Kharghar, Navi Mumbai on 8th August 2023.

He/She is relieved from training program on 8th August 2023 (A.N.). TA/DA has not been paid to him/her.

Dr. D. R. Mahajan
Principal & District Nodal Officer
YEWS Programme District Thane

Gov.

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VIDYAVARDHINI'S COLLEGE OF ENGINEERING & TECHNOLOGY
Founder President Late Padmashri H. G. Vartak
(Approved by AICTE and Affiliated to the University of Mumbai)
Four Branches Permanently Affiliated by University of Mumbai
K. T. Marg, Vasai Road (W), Dist. Palghar - 401202, Maharashtra.
Tel.: 0250-2338234 (6 Line) • Email : vcet_inbox@vcet.edu.in • Website : www.vcet.edu.in

Green Campus Policy

List of Contents

- Introduction
- Vision and Mission
- Objectives
- Scope
- Responsibility and Accountability
- Green Campus Initiatives
- Monitoring and Reporting
- Compliance and Enforcement
- Conclusion

- **Introduction**

Vidyavardhini College of Engineering and Technology (VCET), Vasai recognizes its responsibility to create and maintain an environmentally sustainable and responsible campus. This Green Campus Policy Document outlines our commitment to adopting and implementing environmentally friendly practices and principles throughout the institution.

- **Vision and Mission**

Vision

VCET aims to become a leader in sustainable and environmentally responsible education, fostering an eco-conscious community and contributing to a greener future.

Mission

VCET is committed to creating a green campus by adopting sustainable practices, reducing our environmental footprint, and inspiring students, staff, and the community to embrace eco-friendly values.

- **Objectives**

✓ Reduce energy and resource consumption.
✓ Minimize waste generation and promote recycling.
✓ Encourage the use of renewable energy sources.
✓ Foster a culture of sustainability.
✓ Promote environmental education and research.

- **Scope**

This policy applies to all aspects of VCET operations, including academic, administrative, and support activities.

- **Responsibility and Accountability**

a. Green Campus Committee

VCET will establish a Green Campus Committee responsible for the planning, implementation, and monitoring of green initiatives. The committee will consist of faculty, staff, and student representatives.

b. All Stakeholders

Every member of the VCET community, including students, faculty, staff, and visitors, is responsible for adhering to the green campus principles and taking actions to support sustainability.

- **Green Campus Initiatives**

VCET will implement the following initiatives to create a sustainable and eco-friendly campus:

a. Energy Efficiency

- ✓ Regular energy audits to identify and address inefficiencies.
- ✓ Installation of energy-efficient lighting and HVAC systems.
- ✓ Encouragement of responsible energy consumption.

b. Water Conservation

- ✓ Efficient water management practices.
- ✓ Promotion of rainwater harvesting and use of recycled water.

c. Waste Management

- ✓ Implement a waste segregation and recycling program.
- ✓ Reduce single-use plastics on campus.
- ✓ Promote composting and responsible waste disposal.

d. Sustainable Transportation

- ✓ Encourage the use of public transportation, cycling, and carpooling.
- ✓ Install bicycle racks and electric vehicle charging stations.

e. Green Spaces

- ✓ Maintain and expand green areas on campus.
- ✓ Promote biodiversity and native plant species.
- ✓ Limit the use of chemical pesticides and fertilizers.

f. Renewable Energy

- ✓ Explore opportunities for on-site renewable energy generation.
- ✓ Support and promote the use of solar power and other renewable sources.

g. Environmental Education

- ✓ Integrate environmental education into the curriculum.
- ✓ Organize seminars, workshops, and events related to sustainability.

- **Monitoring and Reporting**

VCET will regularly monitor and assess the progress of its green campus initiatives. Reports will be prepared and made available to the campus community and stakeholders annually.

- **Compliance and Enforcement**

Non-compliance with this Green Campus Policy may result in appropriate disciplinary actions, as per the existing institutional guidelines. All stakeholders are expected to comply with and support the implementation of green initiatives.

- **Conclusion**

VCET is committed to creating a sustainable, eco-friendly, and environmentally responsible campus. This Green Campus Policy Document outlines our commitment to embracing and implementing green initiatives and encouraging the VCET community to take part in building a greener future.

This document is a living framework, subject to regular review and adaptation as our green initiatives evolve to meet the needs of the environment and our community.

Date of Approval:

Approved by:

PRINCIPAL
VIDYAVARDHINI'S COLLEGE
OF
ENGINEERING & TECHNOLOGY
VASAI ROAD 401 202.

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY ★ VASAI ROAD ★

Click here for summary page

Vidyavardhini's College of Engineering and Technology

Vasai Road (west)

15 October 2018

The Principal

Vcet

Subject : Report on Mahatma Gandhi Jayanti

Dear Sir,

India's 3 rd national festival, Gandhi Jayanti, was celebrated at Vidyavardhini College of Engineering and Technology to commemorate the 150 th birth anniversary of the father of our nation- Mahatama Gandhi.

The programme started at 9:00 am with the inaugural speech of the Principal who addressed to the gathering, appealing to their nationalistic spirit, also emphasizing the role of youth today as the true wealth of a country. The faculty members and the students of VCET with true spirits came forward to carry out a peace rally approximately 500 members including faculty members and students f, highlighting the message 'Say No ToPlastic'. The rally began at 9:30 am starting from Vidyavardhini College to Panchavati.

Along the journey, the ecstatic faculties and students chanted various slogan and sung patriotic songs adding on to the vibes of patriotism headed by Prof. Yogesh Pingale sir as lead singer.

Also on the same day three groups of students were formed and they carried different aactivites at different places. The details are as below:

Campus Cleaning team : 45

Station Cleaning Team : 60

It was overall a successful event. The moments were captured as memories to be rememberedand cherished forever.

Dr.Pradip Gulbhile

Program Officer

NSS

Click here for summary page

Plastic Survey

Vidyavardhini's College of Engineering & Technology

K. T. Marg, Near Railway Station, Vasai Road(W), Dist. Palghar, Pin. 401202

Activity Report

Academic Year	2021 - 22
Title of the activity	use of Plastic Survey
Date of the activity	09-12-21
Description of the activity	To reduce the use of plastic containers, NSS VCET with Dhyas foundation at Vasai station area.
Venue of the event	VCET + Dhyas foundation Vasai
Organizing committee	NSS VCET
Number of participants	20

Dr. Pradip Gulbhile
Programme Officer, NSS
VCET, Vasai

Vidyavardhini's College of Engineering & Technology

K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2021-22)

Date:- 9 December 2021

To,
The Principal
VCET.

Subject: Report on Plastic Survey, 9 December 2021

To reduce the use of plastic containers, NSS Committee of Vidyavardhini's College of Engineering and Technology, had collaborated with Dhyaas Foundation, an organisation that provides degradable containers to hotels and restaurants on 9th of December, 2021 from 10am onwards.

The event started with the members of Dhyaas foundation, introducing the motive and objective of their organisation and explaining the NSS members their tasks. NSS members were divided into groups of three and given a target of at least ten hotels, restaurants and fast food joints. The members travelled the neighbouring areas and communicated with the managers of restaurants about Dhyaas organisation and their objective to reduce the use of plastic containers. All the members came back after taking surveys from almost 30 nearby restaurants and fast food joints which consisted of information about the types of containers they use. Students were actively volunteering during this surveillance.

Lastly, the volunteers ended the event by giving a vote of thanks to all the dignitaries and other committee members.

Thank You,

Dr.Pradip Gulbhile
Programme Officer
NSS

P.O. NSS

Plastic Survey.

NSS

Vidyavardhini's College of Engineering &Technology
K.T. Marg, Vasai Road (W), Palghar – 401202

Members	Year
Aditi Rathod	TE
Sundar Chaudhary	TE
Shravan Tawade	TE
Sushant Shetty	TE
Anagha Francis	TE
Hrushikesh Shetty	SE
Kshitij Patil	SE
Onkar Suryavanshi	SE
Pratham Ingawale	SE
Prerna Gawali	SE
Sairaaj Gurav	BE
Dhrumil Bhatt	BE
Omkar Salunkhe	BE
Suresh Borana	BE
Manoj Prabhu	BE
Rahul Chormare	BE
Rohit Salunkhe	BE
Swapna Khade	BE
Shreelakshmi Balachandran	BE
Samruddhi Gamre	BE

20

P.O. NSS

Vidyavardhini's College of Engineering and Technology, Vasai Rd.

Date: 20th July 2018

To

The Principal

VCET

Report on ***Tree Plantation***

Keeping the spirit of ***Vanmahotsav***, alive with the ongoing tree plantation drive all across the country, a tree plantation programme was held in our **Vidyavardhini's College of Engineering and Technology Vasai Road** campas on 17th July 2018.

Tree plantation drive inaugurated by respected Secretory of our Institute **Shree Bhausaheb Mohol** and **Principal Shree Dr. Vankudre** by planting and watering few saplings. Heads of all department, Registrar, enthusiastic teaching and non-teaching staff with students were taken part in tree plantation drive.

Saplings are taken from local nursery. We selected saplings such as Indian Pongamia (Karanja), Golden Rain tree (Bahava), Cassia, Legistonia, Nag chafa, Ashoka and Bottlebrush.

We Planted 50 saplings on the periphery of our campas.

The tree plantation drive organized by Tree Plantation Committee.

Following are some snaps of tree plantation drive;

Tree Plantation By Shree Bhausaheb Mohol, Secretory of Vidyavardhini Trust

Vidyavardhini's College of Engineering and Technology, Vasai Rd.

Tree Plantation By Shree Dr Vankudre, Principal of Vidyavardhini's College of Engineering

Tree Plantation By Shree Dr Vikas Gupta, Dean Academics of Vidyavardhini's College

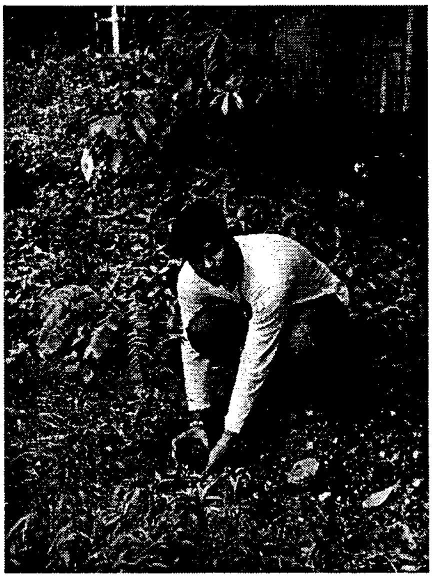
Vidyavardhini's College of Engineering and Technology, Vasai Rd.

Tree Plantation By HODs Dr. Asolekar and Mr Dipak Chaudhari

Tree Plantation By Mr Save, Registrar

Tree Plantation Committee

Vidyavardhini's College of Engineering and Technology, Vasai Rd.



Tree Plantation by Students

Mr Sainath Patil

VCET Vasai Rd

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ARS

A.R.S. ENERGY AUDITORS

BEE Accredited & Empaneled Energy Auditor Firm, MEDA Class-A Energy Auditor

Head Office Address: A/1, A/101, Pramodini Palace CHS Ltd., Near Air India Colony, Virar (East), Maharashtra, India. Pin Code: - 401 305. Ph. No. : +91 7507184478.

E-Mail IDs :- sachin.ameya@gmail.com, sachin@arsenergyauditors.com

Web- www.arsenergyauditors.com

Ref.: ARS/2023/VCET/002 ***Date: 19/10/2023.***

Completion Certificate

This is to Certify that **Vidyavardhini`s College of Engineering and Technology**, Vasai Dist Palghar State Maharashtra has carried out **Green Audit** of the building campus during the Month of **October 2023**. The Energy Audit was carried out by M/s A.R.S. Energy Auditors, Virar. The data is collected to the best of our knowledge from April 2022 to March 2023.

Hope to have future endeavors as well.

Authorized Signature & Seal:

A.R.S. ENERGY AUDITORS VIRAR

SACHIN S. DESHPANDE (AEA0261) B.E.E. GOV. OF INDIA ACCREDITED ENERGY AUDITORS

Name of Authorized Person	**: Mr. Sachin S. Deshpande. (AEA-0261)**
Company Name	**: A.R.S. Energy Auditor, Virar.**
Designation	**: Chief Consultant.**
Date	**: 19/10/2023**
Place	**: Virar.**

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Green Audit Certificate 2021-22

ARS

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BEE Accredited & Empaneled Energy Auditor Firm, MEDA Class-A Energy Auditor

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E-Mail IDs :- sachin.ameya@gmail.com, sachin@arsenergyauditors.com

Web- www.arsenergyauditors.com

Ref.: ARS/2021/VCET/002 ***Date: 13/12/2021.***

Completion Certificate

This is to Certify that **Vidyavardhinis College of Engineering and Technology**, Vasai Dist Palghar State Maharashtra has carried out **Green Audit** of the building campus during the Month of **December 2021**. The Energy Audit was carried out by M/s A.R.S. Energy Auditors, Virar.

Authorized Signature & Seal:

A.R.S. ENERGY AUDITORS VIRAR

SACHIN S. DESHPANDE (AEA0261) B.E.E. GOV. OF INDIA ACCREDITED ENERGY AUDITORS

Name of Authorized Person	**: Mr. Sachin S. Deshpande. (AEA-0261)**
Company Name	**: A.R.S. Energy Auditor, Virar.**
Designation	**: Chief Consultant.**
Date	**: 13/12/2021.**
Place	**: Virar.**

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A.R.S. ENERGY AUDITORS

BEE Accredited & Empaneled Energy Auditor Firm, MEDA Class-A Energy Auditor

Head Office Address: A/1, A/101, Pramodini Palace CHS Ltd., Near Air India Colony, Virar (East), Maharashtra, India. Pin Code: - 401 305. Ph. No. : +91 7507184478.

E-Mail IDs :- sachin.ameya@gmail.com, sachin@arsenergyauditors.com

Web- www.arsenergyauditors.com

Ref.: ARS/2020/VCET/002 ***Date: 20/01/2020.***

Completion Certificate

This is to Certify that **Vidyavardhinis College of Engineering and Technology**, Vasai Dist Palghar State Maharashtra has carried out **Green Audit** of the building campus during the Month of **January 2020**. The Energy Audit was carried out by M/s A.R.S. Energy Auditors, Virar.

Authorized Signature & Seal:

A.R.S. ENERGY AUDITORS VIRAR

SACHIN S. DESHPANDE (AEA0261) B.E.E. GOV. OF INDIA ACCREDITED ENERGY AUDITORS

Name of Authorized Person	**: Mr. Sachin S. Deshpande. (AEA-0261)**
Company Name	**: A.R.S. Energy Auditor, Virar.**
Designation	**: Chief Consultant.**
Date	**: 20/01/2020.**
Place	**: Virar.**

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GREEN AUDIT REPORT OF VIDYAVARDHINI COLLEGE OF ENGINEERING AND TECHNOLOGY, VASAI

Vidyavardhini College of Engineering and Technology

Address: K.T. Marg, Vasai Road (West), Dist.-Palghar,Vasai-401202, Maharashtra, India.

Prepared By

ARS ENERGY AUDITORS

Head Office: A/1, A/101, Pramodini Palace CHS, Near Air India Colony, Virar (West), Maharashtra, India. Pin: 401305.
Phone No.: +91-7507184478, E-Mail : sachin.ameya@gmail.com,arskcal@gmail.com

October 2023

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ACKNOWLEDGEMENT

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For A.R.S. Energy Auditors,Mr. Sachin S. Deshpande.

ABOUT COMPANY

After working in the field of Solar Thermal & PV Projects for four years (1992-1996). **Mr. Sachin Deshpande**, started Company a proprietary firm "**SAN Energy Systems"** in 1996 and successfully installed more than 600 projects in India and became business associate for BHEL for India.

In 2008 the new firm "**A.R.S. Energy Auditors** "was started which is mainly focused in providing Consultancy in the field of Energy Audit. After completing more than 10 years of journey "A.R.S. Energy Auditors" have become one of the best auditing firms which is been appreciated by MEDA in 2017 & 2018 consecutively and crowned First in 2018 Energy Audit Firm Sector. A.R.S. has completed more than 700 audits so far in almost all sectors. Solar PV project consultancy is also one of the vertical of the company.

SERVICES OFFERED :-

❖ **ENERGY CONSERVATION / ENERGY MANAGEMENT :-**

- Energy Efficiency Consultancy Services in various Sector including Industries, Power Generation, Distribution, Commercial, Agriculture and SMEs.
- Detailed Energy audits for all sectors for designated consumer as per EC 2001 Act.
- Preliminary, Detailed and Monitoring & Verification for Designated/NonDesignated Consumers.
- Detailed energy audits in sectors like Aluminum, Chlor Alkali, Fertilizers, Glass and Ceramics, Paper and Pulp, Pharmaceutical, Power Plants, Iron & Steel, Textile, commercial buildings, hospitals, hotels, residential buildings, Packaging, Cement, Municipal Corporations, Railways etc.
- Implementation of Energy Conservation Measures.
- GHG Reduction Programs.
- Demand Side Management.
- Techno-Economical Feasibility and Evaluation for Industrial systems and processes.
- Waste Heat Recovery/ Power Quality.
- ECBC, Green building consultancy.
- Energy management system services and its implementation.
- Carbon Footprinting.
- Electrical Safety Audits.
- Solar P.V. DPRS.

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EXECUTIVE SUMMARY

Environmental auditing is a process whereby an organisation's environmental performance is tested against its environmental policies and objectives. Green audit is defined as an official examination of the effects a college has on the environment. As a part of such practice, internal environmental audit (Green Audit) is conducted to evaluate the actual scenario at the campus. Green audit can be a useful tool for a college to determine howand where they are using the most energy or water or resources; the college can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. Green auditing and the implementation of mitigation measures is a win-win situation for all the college, the learners and the planet. It can also create healthconsciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of Green impact on campus. Although awareness of greenbuilding has risen dramatically in the last 25 years.

In Vidyavardhini College the audit process involved initial interviews with management to clarify policies, activities, records and the cooperation of staff and students in the implementation of mitigation measures. This was followed by staff and student interviews, collection of data through the questionnaire, review of records, observation of practices and observable outcomes. In addition, the approach ensured that the management and staff are active participants in the green auditing process in the college.

The baseline data prepared for the Vidyavardhini College will be a useful tool for campus greening, resource management, planning of future projects, and a document for implementation of sustainable development of the college. Existing data will allow the college to compare its programmes and operations with those of peer institutions, identify areas in need of improvement, and prioritize the implementation of future projects.

The report of the green audit was a comprehensive evaluation after thorough evaluation of all aspects related to concerned green activities of the campus. It identified the green activities in the campus involving, management, teachers and students. It also identified lacunas in green practices of the campus and recommended a few practices to be implemented for it to become a green campus.

In today's commercial and residential real estate industries, green building certification programs are increasingly being applied to new and existing buildings as a means of verifying that a building meets a set of "green" criteria. Such criteria may include energy efficiency, sustainable materials selection, site location, and indoor environmental quality.

Certified green buildings purport to deliver a series of benefits to property owners, managers, and occupants. For example, energy efficiency, a central tenet of many green building certification programs, can decrease operational expenses and reduce the carbon emissions associated with a particular building – a growing concern in many regions around the world.

Sustainable materials selection can improve the quality of the indoor environment by eliminating materials with toxic substances. Moreover, certified green buildings can sometimes command higher property values and rents, and green building certification can distinguish certain properties in highly competitive real estate markets. A nation's growth starts from its educational institutions, where the ecology is thought as a prime factor of development associated with environment. A clean and healthy environment aids effective learning and provides a conducive learning environment. Educational institutions now a day are becoming more sensitive to environmental factors and more concepts are being introduced to make them eco-friendly. To preserve the environment within the campus, various viewpoints are applied by the several educational institutes to solve their environmental problems such as promotion of the energy savings, recycle of waste, water reduction, water harvesting etc. The activities pursued by colleges can also create a variety of adverse environmental impacts.

1 INTRODUCTION

1.1 Green Audit

The Green audit process was began in the 1970s with an intention of identifying the activities carried out in a given institution or company. This was initiated against thebackground of growing concern over changing climate and related aspects. Green audit is a tool to identify the range of environmental impacts and assess the compliance of the operations on the development and regular activities within an organisation. It may also assess the compatibility of the operations within an organisation or a company with existingapplicable laws and regulations and the expectations of their various stakeholders. It furtherassesses the possible implications and effect of pollution due to the operations within the organisation. The audit also seeks to identify possible means and methods to save investments, enhance work quality, improve health and safety of their employees, reduce liabilities and reduce the rate of environmental pollution. A continuous process of such audit might result in maintaining the quality of these aspects within the premises of any organisation.

1.2 About Vidyavardhini's College of Engineering & Technology

Vidyavardhini means a Body committed to enhancement of Knowledge. Vidyavardhini was established as a registered society in 1970 by late Padmashri H. G. alias Bhausaheb Vartak for the noble cause of education in rural areas.

Vidyavardhini's College of Engineering and Technology, Vasai is located on the sprawling campus of Vidyavardhini, spread over an area of 12.27 acres. It is a short, two minutes' walk from Vasai Road (W) Railway Station. The college is also accessible by road from Mumbai.

Vidyavardhini Society received approval from AICTE to start the new college of Engineering & Technology with effect from July, 1994. The college is affiliated to the University of Mumbai for the four-year degree program leading to the degree of Bachelor ofEngineering.

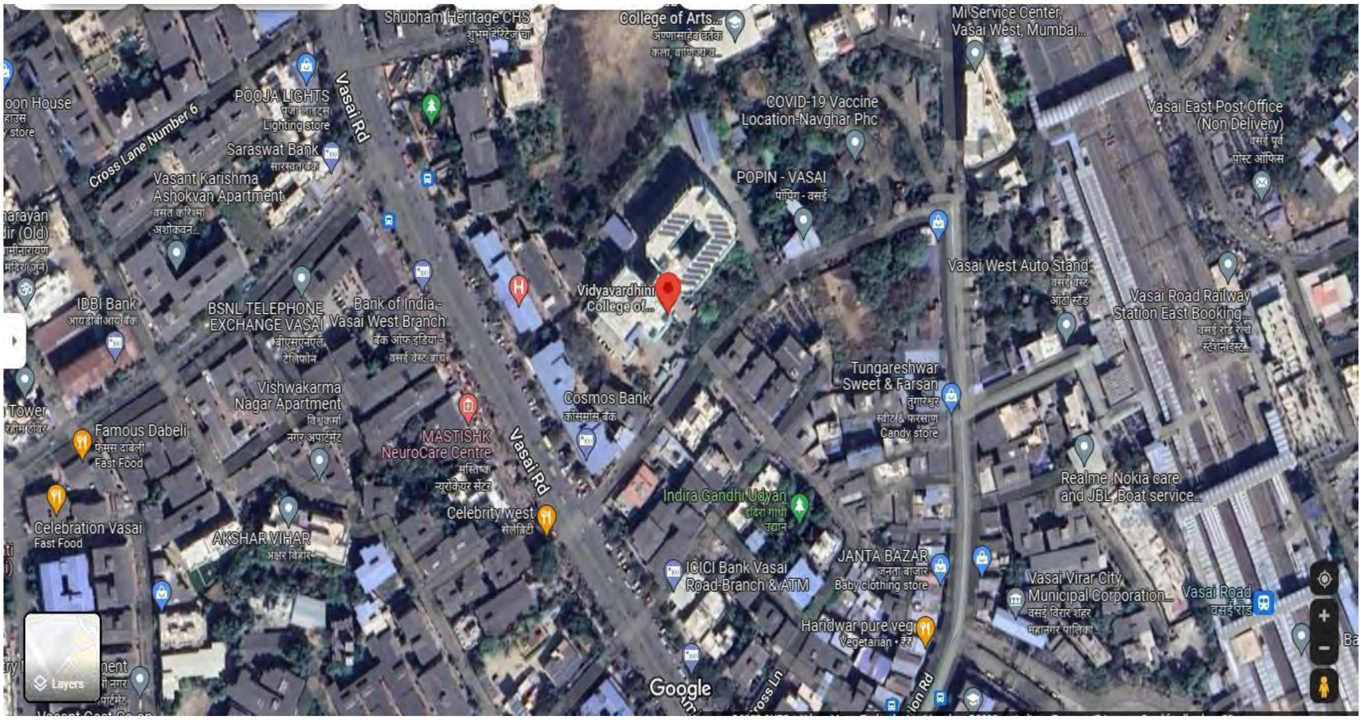
VISION:

- To be premier institution of technical education, aiming at becoming a valuable resource for industry and society

MISSION

- To provide technologically inspiring environment for learning
- To promote creativity, innovation and professional activities
- To inculcate ethical and moral values
- To cater personal, professional and societal needs through quality education

Location of Vidyavardhini College of Engineering and Technology



2. WHAT IS GREEN AUDIT

Green Audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims toanalyze environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Audit.

Green audit is assigned to the criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India which declares the institutions as Grade according to the scores assigned during the accreditation.

The main findings of the audit show that, in general, all the departments and students are aware about the need for environmental protection at a general level. It was also observed that a number of best practices such as maintaining potted plants, introducing plastic free zone etc. are followed in the campus.

However, on detailed review, it was observed that, as the college is implementing Green Policy for the first time, many of the practices followed in the institution are not in compliance with the Green Policy of the institution, and the applicable standards. In addition, certain processes could benefit from further review in order to improve their efficiency, fairness and consistency.

The ICC defines Environmental Auditing as:

A management tool comprising a systematic, documented, periodic and objective evaluationof how well environmental organization, management and equipment are performing with theaim of safeguarding the environment and natural resources in its operations/projects. A building which can function using an optimum amount of energy, consume less water, conserve natural resources, generate less waste and create spaces for healthy and comfortable living, as compared to conventional buildings, is a green building.

Green building (also known as sustainable building) refers to a structure and using process that is environmentally responsible and resource-efficient throughout a building's life-cycle: from siting to design, construction, operation, maintenance, renovation, and demolition. A building which can function using an optimum amount of energy, consume less

water, conserve natural resources, generate less waste and create spaces for healthy and comfortable living, as compared to conventional buildings, is a green building. Energy efficient building is a structure designed for minimal to optimum use of energy. In broad sense it also involves consideration of environmental impact, minimization of required inputs of energy, water and food, and waste output of heat, air pollution and water pollution.

Most companies, government and non-government bodies and other institutions conduct green audit aiming:

- To ensure that the performance of the institution with respect to environmental activities they are involved in, is following existing laws and regulations.
- To check the functionality and their operating success including water supply, energy related matters and other similar matters that are related to green operations in the campus.
- To formulate or update the institution's environmental policy, if warranted.
- To measure the environmental impact of operational process related to green activities in the campus.
- To measure the performance of each green related operations and actions in the campus.
- To generate a database of green activities for continuous monitoring to assess the success of each of them.
- To identify future potential liabilities.
- To align the institution's developmental and day to day activities with the stated vision, mission, strategies, etc.
- To identify possible ways to reduce expenditure and running costs on equipment's, appliances, etc. or try enhance revenue income.
- To improve process and materials efficiency, and in response to stakeholder requests for increased disclosure.

3. OBJECTIVES OF GREEN AUDITING

There is a growing trend for green buildings all over the world including India. The energy crisis and environmental pollution concern in 1970s all over the world was one of the primary reasons for development of green buildings and sustainable development. Buildings account for a large amount of land. The International Energy Agency released a publication that estimated that existing buildings are responsible for more than 40% of the world's total primary energy consumption and for 24% of global carbon dioxide emissions.

According to the International Energy Agency (IEA), the buildings sector accounted for the largest share of India's final energy use between 1995 and 2005. In 2005, this sector consumed 47% of the total final energy use. Residential buildings accounted for the 93% of the total building energy use the same year. For sustainable development, green and energy efficient building concept can prove invaluable for India and need to be addressed with a more collaborative approach.

The objective of Green Auditing is its most imperative component. A well-defined objective enables the Green Auditor as well as his Team to conduct the auditing without deviating from the focus. Achievement in terms of Carbon Footprint reduction needs to be assessed in both quantitative and qualitative terms.

The purpose of this audit is to ensure that the Green Policy is followed and implemented in the campus, across all departments, administrative bodies and students.

To promote the Environment Management and Conservation in the College Campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

- To assess whether the measures implemented by College have helped to reduce the Carbon Footprint.
- To assess whether investments made in increasing awareness among students regarding electricity, biodiversity and environment have helped the Institution achieve the required carbon dioxide emission and absorption in the campus.
- To assess whether non-academic activities of the Institution support the collection, recovery, reuse and recycling of solid wastes that harm the environment.

- To identify gaps and suggest recommendations to improve the Green Campus status of the institution.
- To introduce and aware students to real concerns of environment and its sustainability
- To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource use on the campus.
- To establish a baseline data to assess future sustainability by avoiding the interruptions in environment that are more difficult to handle and their corrections requires high cost.
- To bring out a status report on environmental compliance

The process of green audit based on operational activities within an institution happens not necessarily based on laws and regulations. It might be largely based on awareness and concerns on environmental performances within and outside the institute's premises. This further strengthens the fact regarding social responsibilities of the organization. Majority of the institutions that conducted green audits in the recent past has realized the importance of the same as they could easily manage their operational costs and provide good atmosphere to their stakeholders. The green audit also provides opportunities to identify full range of operations within an organization, the impacts of maintaining and functioning of its operational goods and services, the actual source of raw materials for different activities within the organization, the costs of operations of its offices, functional units, and other facilities. It also provides chances to understand the relationship with employees, material suppliers, stakeholders, etc. The recommendations, findings and suggestions that emerge during green audit would certainly help the management of the organization to set up future action plan that best suits to them.

1.2. General steps involved in Green Audit

1. Systematic and exhaustive data collection.
2. Evidence based documentation of activities.
3. Regular monitoring.
4. Provide standards and methods for improvement by establishing cost effective green action plan.

4. METHODOLOGY

In order to perform green audit, the methodology included different tools such as preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations.

4.1 The Green Audit Process:

A. Selection of area/activities/parts of the campus.
B. Planning of visit to campus to discuss about the audit process.
C. Scope of audit process was identified in consultation with the auditee.
D. A meticulous plan of action was designed.
E. A team consisting of teachers, non-teaching staff and students was constituted with specific tasks and a proper time schedule.
F. Data pertaining to identified parameters for green auditing of the campus were collected directly through an on-site visit.
G. Available background information on the identified activities and other parameters were collected.
H. The role of each stakeholder in green related activities has been collected.
I. Historical aspects of green activities in the campus including flora fauna, water usage and waste generation, etc. were collected.
J. A questionnaire based on the preliminary visits and other evaluations was communicated to the authorities who are involved in the in-house data collection.
K. Data collection based on questionnaire.
L. Visit to the campus by audit team.
M. Data analysis and evaluation.
N. Discussion on the findings.
O. Report preparation.

The study covered the following areas to summarise the present status of environment management in the campus:

- Water management
- Energy Conservation
- Waste management
- E-waste management
- Green area management
- Carbon Footprint

4.2 Target Areas of Green Auditing

Green audit forms part of a resource management process. Although they are individual events, the real value of green audits is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time. Eco-campus concept mainly focuses on the efficient use of energy and water; Minimize waste generation or pollution and also economic efficiency.

All these indicators are assessed in process of "Green Auditing of educational institute‟. Eco-campus focuses on the reduction of contribution to emissions, procure a cost effective and secure supply of energy, encourage and enhance energy use conservation, promotes personal action, reduce the institute's energy and water consumption, reduce wastes to landfill, and integrate environmental considerations into all contracts and services considered to have significant environmental impacts. Target areas included in this green auditing are water, energy, waste, green campus and carbon footprint.

4.3 Water Management

Water is our most precious resource. Without it no plant or animal can survive. India is predicted to become drier, because of rising population and urban demand so the need to save water and ensure sustainability will grow. We all have a role to play by reducing our usage of water. We can secure our water supply for generations to come. We have to find new ways of source and preserve our precious water and we need educational institute to help by saving as much water as they can. This will save the money and reduce the impact on the environment. Water is a natural resource; all living matters depend on water. While freely available in many natural environments, in human settlements potable (drinkable) water is less readily available. We need to use water wisely to ensure that drinkable water isavailable for all, now and in the future.

A small drip from a leaky tap can waste more than 180 liters of water to a day; that is a lot of water to waste - enough to flush the toilet eight times! Aquifer depletion and water contamination are taking place at unprecedented rates.It is therefore essential that any environmentally responsible institution should examine its water use practices. Water auditing is conducted for the evaluation of facilities of raw water intake and determining the facilities for water treatment and reuse. The concerned auditor investigates the relevant method that can be adopted and implemented to balance the demand and supply of water. It is therefore essential that any environmentally responsible institution examine its water use practices.

4.3.1 Water audit

A water audit is an on-site survey and assessment of water using hardware, fixtures, equipment, landscaping, and management practices to determine the efficiency of water and to develop recommendations for improving water use efficiency. In simple words, a water audit is a systematic review of a site that identifies the quantities and characteristics of all water uses. The site may vary from a public water utility, facility (institutional or commercial properties like malls, office, schools etc.) or a household.

The overall objective of conducting a water audit is to identify opportunities to preserve and save water more efficiently. Since, water uses vary greatly from one type of business or institution to another and from site to site, water audit is crucial to determine quantity, nature and quality of water consumption. Water audit for water utility refers to tracking, assessing and validating all components of flow from the site of withdrawal or treatment through the water distribution system and into the consumer's properties.

On the other hand, water audit of an office building would review direction and quantity of water used for domestic, cooling/heating, sanitary and landscaping processes. Whereas usage of water for domestic purpose, audit examines the major areas in which a facility uses water, including human consumption, personal hygiene and sanitation, washing, cleaning, laundry, gardening etc.

Water audit comprises of preparation of layout of water sources, distribution network, and service / delivery points to water users and return flow of waste or excess water. The layout should include locations and capacities of flow measurement devices installed at keypoints, dimensions of pipes and fittings in the water supply system, locations and particularsof flow control devices and history sheets of all measuring and control devices including pipes and fittings.

4.3.2 Rain Water Harvesting

Water harvesting is the activity of direct collection of rainwater, which can be stored for direct use or can be recharged into the groundwater. Water harvesting is the collection of runoffs for productive purposes. Rain is the first form of water that we know in the hydrological cycle, hence is a primary source of water for us. Rivers, lakes and groundwater are all secondary sources of water. Water harvesting is to understand the value of rain, and to make optimum use of rainwater at the place where it falls.

4.3.3 Need for Rainwater Harvesting

- As water is becoming scarce, it is the need of the day to attain self-sufficiency to fulfil the water needs.
- As urban water supply system is under tremendous pressure for supplying water to ever increasing population.

- To reduce urban flooding
- Groundwater is getting depleted and polluted.
- Soil erosion resulting from the unchecked runoff.
- Health hazards due to consumption of polluted water.

4.3.4 Benefits of Rainwater Harvesting

- Environment friendly and easy approach for water requirements
- RWH is the ideal solution for all water requirements.
- Increase in ground water level.
- Mitigates the effects of drought.
- Reduces the runoff, which otherwise flood storm water drains.
- Reduces flooding of roads and low-lying areas.
- Reduced soil erosion.
- Improves the ground water quality.
- Low cost and easy to maintain.
- Reduces water and electricity bills.

4.4 Energy Management

Energy cannot be seen, but we know it is there because we can see its effects in the formsof heat, light and power. This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliances, and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. An old incandescent bulb uses approximately 60W to 100W while an energy efficient light emitting diode (LED) uses only less than 10 W. Energy auditing deals with theconservation and methods to reduce its consumption related to environmental degradation.It is therefore essential that any environmentally responsible institution examine its energyuse practices.

4.4.1 Energy Audit

Energy sources utilized by all the sections of college include Electricity, Natural Gas and Diesel. An energy audit is recommended to determine the energy consumption associated with a facility and the potential savings associated with that energy consumption. From a general point of view, an energy audit provides enormous benefits in different areas.

An energy audit can identify energy consumption and energy costs of the facility and it can evolve over time to develop measures to eliminate waste, maximize efficiency and optimize supply energy.

An energy audit is an inspection, survey and analysis of energy flows for identification of energy savings opportunities in a building, process or system to reduce the amount of energy input into the system, without negatively affecting the output(s).

4.4.2 Benefits of Energy Audit

At a particular level, among the major benefits of doing an energy audit are:

- It helps you to lower energy bills.
- It enables you to increase the comfort of those in the facility.
- It helps you to increase the life span of the equipment in your facility.
- It discovers any unaccounted consumption that may exist at the facility.
- It helps reduce energy costs in your facility.
- With a reduction in production costs, the competitiveness of your company will be improved.
- It helps reduce the dependence on foreign energy sources.
- It helps reduce environmental damage and pollution.
- It can increase the security of your energy supply.
- It can reduce the consumption of natural resources.
- It can reduce damage to the environment associated with the exploitation of resources.
- It helps reduce the impact of greenhouse gas emissions.

4.5 Waste Management

Pollution from waste is aesthetically unpleasing and results in large amounts of litter in our communities which can cause health problems. Plastic bags and discarded ropes and strings can be very dangerous to birds and other animals. This indicator addresses waste production and disposal, plastic waste, paper waste, food waste, and recycling. Solid waste can be divided into two categories: general waste and hazardous waste. General wastes include what is usually thrown away in homes and schools such as garbage, paper, tins and glass bottles. Hazardous waste is waste that is likely to be a threat to health or the environment like cleaning chemicals and petrol.

Unscientific landfills may contain harmful contaminants that leach into soil and water supplies, and produce greenhouse gases contributing to global climate change. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair, and reuse. Thus the minimization of solid waste is essential to a sustainable college. The auditor diagnoses the prevailing waste disposal policies and suggests the best way to combat the problems. It is therefore essential that any environmentally responsible institution examine its waste processing practices.

Waste management is one of the burning problems not only in India but also in the world. Hence it is necessary to use the things properly and manage them cautiously. The main purpose behind this audit is to analyze the quantity and volume of solid, liquid waste and their proper management. Similarly, to make aware about their hazardous effects and to create awareness amongst the students, teachers about minimum use, reuse and recycle of the waste.

Solid waste generation and its management is a burning issue in current days. The rate of generation of solid waste is very high and yet we do not have adequate technology to manage the generated waste. Unscientific handling of solid waste can create threats to public health and environmental safety issues. Thus, it is necessary to manage the solid waste properly to reduce the load on waste management system. The purpose of this audit is to find out the quantity, volume, type and current management practice of solid waste generation

4.6 Green Area Management

Unfortunately, biodiversity is facing serious threats from habitat loss, pollution, over consumption and invasive species. Species are disappearing at an alarming rate and each loss affects nature's delicate balance and our quality of life. Without this variability in the living world, ecological systems and functions would break down, with detrimental

consequences for all forms of life, including human beings. Newly planted and existing trees decrease the amount of carbon dioxide in the atmosphere. Trees play an important ecological role within the urban environment, as well as support improved public health and provide aesthetic benefits to cities.

In one year, a single mature tree will absorb up to 48 pounds of carbon dioxide from the atmosphere, and release it as oxygen. The amount of oxygen that a single tree produces is enough to provide one day's supply of oxygen for people. So while you are busy studying and working on earning those good grades, all the trees on campus are also working hard to make the air cleaner for us. Trees on our campus impact our mental health as well; studies have shown that trees greatly reduce stress, which a huge deal is considering many students are under some amount of stress.

4.7 Carbon Footprint

Commutation of stakeholders has an impact on the environment through the emission of greenhouse gases into the atmosphere consequent to burning of fossil fuels (such as petrol). The most common greenhouse gases are carbon dioxide, water vapour, methane, nitrous oxide and ozone. Of all the greenhouse gases, carbon dioxide is the most prominent greenhouse gas, comprising 402 ppm of the Earth's atmosphere. The release of carbon dioxide gas into the Earth's atmosphere through human activities is commonly known as carbon emissions.

An important aspect of doing an audit is to be able to measure your impact so that we can determine better ways to manage the impact. In addition to the water, waste, energy and biodiversity audits we can also determine what our carbon footprint is, based on the amount of carbon emissions created. One aspect is to consider the distance and method traveled between home and college every day. It undertakes the measure of bulk of carbon dioxide equivalents exhaled by the organization through which the carbon accounting is done. It is necessary to know how much the organization is contributing towards sustainable development. It is therefore essential that any environmentally responsible institution examine its carbon footprint.

The methodology adopted for this audit was a three step process comprising of:

1. **Data Collection –** In preliminary data collection phase, exhaustive data collection was performed using different tools such as observation, survey communicating with responsible persons and measurements. Following steps were taken for data collection:
    - Data about to each department, centers, Library, canteen etc.

- Data about the general information collection by observation and interview.
- The power consumption of appliances recording by taking an average value in some cases.

2. **Data Analysis -** Detailed analysis of data collected include: calculation of energy consumption, analysis of latest electricity bill of the campus, understanding the tariff plan provided by the Maharashtra State Electricity Board (MSEB). Data related to water usages were also analyzed using appropriate methodology.
3. **Recommendation –** On the basis of results of data analysis and observations, some steps for reducing power and water consumption were recommended. Proper treatments for waste were also suggested. Use of fossil fuels has to be reduced for the sake of community health.

The base of any green audit is that its findings are supported by documents and verifiable information. The audit process seeks, on a sampled basis, to track past actions, activities, events, and procedures to ensure that they are carried out according to systems requirements and in the correct manner. Green audits form a part of a process. Although they are individual events, the real value of green audits is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time.

Although green audits are carried out using policies, procedures, documented systems and objectives as a test, there is always an element of subjectivity in an audit. The essence ofany green audit is to find out how well the environmental organization, environmental management and environmental equipment are performing. Each of the components is crucial in ensuring that the organization’s environmental performance meets the goals set in its green policy. The individual functioning and the success of integration will all play a role in the degree of success or failure of the organization’s environmental performance.

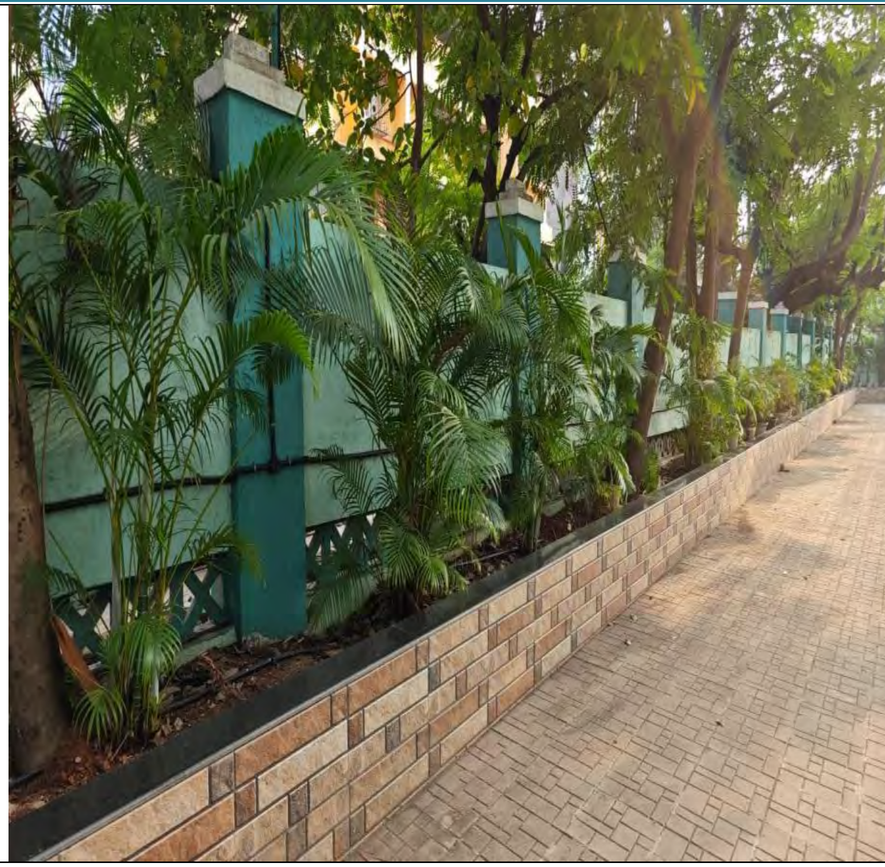
5. LIST OF PLANTS WITH APPROX NUMBER OF EACH SPECIES

Sr. No.	Plant Name	Plant Photos	NO.
1	Ponytail Palm Location- Garden Area (near Statue)		2
2	Yellow Elder Location- Garden Area		2
3	Platycladus Location- Garden Area (near Statue)		4

4	Parijat Location- Garden Area (near Statue)		1
5	Gulmohar Tree Location Near Garden Area		9

6	Ashoka Trees Location Near Garden Area		25
7	Neem Tree Location- Behind Stage Area		1

8	Gold Dust Croton Plant Location Near Garden Area		2
9	Araucaria columnaris Location- Garden Area		2

10	Areca palm Location- Near garden Area		14

11	Indoor Plants Cover Location- Central Library		10

Lawn with Sprinklers (Good Initiative taken)	

6. COMPOST PIT

Good step taken

Implemented a compost pit at a college involves creating a designated area or contained space for the decomposition of organic waste, like food scraps and yard trimmings, to produce nutrient-rich compost. This controlled environment facilitates the breakdown of materials through microbial activity, using a layered approach that combines nitrogen-rich "green" materials with carbon-rich "brown" materials. As microbial activity heats up the compost, it transforms into humus-rich compost, ideal for enhancing soil structure, moisture retention, and promoting healthy plant growth.

The resulting compost serves as a valuable soil conditioner, used in campus gardens, landscaping projects, and horticultural programs. Beyond its horticultural benefits, composting minimizes waste sent to landfills, aligning with sustainability goals and providing educational opportunities for students to engage in environmental stewardship. This practice fosters a sense of community involvement, encouraging collaboration among students, faculty, and staff while effectively managing organic waste into a resource for campus landscaping and agricultural endeavors. Ultimately, implementing compost pits in colleges not only reduces environmental impact but also serves as an educational tool in sustainable practices and responsible waste management within the campus community.
By establishing compost pits, colleges not only effectively manage organic waste but also nurture a culture of sustainability, knowledge sharing, and responsible environmental practices within their campus communities.

What is a compost?
It is the product resulting from a process of biological decomposition of organic waste. It is produced ecologically and can be used in urban agriculture, as it provides the necessary nutrients to the soil, improving the soil for plant production. This technique is based on accelerating the process that nature follows to make the earth fertile by creating humus. There are several types of compost, some of them are: hot compost, Bokashi compost and vermicompost.

Hot compost
The hot compost takes 4 weeks to be completed, it is the simplest and easiest to care for, its procedure is described below.

Materials

1. Plastic bin or box that allows drainage and ventilation.
2. Soil and water.
3. Garden waste (grass clippings, fallen leaves, etc.).
4. Gloves.
5. Garden watering can.
6. Garden spade
7. Cover with mosquito net or mesh.
8. Organic waste (see chart).
9. Greens / Kitchen
10. Green Leaves
11. Tea bags
12. Fruits and vegetables remains
13. Used napkins
14. Browns / Garden
15. Sawdust
16. Straw
17. Dried leaves

Waste to avoid

1. Excrements of carnivorous animals, such as dogs and cats
2. Diseased plants

3. Oils, fats and dairy products

4. Grass clippings or pruning trees

5. Meat, bones or fish remains

Preparation

1) First layer

Deposit a layer of soil and brown organic waste in the bottom of 10 to 15 centimeters.

2) Second layer

Place the organic waste in layers, start with the green waste, forming a layer of 3 to 5 inches.

3) Third layer

Continue with the next layer of sawdust or dried leaves (brown residues) of 3 to 5 inches.

4) Repeat until the bin is filled

Repeat the process as you generate waste until the bin is filled and add water to keep it moist (avoid waterlogging). Repeat until the container is filled.

5) Mix the layers constantly

Mix the layers constantly to circulate the air and help decomposition. Mix the layers constantly.

6) Cover the compost with a mesh

Always cover the last layer with soil or brown residues and cover the container with a mesh to avoid unwanted animals.

Compost use

The compost is ready when it smells and looks like soil, and is at room temperature. It can be used directly on plants.

Maintenance

- Maintenance is necessary every week, do not let the compost dry.
- Compost soil should always be moist but not wet or soaked.
- Remove the soil constantly to circulate air.

Benefits of Implementing a Compost Pit at a College:

- **Sustainability**: Composting aligns with the college's commitment to sustainability and environmental stewardship, reducing waste and promoting responsible resource management.
- **Experiential Learning**: Students gain practical experience in sustainable practices, fostering a sense of environmental responsibility and awareness.
- **Community Engagement**: Composting initiatives encourage collaboration and engagement among students, faculty, and staff, fostering a shared commitment to environmental conservation.
- **Resource Utilization**: Converting organic waste into compost creates a valuable resource for campus landscaping, gardens, and agricultural endeavors, promoting self-sufficiency and resource conservation.

Location selection

• By making the pit close to the crop waste, you can reduce the transport cost

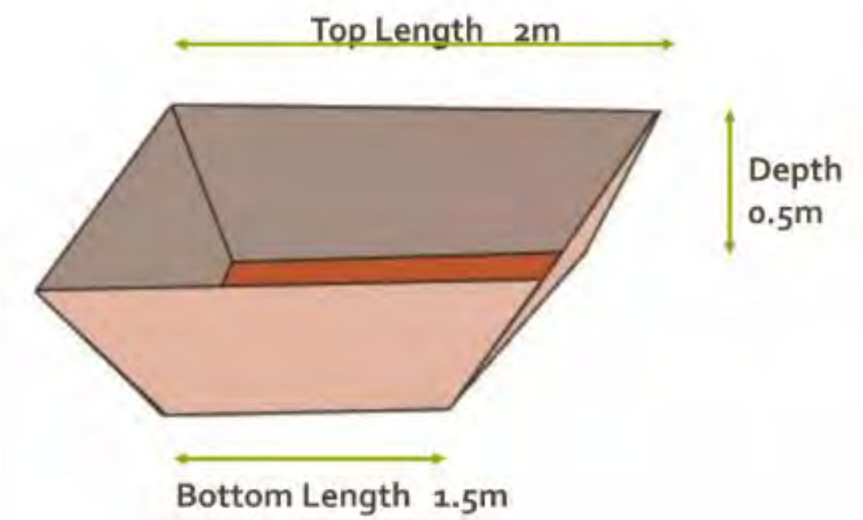
• Should find a hard soil because if there is a loose soil, nutrients are infiltrated into the soil.

• Access to water

• Access to raw material

Pit Making Procedure

Dig the hole for your compost pit. Your compost hole should be about 0.5m deep. The area of the hole will be determined by the amount of organic matter you want to add. Sizes can be vary according to the requirement.



Method

1. First a mulching layer for 1 inch width is put inside the pit. For that straw, saw dust, husks can be used.

2. The other things which are used to make compost such as giricedia, cowpea, ground nut, Albesia leaves are dried under light sun. Better if you can cut those in to small pieces. Make sure your carbon-rich materials (such as paper and dried leaves) are mixed thoroughly with your nitrogen-rich materials (like vegetable scraps and fresh grass clippings)

3. Inoculant nutrients are made in liquid form. For that,

   i. Dung 22.5 kg (1 bucket)

   ii. Ash 2.5 kg (2 hands full)

   iii. Well digested compost manure 4.5Kg

4. This mixture is dissolved in 4.45L of water (-3 buckets). A portion of processed mixture is poured in to the cover layer inside the pit.

5. Then an organic layer and pour some water

6. Again the inoculant utrient pour and pour some water

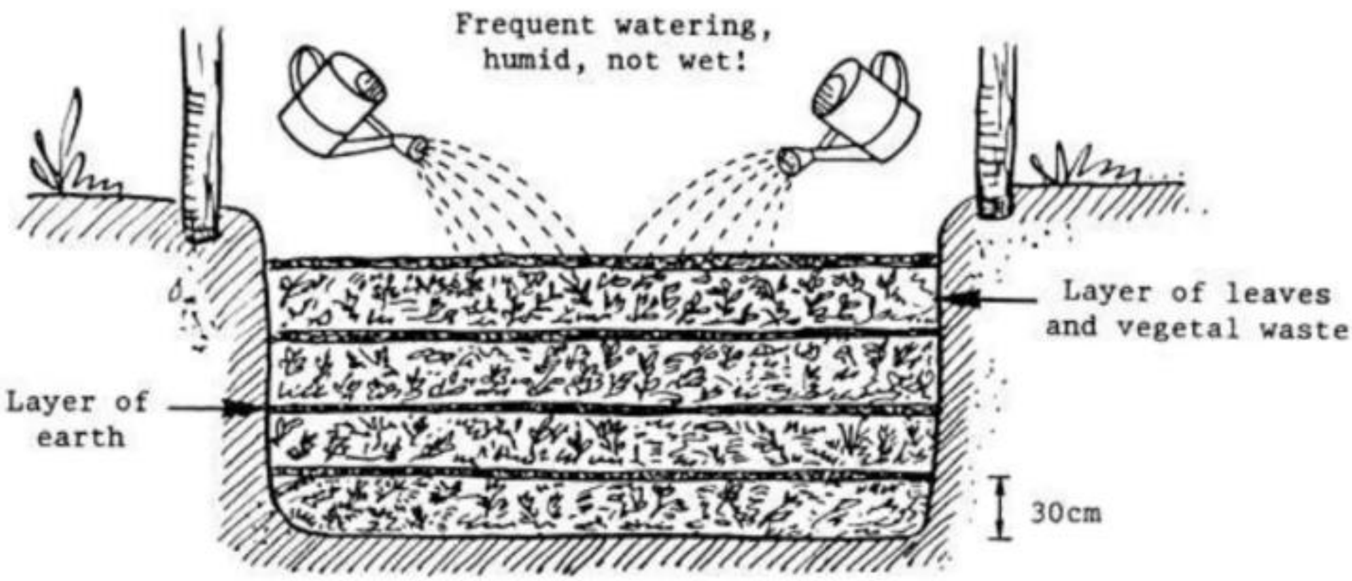
7. 7 This is repeated until it reaches a inches above the ground level.

8. 8. Water should be poured for each layer. This pouring should be done as water flowing out. Underground compost decomposes slowly, because it doesn't have access to as much fresh oxygen as aboveground piles. To speed the process, ensure the area stays fairly wet.

Location selection

- By making the pit close to the crop waste, you can reduce the transport cost
- Should find a hard soil because if there is a loose soil, nutrients are infiltrated into the soil.
- Access to water
- Access to raw material

Compost Pit Layout



7. RECOMMENDATION

- College is recommended to plant some indoor plants to reduce carbon foot print and those with medicinal benefits
- Install weather-resistant signboards near plants, displaying common and QR codes for deeper insights, fostering interactive and educational experiences for students and visitors
- In the future, opt for plants suited to arid Indian climates and native species, reducing water needs while flourishing with minimal maintenance.
- Plant trees like oak, maple, or fast-growing species such as poplar to increase oxygen levels, as trees absorb carbon dioxide and produce oxygen, vital for a healthy atmosphere.
- Year wise internal audit on green, water and energy to be conducted byrespected teachers.
- Proper management and month wise mapping of water and energy usage tobe conducted by monitoring the same in the records.
- Department wise awareness programs to be organized by department staffrepresentative to each committee.
- Implementation of sign boards and indications of water and energy usage.
- Energy maintenance by proper usage of electrical appliances.
- A timber garden and museum to be implemented
- Install EV charging points powered by renewable energy sources like solar to promote sustainable transportation within the college campus.
- Implement smart charging systems for efficient energy usage and encourage adoption of electric vehicles among students and staff.
- Use of Electric on the campus is good initiative to save fuel
- Reducing the use of one-time use plastic bottles, cups, folders, pens, bouquets, decorative items will be useful to solve the problem of plastic pollution to some extent.
- Promotion of visit to agriculture farm lands and processing centers.

The students and staff who are active in green related activities have a clear vision about how and what should be planned for a greener campus. They think that planting of more saplings during the world environment day would cater more awareness and enthusiasm in students who join afresh each year. The college is also planning to initiate plant a tree/adopt a tree program where each student will be planting a sapling and taking care of it during his or her stay in the college. Although the college follow a university curriculum by implementing several such awareness program in their academic and non-academic activities promote more students turn to green activities.

8. CONCLUSIONS

Considering the fact that the institution is predominantly an undergraduate college, thereis significant environmental research both by faculty and students. The environmental awareness initiatives are substantial. The installation of solar panels, paperless work system and vermicomposting practices are noteworthy. Besides, environmental awareness programs initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using ecofriendly and scientific techniques. This may lead to the prosperous future in context of Green Campus & thus sustainable environment and community development.

1. Green audit at times makes the campus authority to understand the effect of implications towards greenness and conservation of water and energy.
2. The management and other authorities are keen to make the campus a green campus.
3. Staff and students are aware about the commitment of the institute towards the society.
4. Green audit at times makes the campus authority to understand the effect of implications towards greenness and conservation of water and energy.
5. The campus community functions are oriented with an eco-friendly approach that enables the student community to develop a genuine approach on conservation of nature, and natural resources.

9. ANNEXURE

Completion Certificate

A.R.S. ENERGY AUDITORS

BEE Accredited & Empaneled Energy Auditor Firm, MEDA Class-A Energy Auditor

Head Office Address: A/1, A/101, Pramodini Palace CHS Ltd., Near Air India Colony, Virar (East), Maharashtra, India. Pin Code: - 401 305. Ph. No.: +91 7507184478.
E-Mail IDs :- sachin.ameya@gmail.com, sachin@arsenergyauditors.com
Web- www.arsenergyauditors.com

Ref.: ARS/2023/VCET/002 ***Date: 19/10/2023.***

Completion Certificate

This is to Certify that **Vidyavardhini`s College of Engineering and Technology**, Vasai Dist Palghar State Maharashtra has carried out **Green Audit** of the building campus during the Month of **October 2023**. The Energy Audit was carried out by M/s A.R.S. Energy Auditors, Virar. The data is collected to the best of our knowledge from April 2022 to March 2023.

Hope to have future endeavors as well.

Authorized Signature & Seal:

SACHIN S. DESHPANDE (AEA0261) B.E.E. GOV. OF INDIA ACCREDITED ENERGY AUDITORS

A.R.S. ENERGY AUDITORS VIRAR

Name of Authorized Person	**: Mr. Sachin S. Deshpande. (AEA-0261)**
Company Name	**: A.R.S. Energy Auditor, Virar.**
Designation	**: Chief Consultant.**
Date	**: 19/10/2023**
Place	**: Virar.**

Liquid Waste Management of Chemistry Laboratory, VCET

VIDYAVARDHINI'S COLLEGE OF ENGINEERING & TECHNOLOGY
Founder President Late Padmashri H. G. Vartak
(Approved by AICTE and Affiliated to the University of Mumbai)
Four Branches Permanently Affiliated by Unviersity of Mumbai
K. T. Marg, Vasai Road (W), Dist. Palghar - 401202, Maharashtra.
Tel.: 0250 - 2338234 (6 Lines) • Fax : 0250 - 2339486 • Email : vcet_inbox@vcet.edu.in • Website : www.vcet.edu.in

Liquid Waste Management of Chemistry Laboratory, VCET

Radioactive and hazardous chemical waste are not produced by the Institute. For laboratory or research purposes, the majority of departments do not employ any chemicals or radioactive materials.

Chemicals are handled in extremely small quantities and are employed in diluted form in the Chemistry laboratory activities. All students receive guidance from staff members on how to use and handle chemicals safely.

The bulk of the tests employed alkali and acid solutions, which are created in extremely low quantities and are not highly dangerous. The primary purpose of acid-base titrations is to determine the concentration of the reactant or product. As a result, the reaction mixture and neutral wastewater comprise the laboratory's output. Samples of the titration and reaction mixture are collected separately and placed in waste chemical containers. After neutralization and dilution, it is released further.

for Mrs. Chandrakishori Sonarkar
Chemistry Laboratory Incharge

Dr. Harish Vankudre
Principal, VCET

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY ★ VASAI ROAD ★

Click here for summary page

GREEN AUDIT REPORT OF VIDYAVARDHINI COLLEGE OF ENGINEERING AND TECHNOLOGY, VASAI

Vidyavardhini College of Engineering and Technology

Address: K.T. Marg, Vasai Road (West), Dist.-Palghar, Vasai-401202, Maharashtra, India.

Prepared By

ARS ENERGY AUDITORS

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JUNE 2022

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ACKNOWLEDGEMENT

ARS ENERGY AUDITORS thanks the management of **Vidyavardhini College of Engineering and Technology** for assigning this important work of Energy Study at their Engineering Collage at **VASAI.** We appreciate the cooperation and guidance extended to ARS Execution Team for completion of study.

Our special thanks to:

- *Dr. Harish. V. Vankudre (Principle, VCET)*
- *Dr. Megha Trivedi (H.O.D, Computer, VCET)*
- *Dr. Uday Aswalekar (H.O.D. of Mechanical Dept., VCET)*
- *Prof. Swapnil Mane (Asst. Prof. Dept of Mech Engg, VCET)*
- *Prof. Vishwas Palve (Asst. Prof. Dept of Mech Engg, VCET)*
- *Mr. Prabhakar Patil (Substation Incharge, VCET)*

For giving us necessary inputs to carry out this very vital exercise of Energy Audit Assessment.

We are also thankful to other Staff Members and Students who were actively involved and supported while collecting the data and conducting field measurements.

For A.R.S. Energy Auditors,

Mr. Sachin S. Deshpande.

ABOUT COMPANY

After working in the field of Solar Thermal & PV Projects for four years (1992-1996). **Mr. Sachin Deshpande**, started Company a proprietary firm "**SAN Energy Systems"** in 1996 and successfully installed more than 600 projects in India and became business associate for BHEL for India.

In 2008 the new firm "**A.R.S. Energy Auditors** "was started which is mainly focused in providing Consultancy in the field of Energy Audit. After completing more than 10 years of journey "A.R.S. Energy Auditors" have become one of the best auditing firms which is been appreciated by MEDA in 2017 & 2018 consecutively and crowned First in 2018 Energy Audit Firm Sector. A.R.S. has completed more than 700 audits so far in almost all sectors. Solar PV project consultancy is also one of the vertical of the company.

SERVICES OFFERED :-

❖ ENERGY CONSERVATION / ENERGY MANAGEMENT :-

- Energy Efficiency Consultancy Services in various Sector including Industries, Power Generation, Distribution, Commercial, Agriculture and SMEs.
- Detailed Energy audits for all sectors for designated consumer as per EC 2001 Act.
- Preliminary, Detailed and Monitoring & Verification for Designated/NonDesignated Consumers.
- Detailed energy audits in sectors like Aluminum, Chlor Alkali, Fertilizers, Glass and Ceramics, Paper and Pulp, Pharmaceutical, Power Plants, Iron & Steel, Textile, commercial buildings, hospitals, hotels, residential buildings, Packaging, Cement, Municipal Corporations, Railways etc.
- Implementation of Energy Conservation Measures.
- GHG Reduction Programs.
- Demand Side Management.
- Techno-Economical Feasibility and Evaluation for Industrial systems and processes.
- Waste Heat Recovery/ Power Quality.
- ECBC, Green building consultancy.
- Energy management system services and its implementation.
- Carbon Footprinting.
- Electrical Safety Audits.
- Solar P.V. DPRS.

AUDIT TEAM MEMBER

Mr. Sachin Deshpande.

Accredited Energy Auditor, Chief Consultant, MTech. (Energy), B.E. Mechanical Eng.

Mr. Saurabh Raul.

Senior Engineer, B.E. Mechanical Eng.

Mr. Himanshu Patil.

Senior Engineer, B.E. Mechanical Eng.

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Senior Engineer, B.E. Electrical Eng.

Mr. Neeraj Naik.

Senior Engineer, B.E. Electrical Eng.

EXECUTIVE SUMMARY

Environmental auditing is a process whereby an organisation's environmental performance is tested against its environmental policies and objectives. Green audit is defined as an official examination of the effects a college has on the environment. As a part of such practice, internal environmental audit (Green Audit) is conducted to evaluate the actual scenario at the campus. Green audit can be a useful tool for a college to determine how and where they are using the most energy or water or resources; the college can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. Green auditing and the implementation of mitigation measures is a win-win situation for all the college, the learners and the planet. It can also create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of Green impact on campus. Although awareness of green building has risen dramatically in the last 25 years.

In Vidyavardhini College the audit process involved initial interviews with management to clarify policies, activities, records and the cooperation of staff and students in the implementation of mitigation measures. This was followed by staff and student interviews, collection of data through the questionnaire, review of records, observation of practices and observable outcomes. In addition, the approach ensured that the management and staff are active participants in the green auditing process in the college.

The baseline data prepared for the Vidyavardhini College will be a useful tool for campus greening, resource management, planning of future projects, and a document for implementation of sustainable development of the college. Existing data will allow the college to compare its programmes and operations with those of peer institutions, identify areas in need of improvement, and prioritize the implementation of future projects.

The report of the green audit was a comprehensive evaluation after thorough evaluation of all aspects related to concerned green activities of the campus. It identified the green activities in the campus involving, management, teachers and students. It also identified lacunas in green practices of the campus and recommended a few practices to be implemented for it to become a green campus.

In today's commercial and residential real estate industries, green building certification programs are increasingly being applied to new and existing buildings as a means of verifying that a building meets a set of "green" criteria. Such criteria may include energy efficiency, sustainable materials selection, site location, and indoor environmental quality.

Certified green buildings purport to deliver a series of benefits to property owners, managers, and occupants. For example, energy efficiency, a central tenet of many green building certification programs, can decrease operational expenses and reduce the carbon emissions associated with a particular building – a growing concern in many regions around the world.

Sustainable materials selection can improve the quality of the indoor environment by eliminating materials with toxic substances. Moreover, certified green buildings can sometimes command higher property values and rents, and green building certification can distinguish certain properties in highly competitive real estate markets. A nation's growth starts from its educational institutions, where the ecology is thought as a prime factor of development associated with environment. A clean and healthy environment aids effective learning and provides a conducive learning environment. Educational institutions now a day are becoming more sensitive to environmental factors and more concepts are being introduced to make them eco-friendly. To preserve the environment within the campus, various viewpoints are applied by the several educational institutes to solve their environmental problems such as promotion of the energy savings, recycle of waste, water reduction, water harvesting etc. The activities pursued by colleges can also create a variety of adverse environmental impacts.

1 INTRODUCTION

1.1 Green Audit

The Green audit process was began in the 1970s with an intention of identifying the activities carried out in a given institution or company. This was initiated against the background of growing concern over changing climate and related aspects. Green audit is a tool to identify the range of environmental impacts and assess the compliance of the operations on the development and regular activities within an organisation. It may also assess the compatibility of the operations within an organisation or a company with existing applicable laws and regulations and the expectations of their various stakeholders. It further assesses the possible implications and effect of pollution due to the operations within the organisation. The audit also seeks to identify possible means and methods to save investments, enhance work quality, improve health and safety of their employees, reduce liabilities and reduce the rate of environmental pollution. A continuous process of such audit might result in maintaining the quality of these aspects within the premises of any organisation.

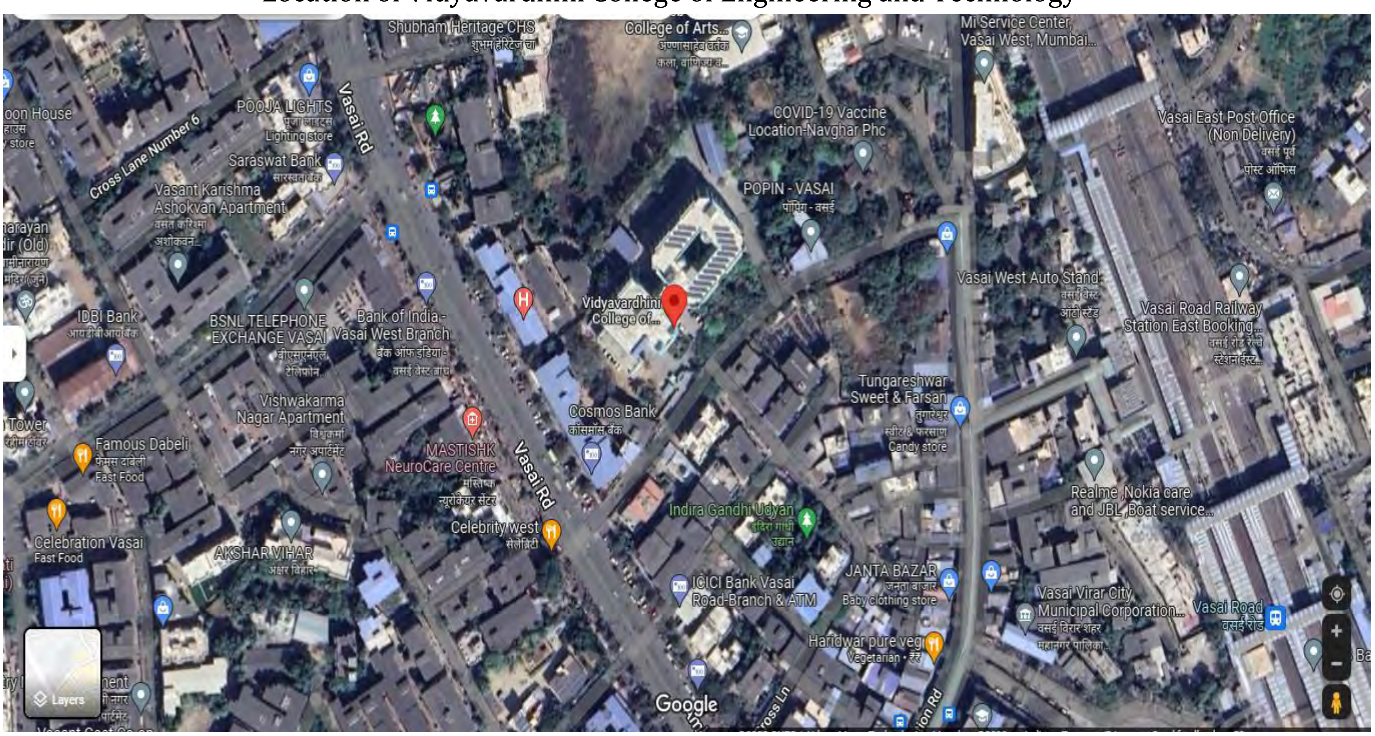
1.2 About Vidyavardhini's College of Engineering & Technology

Vidyavardhini means a Body committed to enhancement of Knowledge. Vidyavardhini was established as a registered society in 1970 by late Padmashri H. G. alias Bhausaheb Vartak for the noble cause of education in rural areas.

Vidyavardhini's College of Engineering and Technology, Vasai is located on the sprawling campus of Vidyavardhini, spread over an area of 12.27 acres. It is a short, two minutes' walk from Vasai Road (W) Railway Station. The college is also accessible by road from Mumbai.

Vidyavardhini Society received approval from AICTE to start the new college of Engineering & Technology with effect from July, 1994. The college is affiliated to the University of Mumbai for the four-year degree program leading to the degree of Bachelor of Engineering.

Location of Vidyavardhini College of Engineering and Technology



2. WHAT IS GREEN AUDIT

Green Audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims to analyze environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Audit.

Green audit is assigned to the criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India which declares the institutions as Grade according to the scores assigned during the accreditation.

The main findings of the audit show that, in general, all the departments and students are aware about the need for environmental protection at a general level. It was also observed that a number of best practices such as maintaining potted plants, introducing plastic free zone etc. are followed in the campus.

However, on detailed review, it was observed that, as the college is implementing Green Policy for the first time, many of the practices followed in the institution are not in compliance with the Green Policy of the institution, and the applicable standards. In addition, certain processes could benefit from further review in order to improve their efficiency, fairness and consistency.

The ICC defines Environmental Auditing as:

A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of safeguarding the environment and natural resources in its operations/projects.

A building which can function using an optimum amount of energy, consume less water, conserve natural resources, generate less waste and create spaces for healthy and comfortable living, as compared to conventional buildings, is a green building.

Green building (also known as sustainable building) refers to a structure and using process that is environmentally responsible and resource-efficient throughout a building's life-cycle: from siting to design, construction, operation, maintenance, renovation, and demolition. A building which can function using an optimum amount of energy, consume less

water, conserve natural resources, generate less waste and create spaces for healthy and comfortable living, as compared to conventional buildings, is a green building. Energy efficient building is a structure designed for minimal to optimum use of energy. In broad sense it also involves consideration of environmental impact, minimization of required inputs of energy, water and food, and waste output of heat, air pollution and water pollution.

Most companies, government and non-government bodies and other institutions conduct green audit aiming:

- To ensure that the performance of the institution with respect to environmental activities they are involved in, is following existing laws and regulations.
- To check the functionality and their operating success including water supply, energy related matters and other similar matters that are related to green operations in the campus.
- To formulate or update the institution's environmental policy, if warranted.
- To measure the environmental impact of operational process related to green activities in the campus.
- To measure the performance of each green related operations and actions in the campus.
- To generate a database of green activities for continuous monitoring to assess the success of each of them.
- To identify future potential liabilities.
- To align the institution's developmental and day to day activities with the stated vision, mission, strategies, etc.
- To identify possible ways to reduce expenditure and running costs on equipment's, appliances, etc. or try enhance revenue income.
- To improve process and materials efficiency, and in response to stakeholder requests for increased disclosure.

3. OBJECTIVES OF GREEN AUDITING

There is a growing trend for green buildings all over the world including India. The energy crisis and environmental pollution concern in 1970s all over the world was one of the primary reasons for development of green buildings and sustainable development. Buildings account for a large amount of land. The International Energy Agency released a publication that estimated that existing buildings are responsible for more than 40% of the world's total primary energy consumption and for 24% of global carbon dioxide emissions.

According to the International Energy Agency (IEA), the buildings sector accounted for the largest share of India's final energy use between 1995 and 2005. In 2005, this sector consumed 47% of the total final energy use. Residential buildings accounted for the 93% of the total building energy use the same year. For sustainable development, green and energy efficient building concept can prove invaluable for India and need to be addressed with a more collaborative approach.

The objective of Green Auditing is its most imperative component. A well-defined objective enables the Green Auditor as well as his Team to conduct the auditing without deviating from the focus. Achievement in terms of Carbon Footprint reduction needs to be assessed in both quantitative and qualitative terms.

The purpose of this audit is to ensure that the Green Policy is followed and implemented in the campus, across all departments, administrative bodies and students.

To promote the Environment Management and Conservation in the College Campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

- To assess whether the measures implemented by College have helped to reduce the Carbon Footprint.
- To assess whether investments made in increasing awareness among students regarding electricity, biodiversity and environment have helped the Institution achieve the required carbon dioxide emission and absorption in the campus.
- To assess whether non-academic activities of the Institution support the collection, recovery, reuse and recycling of solid wastes that harm the environment.

- To identify gaps and suggest recommendations to improve the Green Campus status of the institution.
- To introduce and aware students to real concerns of environment and its sustainability
- To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource use on the campus.
- To establish a baseline data to assess future sustainability by avoiding the interruptions in environment that are more difficult to handle and their corrections requires high cost.
- To bring out a status report on environmental compliance

The process of green audit based on operational activities within an institution happens not necessarily based on laws and regulations. It might be largely based on awareness and concerns on environmental performances within and outside the institute's premises. This further strengthens the fact regarding social responsibilities of the organization. Majority of the institutions that conducted green audits in the recent past has realized the importance of the same as they could easily manage their operational costs and provide good atmosphere to their stakeholders. The green audit also provides opportunities to identify full range of operations within an organization, the impacts of maintaining and functioning of its operational goods and services, the actual source of raw materials for different activities within the organization, the costs of operations of its offices, functional units, and other facilities. It also provides chances to understand the relationship with employees, material suppliers, stakeholders, etc. The recommendations, findings and suggestions that emerge during green audit would certainly help the management of the organization to set up future action plan that best suits to them.

1.2. General steps involved in Green Audit

1. Systematic and exhaustive data collection.
2. Evidence based documentation of activities.
3. Regular monitoring.
4. Provide standards and methods for improvement by establishing cost effective green action plan.

4. METHODOLOGY

In order to perform green audit, the methodology included different tools such as preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations.

4.1 The Green Audit Process:

A. Selection of area/activities/parts of the campus.
B. Planning of visit to campus to discuss about the audit process.
C. Scope of audit process was identified in consultation with the auditee.
D. A meticulous plan of action was designed.
E. A team consisting of teachers, non-teaching staff and students was constituted with specific tasks and a proper time schedule.
F. Data pertaining to identified parameters for green auditing of the campus were collected directly through an on-site visit.
G. Available background information on the identified activities and other parameters were collected.
H. The role of each stakeholder in green related activities has been collected.
I. Historical aspects of green activities in the campus including flora fauna, water usage and waste generation, etc. were collected.
J. A questionnaire based on the preliminary visits and other evaluations was communicated to the authorities who are involved in the in-house data collection.
K. Data collection based on questionnaire.
L. Visit to the campus by audit team.
M. Data analysis and evaluation.
N. Discussion on the findings.
O. Report preparation.

The study covered the following areas to summarise the present status of environment management in the campus:

- Water management
- Energy Conservation
- Waste management
- E-waste management
- Green area management
- Carbon Footprint

4.2 Target Areas of Green Auditing

Green audit forms part of a resource management process. Although they are individual events, the real value of green audits is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time. Eco-campus concept mainly focuses on the efficient use of energy and water; Minimize waste generation or pollution and also economic efficiency.

All these indicators are assessed in process of "Green Auditing of educational institute‟. Eco-campus focuses on the reduction of contribution to emissions, procure a cost effective and secure supply of energy, encourage and enhance energy use conservation, promotes personal action, reduce the institute's energy and water consumption, reduce wastes to landfill, and integrate environmental considerations into all contracts and services considered to have significant environmental impacts. Target areas included in this green auditing are water, energy, waste, green campus and carbon footprint.

4.3 Water Management

Water is our most precious resource. Without it no plant or animal can survive. India is predicted to become drier, because of rising population and urban demand so the need to save water and ensure sustainability will grow. We all have a role to play by reducing our usage of water. We can secure our water supply for generations to come. We have to find new ways of source and preserve our precious water and we need educational institute to help by saving as much water as they can. This will save the money and reduce the impact on the environment. Water is a natural resource; all living matters depend on water. While freely available in many natural environments, in human settlements potable (drinkable) water is less readily available. We need to use water wisely to ensure that drinkable water is available for all, now and in the future. A small drip from a leaky tap can waste more than 180 liters of water to a day; that is a lot of water to waste - enough to flush the toilet eight times! Aquifer depletion and water contamination are taking place at unprecedented rates.

It is therefore essential that any environmentally responsible institution should examine its water use practices. Water auditing is conducted for the evaluation of facilities of raw water intake and determining the facilities for water treatment and reuse. The concerned auditor investigates the relevant method that can be adopted and implemented to balance the demand and supply of water. It is therefore essential that any environmentally responsible institution examine its water use practices.

4.3.1 Water audit

A water audit is an on-site survey and assessment of water using hardware, fixtures, equipment, landscaping, and management practices to determine the efficiency of water and to develop recommendations for improving water use efficiency. In simple words, a water audit is a systematic review of a site that identifies the quantities and characteristics of all water uses. The site may vary from a public water utility, facility (institutional or commercial properties like malls, office, schools etc.) or a household.

The overall objective of conducting a water audit is to identify opportunities to preserve and save water more efficiently. Since, water uses vary greatly from one type of business or institution to another and from site to site, water audit is crucial to determine quantity, nature and quality of water consumption. Water audit for water utility refers to tracking, assessing and validating all components of flow from the site of withdrawal or treatment through the water distribution system and into the consumer's properties.

On the other hand, water audit of an office building would review direction and quantity of water used for domestic, cooling/heating, sanitary and landscaping processes. Whereas usage of water for domestic purpose, audit examines the major areas in which a facility uses water, including human consumption, personal hygiene and sanitation, washing, cleaning, laundry, gardening etc.

Water audit comprises of preparation of layout of water sources, distribution network, and service / delivery points to water users and return flow of waste or excess water. The layout should include locations and capacities of flow measurement devices installed at key points, dimensions of pipes and fittings in the water supply system, locations and particulars of flow control devices and history sheets of all measuring and control devices including pipes and fittings.

4.3.2 Rain Water Harvesting

Water harvesting is the activity of direct collection of rainwater, which can be stored for direct use or can be recharged into the groundwater. Water harvesting is the collection of runoffs for productive purposes. Rain is the first form of water that we know in the hydrological cycle, hence is a primary source of water for us. Rivers, lakes and groundwater are all secondary sources of water. Water harvesting is to understand the value of rain, and to make optimum use of rainwater at the place where it falls.

4.3.3 Need for Rainwater Harvesting

- As water is becoming scarce, it is the need of the day to attain self-sufficiency to fulfil the water needs.
- As urban water supply system is under tremendous pressure for supplying water to ever increasing population.

- To reduce urban flooding
- Groundwater is getting depleted and polluted.
- Soil erosion resulting from the unchecked runoff.
- Health hazards due to consumption of polluted water.

4.3.4 Benefits of Rainwater Harvesting

- Environment friendly and easy approach for water requirements
- RWH is the ideal solution for all water requirements.
- Increase in ground water level.
- Mitigates the effects of drought.
- Reduces the runoff, which otherwise flood storm water drains.
- Reduces flooding of roads and low-lying areas.
- Reduced soil erosion.
- Improves the ground water quality.
- Low cost and easy to maintain.
- Reduces water and electricity bills.

4.4 Energy Management

Energy cannot be seen, but we know it is there because we can see its effects in the forms of heat, light and power. This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliances, and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. An old incandescent bulb uses approximately 60W to 100W while an energy efficient light emitting diode (LED) uses only less than 10 W. Energy auditing deals with the conservation and methods to reduce its consumption related to environmental degradation. It is therefore essential that any environmentally responsible institution examine its energy use practices.

4.4.1 Energy Audit

Energy sources utilized by all the sections of college include Electricity, Natural Gas and Diesel. An energy audit is recommended to determine the energy consumption associated with a facility and the potential savings associated with that energy consumption. From a general point of view, an energy audit provides enormous benefits in different areas.

An energy audit can identify energy consumption and energy costs of the facility and it can evolve over time to develop measures to eliminate waste, maximize efficiency and optimize supply energy.

An energy audit is an inspection, survey and analysis of energy flows for identification of energy savings opportunities in a building, process or system to reduce the amount of energy input into the system, without negatively affecting the output(s).

4.4.2 Benefits of Energy Audit

At a particular level, among the major benefits of doing an energy audit are:

- It helps you to lower energy bills.
- It enables you to increase the comfort of those in the facility.
- It helps you to increase the life span of the equipment in your facility.
- It discovers any unaccounted consumption that may exist at the facility.
- It helps reduce energy costs in your facility.
- With a reduction in production costs, the competitiveness of your company will be improved.
- It helps reduce the dependence on foreign energy sources.
- It helps reduce environmental damage and pollution.
- It can increase the security of your energy supply.
- It can reduce the consumption of natural resources.
- It can reduce damage to the environment associated with the exploitation of resources.
- It helps reduce the impact of greenhouse gas emissions.

4.5 Waste Management

Pollution from waste is aesthetically unpleasing and results in large amounts of litter in our communities which can cause health problems. Plastic bags and discarded ropes and strings can be very dangerous to birds and other animals. This indicator addresses waste production and disposal, plastic waste, paper waste, food waste, and recycling. Solid waste can be divided into two categories: general waste and hazardous waste. General wastes include what is usually thrown away in homes and schools such as garbage, paper, tins and glass bottles. Hazardous waste is waste that is likely to be a threat to health or the environment like cleaning chemicals and petrol.

Unscientific landfills may contain harmful contaminants that leach into soil and water supplies, and produce greenhouse gases contributing to global climate change. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair, and reuse. Thus the minimization of solid waste is essential to a sustainable college. The auditor diagnoses the prevailing waste disposal policies and suggests the best way to combat the problems. It is therefore essential that any environmentally responsible institution examine its waste processing practices.

Waste management is one of the burning problems not only in India but also in the world. Hence it is necessary to use the things properly and manage them cautiously. The main purpose behind this audit is to analyze the quantity and volume of solid, liquid waste and their proper management. Similarly, to make aware about their hazardous effects and to create awareness amongst the students, teachers about minimum use, reuse and recycle of the waste.

Solid waste generation and its management is a burning issue in current days. The rate of generation of solid waste is very high and yet we do not have adequate technology to manage the generated waste. Unscientific handling of solid waste can create threats to public health and environmental safety issues. Thus, it is necessary to manage the solid waste properly to reduce the load on waste management system. The purpose of this audit is to find out the quantity, volume, type and current management practice of solid waste generation

4.6 Green Area Management

Unfortunately, biodiversity is facing serious threats from habitat loss, pollution, over consumption and invasive species. Species are disappearing at an alarming rate and each loss affects nature's delicate balance and our quality of life. Without this variability in the living world, ecological systems and functions would break down, with detrimental

consequences for all forms of life, including human beings. Newly planted and existing trees decrease the amount of carbon dioxide in the atmosphere. Trees play an important ecological role within the urban environment, as well as support improved public health and provide aesthetic benefits to cities.

In one year, a single mature tree will absorb up to 48 pounds of carbon dioxide from the atmosphere, and release it as oxygen. The amount of oxygen that a single tree produces is enough to provide one day's supply of oxygen for people. So while you are busy studying and working on earning those good grades, all the trees on campus are also working hard to make the air cleaner for us. Trees on our campus impact our mental health as well; studies have shown that trees greatly reduce stress, which a huge deal is considering many students are under some amount of stress.

4.7 Carbon Footprint

Commutation of stakeholders has an impact on the environment through the emission of greenhouse gases into the atmosphere consequent to burning of fossil fuels (such as petrol). The most common greenhouse gases are carbon dioxide, water vapour, methane, nitrous oxide and ozone. Of all the greenhouse gases, carbon dioxide is the most prominent greenhouse gas, comprising 402 ppm of the Earth's atmosphere. The release of carbon dioxide gas into the Earth's atmosphere through human activities is commonly known as carbon emissions.

An important aspect of doing an audit is to be able to measure your impact so that we can determine better ways to manage the impact. In addition to the water, waste, energy and biodiversity audits we can also determine what our carbon footprint is, based on the amount of carbon emissions created. One aspect is to consider the distance and method traveled between home and college every day. It undertakes the measure of bulk of carbon dioxide equivalents exhaled by the organization through which the carbon accounting is done. It is necessary to know how much the organization is contributing towards sustainable development. It is therefore essential that any environmentally responsible institution examine its carbon footprint.

The methodology adopted for this audit was a three step process comprising of:

1. **Data Collection –** In preliminary data collection phase, exhaustive data collection was performed using different tools such as observation, survey communicating with responsible persons and measurements. Following steps were taken for data collection:
    - Data about to each department, centers, Library, canteen etc.

- Data about the general information collection by observation and interview.
- The power consumption of appliances recording by taking an average value in some cases.

2. **Data Analysis -** Detailed analysis of data collected include: calculation of energy consumption, analysis of latest electricity bill of the campus, understanding the tariff plan provided by the Maharashtra State Electricity Board (MSEB). Data related to water usages were also analyzed using appropriate methodology.
3. **Recommendation –** On the basis of results of data analysis and observations, some steps for reducing power and water consumption were recommended. Proper treatments for waste were also suggested. Use of fossil fuels has to be reduced for the sake of community health.

The base of any green audit is that its findings are supported by documents and verifiable information. The audit process seeks, on a sampled basis, to track past actions, activities, events, and procedures to ensure that they are carried out according to systems requirements and in the correct manner. Green audits form a part of a process. Although they are individual events, the real value of green audits is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time.

Although green audits are carried out using policies, procedures, documented systems and objectives as a test, there is always an element of subjectivity in an audit. The essence of any green audit is to find out how well the environmental organization, environmental management and environmental equipment are performing. Each of the components is crucial in ensuring that the organization's environmental performance meets the goals set in its green policy. The individual functioning and the success of integration will all play a role in the degree of success or failure of the organization's environmental performance.

5. FUTURE ACTION PLANS

A. Year wise internal audit on green, water and energy to be conducted by respected teachers.
B. Proper management and month wise mapping of water and energy usage to be conducted by monitoring the same in the records.
C. Department wise awareness programs to be organized by department staff representative to each committee.
D. Proper waste water management
E. Proper monitoring and disposal of waste discharge from chemical laboratories
F. Implementation of sign boards and indications of water and energy usage.
G. Energy maintenance by proper usage of electrical appliances.
H. A timber garden and museum to be implemented
I. Promotion of visit to agriculture farm lands and processing centers.

The students and staff who are active in green related activities have a clear vision about how and what should be planned for a greener campus. They think that planting of more saplings during the world environment day would cater more awareness and enthusiasm in students who join afresh each year. The college is also planning to initiate plant a tree/adopt a tree program where each student will be planting a sapling and taking care of it during his or her stay in the college. Although the college follow a university curriculum by implementing several such awareness program in their academic and non-academic activities promote more students turn to green activities.

6. CONCLUSIONS

Considering the fact that the institution is predominantly an undergraduate college, there is significant environmental research both by faculty and students. The environmental awareness initiatives are substantial. The installation of solar panels, paperless work system and vermicomposting practices are noteworthy. Besides, environmental awareness programs initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using ecofriendly and scientific techniques. This may lead to the prosperous future in context of Green Campus & thus sustainable environment and community development.

1. Green audit at times makes the campus authority to understand the effect of implications towards greenness and conservation of water and energy.
2. The management and other authorities are keen to make the campus a green campus.
3. Staff and students are aware about the commitment of the institute towards the society.
4. Green audit at times makes the campus authority to understand the effect of implications towards greenness and conservation of water and energy.
5. The campus community functions are oriented with an eco-friendly approach that enables the student community to develop a genuine approach on conservation of nature, and natural resources.

ANNEXURE -01 ACCREDITATION CERTIFICATE

ENERGY IS LIFE
BEE
CONSERVE IT

BUREAU OF ENERGY EFFICIENCY

Examination Registration No.: EA- 2310

Accreditation Registration No.: AEA-0261

Certificate of Accreditation

This is to certify that Mr./Ms. Sachin Deshpande having its trade/registered office at Maharashtra has been given accreditation as accredited energy auditor. The certificate shall be effective from 2nd day of November, 2017.

The certificate is subject to the provisions of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010.

This certificate shall be valid until it is cancelled under regulation 9 of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010.

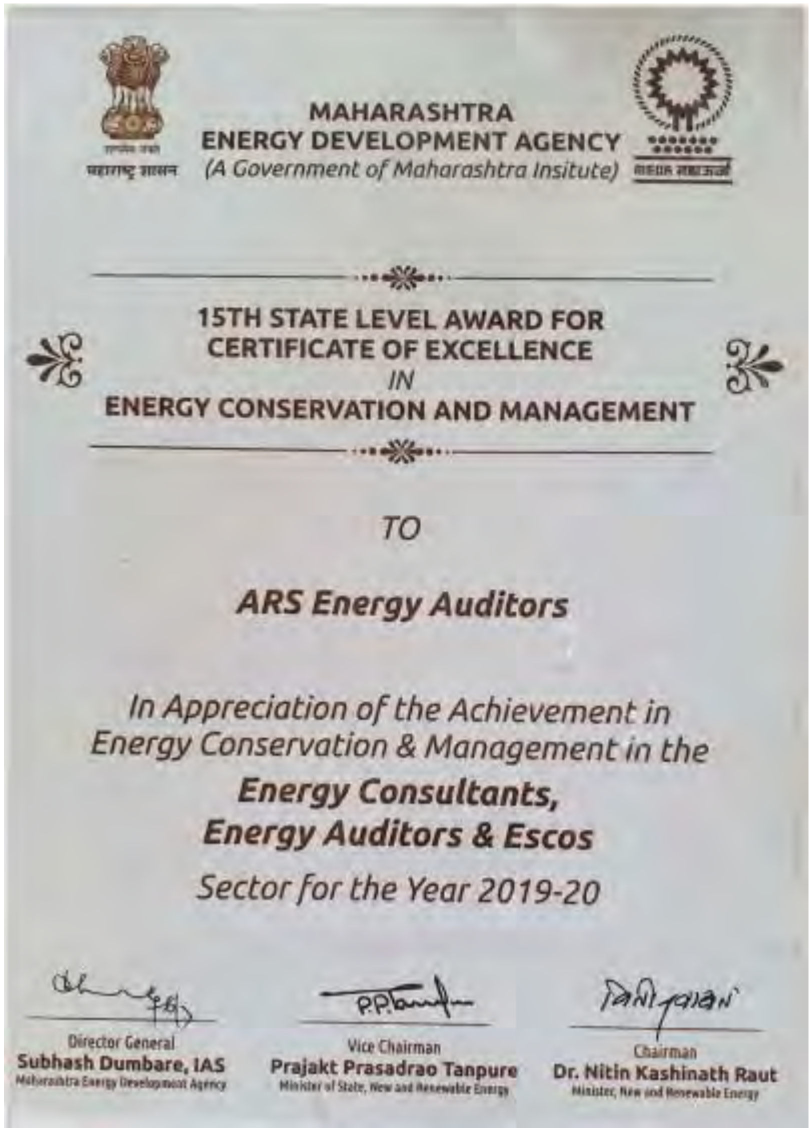
On cancellation, the certificate of accreditation shall be surrendered to the Bureau within fifteen days from the date of receipt of order of cancellation.

Your name has been entered at AEA No. 0261 in the register of list of accredited energy auditors. Your name shall be liable to be struck out on the grounds specified in regulation 8 of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010.

Given under the seal of the Bureau of Energy Efficiency, Ministry of Power, this 12th day of February, 2018

Secretary,
Bureau of Energy Efficiency
New Delhi

ANNEXURE -02 15TH STATE LEVEL AWARD FOR CERTIFICATE OF EXCELLENECE IN ENERY CONSEVATION AND MANAGEMENT



MAHARASHTRA
ENERGY DEVELOPMENT AGENCY
(A Government of Maharashtra Insitute)

15TH STATE LEVEL AWARD FOR
CERTIFICATE OF EXCELLENCE
IN
ENERGY CONSERVATION AND MANAGEMENT

TO

ARS Energy Auditors

In Appreciation of the Achievement in Energy Conservation & Management in the
Energy Consultants, Energy Auditors & Escos
Sector for the Year 2019-20

Director General	Vice Chairman	Chairman
Subhash Dumbare, IAS	**Prajakt Prasadrao Tanpure**	**Dr. Nitin Kashinath Raut**
Maharashtra Energy Development Agency	Minister of State, New and Renewable Energy	Minister, New and Renewable Energy

Click here for summary page

GREEN AUDIT REPORT OF VIDYAVARDHINI COLLEGE OF ENGINEERING AND TECHNOLOGY, VASAI

Vidyavardhini College of Engineering and Technology

Address: K.T. Marg, Vasai Road (West), Dist.-Palghar, Vasai-401202, Maharashtra, India.

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JUNE 2021

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- *Dr. Uday Aswalekar (H.O.D. of Mechanical Dept., VCET)*
- *Prof. Swapnil Mane (Asst. Prof. Dept of Mech Engg, VCET)*
- *Prof. Vishwas Palve (Asst. Prof. Dept of Mech Engg, VCET)*
- *Mr. Prabhakar Patil (Substation Incharge, VCET)*

For giving us necessary inputs to carry out this very vital exercise of Energy Audit Assessment.

We are also thankful to other Staff Members and Students who were actively involved and supported while collecting the data and conducting field measurements.

For A.R.S. Energy Auditors,

Mr. Sachin S. Deshpande.

ABOUT COMPANY

After working in the field of Solar Thermal & PV Projects for four years (1992-1996). **Mr. Sachin Deshpande**, started Company a proprietary firm "**SAN Energy Systems"** in 1996 and successfully installed more than 600 projects in India and became business associate for BHEL for India.

In 2008 the new firm "**A.R.S. Energy Auditors** "was started which is mainly focused in providing Consultancy in the field of Energy Audit. After completing more than 10 years of journey "A.R.S. Energy Auditors" have become one of the best auditing firms which is been appreciated by MEDA in 2017 & 2018 consecutively and crowned First in 2018 Energy Audit Firm Sector. A.R.S. has completed more than 700 audits so far in almost all sectors. Solar PV project consultancy is also one of the vertical of the company.

SERVICES OFFERED :-

❖ ENERGY CONSERVATION / ENERGY MANAGEMENT :-

- Energy Efficiency Consultancy Services in various Sector including Industries, Power Generation, Distribution, Commercial, Agriculture and SMEs.
- Detailed Energy audits for all sectors for designated consumer as per EC 2001 Act.
- Preliminary, Detailed and Monitoring & Verification for Designated/NonDesignated Consumers.
- Detailed energy audits in sectors like Aluminum, Chlor Alkali, Fertilizers, Glass and Ceramics, Paper and Pulp, Pharmaceutical, Power Plants, Iron & Steel, Textile, commercial buildings, hospitals, hotels, residential buildings, Packaging, Cement, Municipal Corporations, Railways etc.
- Implementation of Energy Conservation Measures.
- GHG Reduction Programs.
- Demand Side Management.
- Techno-Economical Feasibility and Evaluation for Industrial systems and processes.
- Waste Heat Recovery/ Power Quality.
- ECBC, Green building consultancy.
- Energy management system services and its implementation.
- Carbon Footprinting.
- Electrical Safety Audits.
- Solar P.V. DPRS.

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EXECUTIVE SUMMARY

Environmental auditing is a process whereby an organisation's environmental performance is tested against its environmental policies and objectives. Green audit is defined as an official examination of the effects a college has on the environment. As a part of such practice, internal environmental audit (Green Audit) is conducted to evaluate the actual scenario at the campus. Green audit can be a useful tool for a college to determine how and where they are using the most energy or water or resources; the college can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. Green auditing and the implementation of mitigation measures is a win-win situation for all the college, the learners and the planet. It can also create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of Green impact on campus. Although awareness of green building has risen dramatically in the last 25 years.

In Vidyavardhini College the audit process involved initial interviews with management to clarify policies, activities, records and the cooperation of staff and students in the implementation of mitigation measures. This was followed by staff and student interviews, collection of data through the questionnaire, review of records, observation of practices and observable outcomes. In addition, the approach ensured that the management and staff are active participants in the green auditing process in the college.

The baseline data prepared for the Vidyavardhini College will be a useful tool for campus greening, resource management, planning of future projects, and a document for implementation of sustainable development of the college. Existing data will allow the college to compare its programmes and operations with those of peer institutions, identify areas in need of improvement, and prioritize the implementation of future projects.

The report of the green audit was a comprehensive evaluation after thorough evaluation of all aspects related to concerned green activities of the campus. It identified the green activities in the campus involving, management, teachers and students. It also identified lacunas in green practices of the campus and recommended a few practices to be implemented for it to become a green campus.

In today's commercial and residential real estate industries, green building certification programs are increasingly being applied to new and existing buildings as a means of verifying that a building meets a set of "green" criteria. Such criteria may include energy efficiency, sustainable materials selection, site location, and indoor environmental quality.

Certified green buildings purport to deliver a series of benefits to property owners, managers, and occupants. For example, energy efficiency, a central tenet of many green building certification programs, can decrease operational expenses and reduce the carbon emissions associated with a particular building – a growing concern in many regions around the world.

Sustainable materials selection can improve the quality of the indoor environment by eliminating materials with toxic substances. Moreover, certified green buildings can sometimes command higher property values and rents, and green building certification can distinguish certain properties in highly competitive real estate markets. A nation's growth starts from its educational institutions, where the ecology is thought as a prime factor of development associated with environment. A clean and healthy environment aids effective learning and provides a conducive learning environment. Educational institutions now a day are becoming more sensitive to environmental factors and more concepts are being introduced to make them eco-friendly. To preserve the environment within the campus, various viewpoints are applied by the several educational institutes to solve their environmental problems such as promotion of the energy savings, recycle of waste, water reduction, water harvesting etc. The activities pursued by colleges can also create a variety of adverse environmental impacts.

1 INTRODUCTION

1.1 Green Audit

The Green audit process was began in the 1970s with an intention of identifying the activities carried out in a given institution or company. This was initiated against the background of growing concern over changing climate and related aspects. Green audit is a tool to identify the range of environmental impacts and assess the compliance of the operations on the development and regular activities within an organisation. It may also assess the compatibility of the operations within an organisation or a company with existing applicable laws and regulations and the expectations of their various stakeholders. It further assesses the possible implications and effect of pollution due to the operations within the organisation. The audit also seeks to identify possible means and methods to save investments, enhance work quality, improve health and safety of their employees, reduce liabilities and reduce the rate of environmental pollution. A continuous process of such audit might result in maintaining the quality of these aspects within the premises of any organisation.

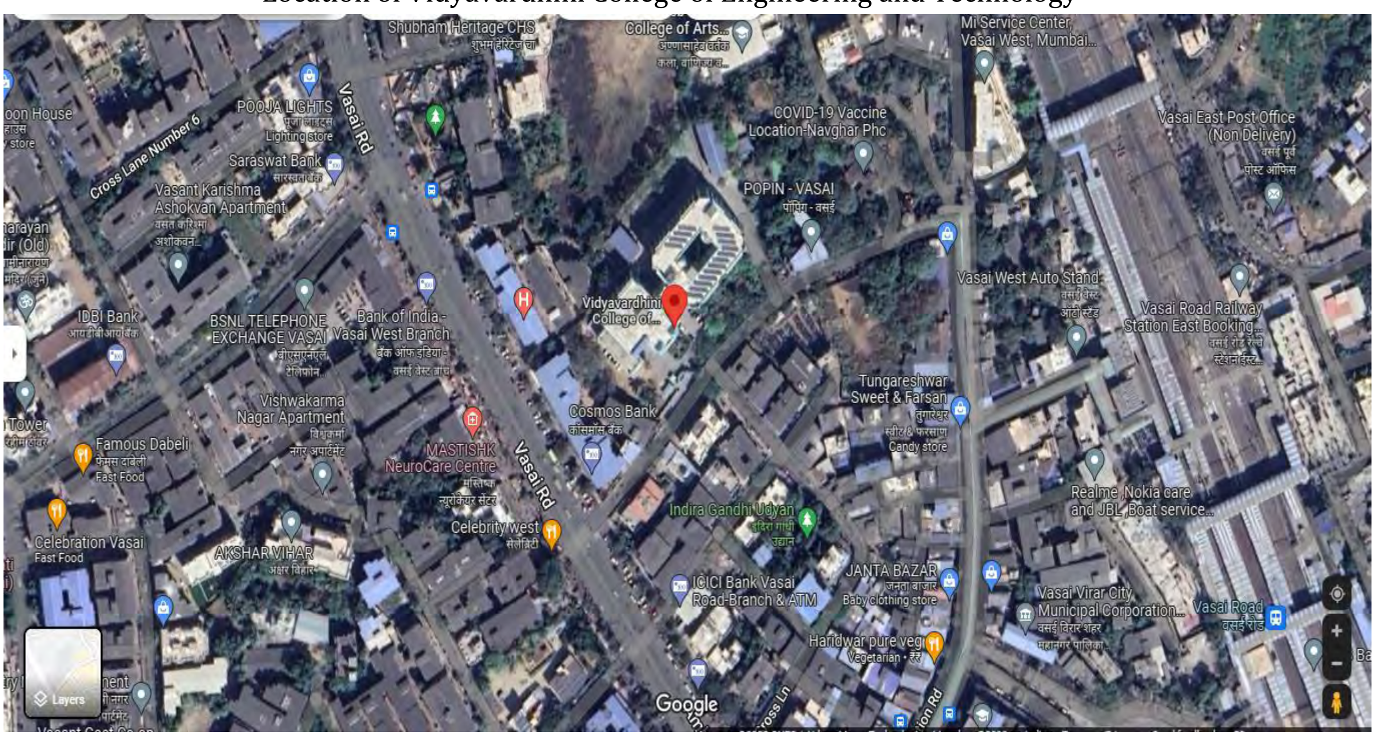
1.2 About Vidyavardhini's College of Engineering & Technology

Vidyavardhini means a Body committed to enhancement of Knowledge. Vidyavardhini was established as a registered society in 1970 by late Padmashri H. G. alias Bhausaheb Vartak for the noble cause of education in rural areas.

Vidyavardhini's College of Engineering and Technology, Vasai is located on the sprawling campus of Vidyavardhini, spread over an area of 12.27 acres. It is a short, two minutes' walk from Vasai Road (W) Railway Station. The college is also accessible by road from Mumbai.

Vidyavardhini Society received approval from AICTE to start the new college of Engineering & Technology with effect from July, 1994. The college is affiliated to the University of Mumbai for the four-year degree program leading to the degree of Bachelor of Engineering.

Location of Vidyavardhini College of Engineering and Technology



2. WHAT IS GREEN AUDIT

Green Audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims to analyze environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Audit.

Green audit is assigned to the criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India which declares the institutions as Grade according to the scores assigned during the accreditation.

The main findings of the audit show that, in general, all the departments and students are aware about the need for environmental protection at a general level. It was also observed that a number of best practices such as maintaining potted plants, introducing plastic free zone etc. are followed in the campus.

However, on detailed review, it was observed that, as the college is implementing Green Policy for the first time, many of the practices followed in the institution are not in compliance with the Green Policy of the institution, and the applicable standards. In addition, certain processes could benefit from further review in order to improve their efficiency, fairness and consistency.

The ICC defines Environmental Auditing as:

A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of safeguarding the environment and natural resources in its operations/projects.

A building which can function using an optimum amount of energy, consume less water, conserve natural resources, generate less waste and create spaces for healthy and comfortable living, as compared to conventional buildings, is a green building.

Green building (also known as sustainable building) refers to a structure and using process that is environmentally responsible and resource-efficient throughout a building's life-cycle: from siting to design, construction, operation, maintenance, renovation, and demolition. A building which can function using an optimum amount of energy, consume less

water, conserve natural resources, generate less waste and create spaces for healthy and comfortable living, as compared to conventional buildings, is a green building. Energy efficient building is a structure designed for minimal to optimum use of energy. In broad sense it also involves consideration of environmental impact, minimization of required inputs of energy, water and food, and waste output of heat, air pollution and water pollution.

Most companies, government and non-government bodies and other institutions conduct green audit aiming:

- To ensure that the performance of the institution with respect to environmental activities they are involved in, is following existing laws and regulations.
- To check the functionality and their operating success including water supply, energy related matters and other similar matters that are related to green operations in the campus.
- To formulate or update the institution's environmental policy, if warranted.
- To measure the environmental impact of operational process related to green activities in the campus.
- To measure the performance of each green related operations and actions in the campus.
- To generate a database of green activities for continuous monitoring to assess the success of each of them.
- To identify future potential liabilities.
- To align the institution's developmental and day to day activities with the stated vision, mission, strategies, etc.
- To identify possible ways to reduce expenditure and running costs on equipment's, appliances, etc. or try enhance revenue income.
- To improve process and materials efficiency, and in response to stakeholder requests for increased disclosure.

3. OBJECTIVES OF GREEN AUDITING

There is a growing trend for green buildings all over the world including India. The energy crisis and environmental pollution concern in 1970s all over the world was one of the primary reasons for development of green buildings and sustainable development. Buildings account for a large amount of land. The International Energy Agency released a publication that estimated that existing buildings are responsible for more than 40% of the world's total primary energy consumption and for 24% of global carbon dioxide emissions.

According to the International Energy Agency (IEA), the buildings sector accounted for the largest share of India's final energy use between 1995 and 2005. In 2005, this sector consumed 47% of the total final energy use. Residential buildings accounted for the 93% of the total building energy use the same year. For sustainable development, green and energy efficient building concept can prove invaluable for India and need to be addressed with a more collaborative approach.

The objective of Green Auditing is its most imperative component. A well-defined objective enables the Green Auditor as well as his Team to conduct the auditing without deviating from the focus. Achievement in terms of Carbon Footprint reduction needs to be assessed in both quantitative and qualitative terms.

The purpose of this audit is to ensure that the Green Policy is followed and implemented in the campus, across all departments, administrative bodies and students.

To promote the Environment Management and Conservation in the College Campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

- To assess whether the measures implemented by College have helped to reduce the Carbon Footprint.
- To assess whether investments made in increasing awareness among students regarding electricity, biodiversity and environment have helped the Institution achieve the required carbon dioxide emission and absorption in the campus.
- To assess whether non-academic activities of the Institution support the collection, recovery, reuse and recycling of solid wastes that harm the environment.

- To identify gaps and suggest recommendations to improve the Green Campus status of the institution.
- To introduce and aware students to real concerns of environment and its sustainability
- To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource use on the campus.
- To establish a baseline data to assess future sustainability by avoiding the interruptions in environment that are more difficult to handle and their corrections requires high cost.
- To bring out a status report on environmental compliance

The process of green audit based on operational activities within an institution happens not necessarily based on laws and regulations. It might be largely based on awareness and concerns on environmental performances within and outside the institute's premises. This further strengthens the fact regarding social responsibilities of the organization. Majority of the institutions that conducted green audits in the recent past has realized the importance of the same as they could easily manage their operational costs and provide good atmosphere to their stakeholders. The green audit also provides opportunities to identify full range of operations within an organization, the impacts of maintaining and functioning of its operational goods and services, the actual source of raw materials for different activities within the organization, the costs of operations of its offices, functional units, and other facilities. It also provides chances to understand the relationship with employees, material suppliers, stakeholders, etc. The recommendations, findings and suggestions that emerge during green audit would certainly help the management of the organization to set up future action plan that best suits to them.

1.2. General steps involved in Green Audit

1. Systematic and exhaustive data collection.
2. Evidence based documentation of activities.
3. Regular monitoring.
4. Provide standards and methods for improvement by establishing cost effective green action plan.

4. METHODOLOGY

In order to perform green audit, the methodology included different tools such as preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations.

4.1 The Green Audit Process:

A. Selection of area/activities/parts of the campus.
B. Planning of visit to campus to discuss about the audit process.
C. Scope of audit process was identified in consultation with the auditee.
D. A meticulous plan of action was designed.
E. A team consisting of teachers, non-teaching staff and students was constituted with specific tasks and a proper time schedule.
F. Data pertaining to identified parameters for green auditing of the campus were collected directly through an on-site visit.
G. Available background information on the identified activities and other parameters were collected.
H. The role of each stakeholder in green related activities has been collected.
I. Historical aspects of green activities in the campus including flora fauna, water usage and waste generation, etc. were collected.
J. A questionnaire based on the preliminary visits and other evaluations was communicated to the authorities who are involved in the in-house data collection.
K. Data collection based on questionnaire.
L. Visit to the campus by audit team.
M. Data analysis and evaluation.
N. Discussion on the findings.
O. Report preparation.

The study covered the following areas to summarise the present status of environment management in the campus:

- Water management
- Energy Conservation
- Waste management
- E-waste management
- Green area management
- Carbon Footprint

4.2 Target Areas of Green Auditing

Green audit forms part of a resource management process. Although they are individual events, the real value of green audits is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time. Eco-campus concept mainly focuses on the efficient use of energy and water; Minimize waste generation or pollution and also economic efficiency.

All these indicators are assessed in process of "Green Auditing of educational institute". Eco-campus focuses on the reduction of contribution to emissions, procure a cost effective and secure supply of energy, encourage and enhance energy use conservation, promotes personal action, reduce the institute's energy and water consumption, reduce wastes to landfill, and integrate environmental considerations into all contracts and services considered to have significant environmental impacts. Target areas included in this green auditing are water, energy, waste, green campus and carbon footprint.

4.3 Water Management

Water is our most precious resource. Without it no plant or animal can survive. India is predicted to become drier, because of rising population and urban demand so the need to save water and ensure sustainability will grow. We all have a role to play by reducing our usage of water. We can secure our water supply for generations to come. We have to find new ways of source and preserve our precious water and we need educational institute to help by saving as much water as they can. This will save the money and reduce the impact on the environment. Water is a natural resource; all living matters depend on water. While freely available in many natural environments, in human settlements potable (drinkable) water is less readily available. We need to use water wisely to ensure that drinkable water is available for all, now and in the future. A small drip from a leaky tap can waste more than 180 liters of water to a day; that is a lot of water to waste - enough to flush the toilet eight times! Aquifer depletion and water contamination are taking place at unprecedented rates.

It is therefore essential that any environmentally responsible institution should examine its water use practices. Water auditing is conducted for the evaluation of facilities of raw water intake and determining the facilities for water treatment and reuse. The concerned auditor investigates the relevant method that can be adopted and implemented to balance the demand and supply of water. It is therefore essential that any environmentally responsible institution examine its water use practices.

4.3.1 Water audit

A water audit is an on-site survey and assessment of water using hardware, fixtures, equipment, landscaping, and management practices to determine the efficiency of water and to develop recommendations for improving water use efficiency. In simple words, a water audit is a systematic review of a site that identifies the quantities and characteristics of all water uses. The site may vary from a public water utility, facility (institutional or commercial properties like malls, office, schools etc.) or a household.

The overall objective of conducting a water audit is to identify opportunities to preserve and save water more efficiently. Since, water uses vary greatly from one type of business or institution to another and from site to site, water audit is crucial to determine quantity, nature and quality of water consumption. Water audit for water utility refers to tracking, assessing and validating all components of flow from the site of withdrawal or treatment through the water distribution system and into the consumer's properties.

On the other hand, water audit of an office building would review direction and quantity of water used for domestic, cooling/heating, sanitary and landscaping processes. Whereas usage of water for domestic purpose, audit examines the major areas in which a facility uses water, including human consumption, personal hygiene and sanitation, washing, cleaning, laundry, gardening etc.

Water audit comprises of preparation of layout of water sources, distribution network, and service / delivery points to water users and return flow of waste or excess water. The layout should include locations and capacities of flow measurement devices installed at key points, dimensions of pipes and fittings in the water supply system, locations and particulars of flow control devices and history sheets of all measuring and control devices including pipes and fittings.

4.3.2 Rain Water Harvesting

Water harvesting is the activity of direct collection of rainwater, which can be stored for direct use or can be recharged into the groundwater. Water harvesting is the collection of runoffs for productive purposes. Rain is the first form of water that we know in the hydrological cycle, hence is a primary source of water for us. Rivers, lakes and groundwater are all secondary sources of water. Water harvesting is to understand the value of rain, and to make optimum use of rainwater at the place where it falls.

4.3.3 Need for Rainwater Harvesting

- As water is becoming scarce, it is the need of the day to attain self-sufficiency to fulfil the water needs.
- As urban water supply system is under tremendous pressure for supplying water to ever increasing population.

- To reduce urban flooding
- Groundwater is getting depleted and polluted.
- Soil erosion resulting from the unchecked runoff.
- Health hazards due to consumption of polluted water.

4.3.4 Benefits of Rainwater Harvesting

- Environment friendly and easy approach for water requirements
- RWH is the ideal solution for all water requirements.
- Increase in ground water level.
- Mitigates the effects of drought.
- Reduces the runoff, which otherwise flood storm water drains.
- Reduces flooding of roads and low-lying areas.
- Reduced soil erosion.
- Improves the ground water quality.
- Low cost and easy to maintain.
- Reduces water and electricity bills.

4.4 Energy Management

Energy cannot be seen, but we know it is there because we can see its effects in the forms of heat, light and power. This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliances, and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. An old incandescent bulb uses approximately 60W to 100W while an energy efficient light emitting diode (LED) uses only less than 10 W. Energy auditing deals with the conservation and methods to reduce its consumption related to environmental degradation. It is therefore essential that any environmentally responsible institution examine its energy use practices.

4.4.1 Energy Audit

Energy sources utilized by all the sections of college include Electricity, Natural Gas and Diesel. An energy audit is recommended to determine the energy consumption associated with a facility and the potential savings associated with that energy consumption. From a general point of view, an energy audit provides enormous benefits in different areas.

An energy audit can identify energy consumption and energy costs of the facility and it can evolve over time to develop measures to eliminate waste, maximize efficiency and optimize supply energy.

An energy audit is an inspection, survey and analysis of energy flows for identification of energy savings opportunities in a building, process or system to reduce the amount of energy input into the system, without negatively affecting the output(s).

4.4.2 Benefits of Energy Audit

At a particular level, among the major benefits of doing an energy audit are:

- It helps you to lower energy bills.
- It enables you to increase the comfort of those in the facility.
- It helps you to increase the life span of the equipment in your facility.
- It discovers any unaccounted consumption that may exist at the facility.
- It helps reduce energy costs in your facility.
- With a reduction in production costs, the competitiveness of your company will be improved.
- It helps reduce the dependence on foreign energy sources.
- It helps reduce environmental damage and pollution.
- It can increase the security of your energy supply.
- It can reduce the consumption of natural resources.
- It can reduce damage to the environment associated with the exploitation of resources.
- It helps reduce the impact of greenhouse gas emissions.

4.5 Waste Management

Pollution from waste is aesthetically unpleasing and results in large amounts of litter in our communities which can cause health problems. Plastic bags and discarded ropes and strings can be very dangerous to birds and other animals. This indicator addresses waste production and disposal, plastic waste, paper waste, food waste, and recycling. Solid waste can be divided into two categories: general waste and hazardous waste. General wastes include what is usually thrown away in homes and schools such as garbage, paper, tins and glass bottles. Hazardous waste is waste that is likely to be a threat to health or the environment like cleaning chemicals and petrol.

Unscientific landfills may contain harmful contaminants that leach into soil and water supplies, and produce greenhouse gases contributing to global climate change. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair, and reuse. Thus the minimization of solid waste is essential to a sustainable college. The auditor diagnoses the prevailing waste disposal policies and suggests the best way to combat the problems. It is therefore essential that any environmentally responsible institution examine its waste processing practices.

Waste management is one of the burning problems not only in India but also in the world. Hence it is necessary to use the things properly and manage them cautiously. The main purpose behind this audit is to analyze the quantity and volume of solid, liquid waste and their proper management. Similarly, to make aware about their hazardous effects and to create awareness amongst the students, teachers about minimum use, reuse and recycle of the waste.

Solid waste generation and its management is a burning issue in current days. The rate of generation of solid waste is very high and yet we do not have adequate technology to manage the generated waste. Unscientific handling of solid waste can create threats to public health and environmental safety issues. Thus, it is necessary to manage the solid waste properly to reduce the load on waste management system. The purpose of this audit is to find out the quantity, volume, type and current management practice of solid waste generation

4.6 Green Area Management

Unfortunately, biodiversity is facing serious threats from habitat loss, pollution, over consumption and invasive species. Species are disappearing at an alarming rate and each loss affects nature's delicate balance and our quality of life. Without this variability in the living world, ecological systems and functions would break down, with detrimental

consequences for all forms of life, including human beings. Newly planted and existing trees decrease the amount of carbon dioxide in the atmosphere. Trees play an important ecological role within the urban environment, as well as support improved public health and provide aesthetic benefits to cities.

In one year, a single mature tree will absorb up to 48 pounds of carbon dioxide from the atmosphere, and release it as oxygen. The amount of oxygen that a single tree produces is enough to provide one day's supply of oxygen for people. So while you are busy studying and working on earning those good grades, all the trees on campus are also working hard to make the air cleaner for us. Trees on our campus impact our mental health as well; studies have shown that trees greatly reduce stress, which a huge deal is considering many students are under some amount of stress.

4.7 Carbon Footprint

Commutation of stakeholders has an impact on the environment through the emission of greenhouse gases into the atmosphere consequent to burning of fossil fuels (such as petrol). The most common greenhouse gases are carbon dioxide, water vapour, methane, nitrous oxide and ozone. Of all the greenhouse gases, carbon dioxide is the most prominent greenhouse gas, comprising 402 ppm of the Earth's atmosphere. The release of carbon dioxide gas into the Earth's atmosphere through human activities is commonly known as carbon emissions.

An important aspect of doing an audit is to be able to measure your impact so that we can determine better ways to manage the impact. In addition to the water, waste, energy and biodiversity audits we can also determine what our carbon footprint is, based on the amount of carbon emissions created. One aspect is to consider the distance and method traveled between home and college every day. It undertakes the measure of bulk of carbon dioxide equivalents exhaled by the organization through which the carbon accounting is done. It is necessary to know how much the organization is contributing towards sustainable development. It is therefore essential that any environmentally responsible institution examine its carbon footprint.

The methodology adopted for this audit was a three step process comprising of:

1. **Data Collection –** In preliminary data collection phase, exhaustive data collection was performed using different tools such as observation, survey communicating with responsible persons and measurements. Following steps were taken for data collection:
    - Data about to each department, centers, Library, canteen etc.

- Data about the general information collection by observation and interview.
- The power consumption of appliances recording by taking an average value in some cases.

2. **Data Analysis -** Detailed analysis of data collected include: calculation of energy consumption, analysis of latest electricity bill of the campus, understanding the tariff plan provided by the Maharashtra State Electricity Board (MSEB). Data related to water usages were also analyzed using appropriate methodology.
3. **Recommendation –** On the basis of results of data analysis and observations, some steps for reducing power and water consumption were recommended. Proper treatments for waste were also suggested. Use of fossil fuels has to be reduced for the sake of community health.

The base of any green audit is that its findings are supported by documents and verifiable information. The audit process seeks, on a sampled basis, to track past actions, activities, events, and procedures to ensure that they are carried out according to systems requirements and in the correct manner. Green audits form a part of a process. Although they are individual events, the real value of green audits is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time.

Although green audits are carried out using policies, procedures, documented systems and objectives as a test, there is always an element of subjectivity in an audit. The essence of any green audit is to find out how well the environmental organization, environmental management and environmental equipment are performing. Each of the components is crucial in ensuring that the organization's environmental performance meets the goals set in its green policy. The individual functioning and the success of integration will all play a role in the degree of success or failure of the organization's environmental performance.

5. FUTURE ACTION PLANS

A. Year wise internal audit on green, water and energy to be conducted by respected teachers.
B. Proper management and month wise mapping of water and energy usage to be conducted by monitoring the same in the records.
C. Department wise awareness programs to be organized by department staff representative to each committee.
D. Proper waste water management
E. Proper monitoring and disposal of waste discharge from chemical laboratories
F. Implementation of sign boards and indications of water and energy usage.
G. Energy maintenance by proper usage of electrical appliances.
H. A timber garden and museum to be implemented
I. Promotion of visit to agriculture farm lands and processing centers.

The students and staff who are active in green related activities have a clear vision about how and what should be planned for a greener campus. They think that planting of more saplings during the world environment day would cater more awareness and enthusiasm in students who join afresh each year. The college is also planning to initiate plant a tree/adopt a tree program where each student will be planting a sapling and taking care of it during his or her stay in the college. Although the college follow a university curriculum by implementing several such awareness program in their academic and non-academic activities promote more students turn to green activities.

6. CONCLUSIONS

Considering the fact that the institution is predominantly an undergraduate college, there is significant environmental research both by faculty and students. The environmental awareness initiatives are substantial. The installation of solar panels, paperless work system and vermicomposting practices are noteworthy. Besides, environmental awareness programs initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using ecofriendly and scientific techniques. This may lead to the prosperous future in context of Green Campus & thus sustainable environment and community development.

1. Green audit at times makes the campus authority to understand the effect of implications towards greenness and conservation of water and energy.
2. The management and other authorities are keen to make the campus a green campus.
3. Staff and students are aware about the commitment of the institute towards the society.
4. Green audit at times makes the campus authority to understand the effect of implications towards greenness and conservation of water and energy.
5. The campus community functions are oriented with an eco-friendly approach that enables the student community to develop a genuine approach on conservation of nature, and natural resources.

ANNEXURE -01 ACCREDITATION CERTIFICATE

ENERGY IS LIFE
BEE
CONSERVE IT

BUREAU OF ENERGY EFFICIENCY

Examination Registration No.: EA- 2310

Accreditation Registration No.: AEA-0261

Certificate of Accreditation

This is to certify that Mr./Ms. Sachin Deshpande having its trade/registered office at Maharashtra has been given accreditation as accredited energy auditor. The certificate shall be effective from 2nd day of November, 2017.

The certificate is subject to the provisions of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010.

This certificate shall be valid until it is cancelled under regulation 9 of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010.

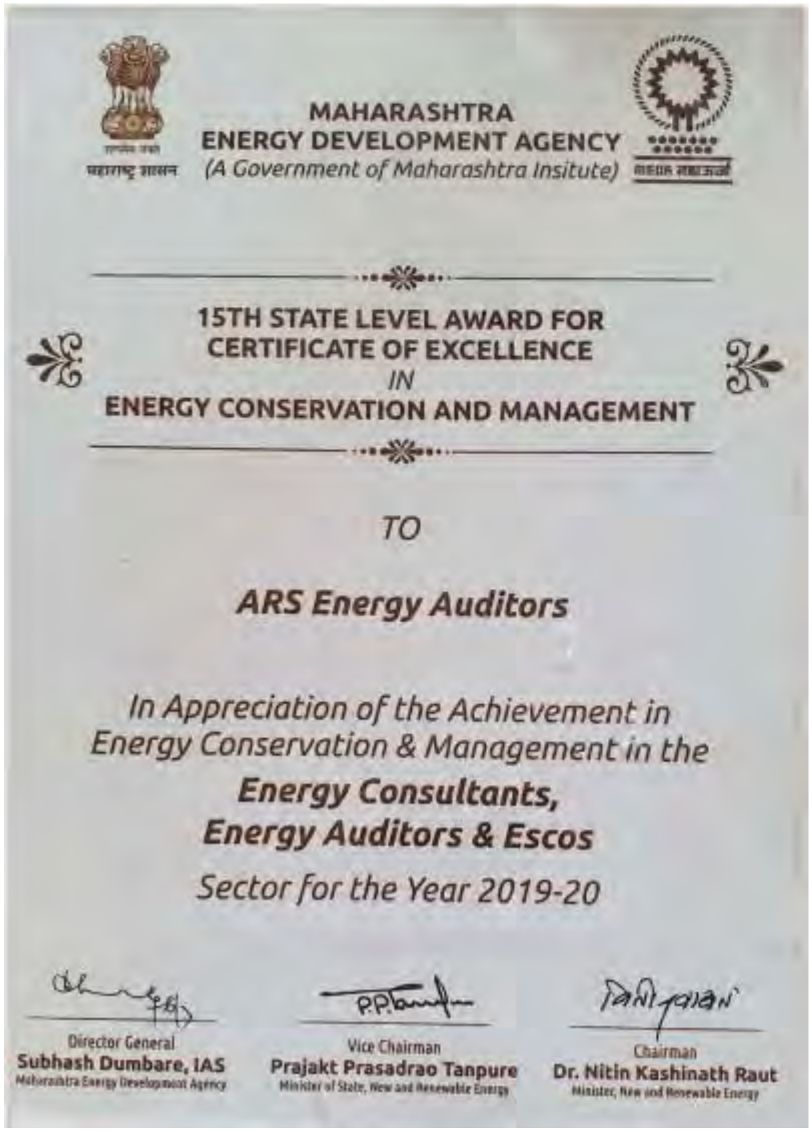
On cancellation, the certificate of accreditation shall be surrendered to the Bureau within fifteen days from the date of receipt of order of cancellation.

Your name has been entered at AEA No. 0261 in the register of list of accredited energy auditors. Your name shall be liable to be struck out on the grounds specified in regulation 8 of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010.

Given under the seal of the Bureau of Energy Efficiency, Ministry of Power, this 12th day of February, 2018

Secretary,
Bureau of Energy Efficiency
New Delhi

ANNEXURE -02 15TH STATE LEVEL AWARD FOR CERTIFICATE OF EXCELLENECE IN ENERY CONSEVATION AND MANAGEMENT



महाराष्ट्र शासन

MAHARASHTRA
ENERGY DEVELOPMENT AGENCY
(A Government of Maharashtra Insitute)

15TH STATE LEVEL AWARD FOR
CERTIFICATE OF EXCELLENCE
IN
ENERGY CONSERVATION AND MANAGEMENT

TO

ARS Energy Auditors

In Appreciation of the Achievement in
Energy Conservation & Management in the
Energy Consultants,
Energy Auditors & Escos
Sector for the Year 2019-20

Director General	Vice Chairman	Chairman
Subhash Dumbare, IAS	**Prajakt Prasadrao Tanpure**	**Dr. Nitin Kashinath Raut**
Maharashtra Energy Development Agency	Minister of State, New and Renewable Energy	Minister, New and Renewable Energy

Bill_for_Energy_Audit _ Green Audit

VIDYAVARDHINI COLLEGE OF ENGG AND TECH (From 1 Apr 2015)
State Name : Maharashtra, Code : 27

Payment Voucher

No. 466 Dated 28-Jul-2023

Particulars	Amount
Account :	
AUDIT FEE	53,100.00
Less: T.D.S	(-)4,500.00
Through :	
UNION BANK OF INDIA 1031	
On Account of :	
CH. NO. 210593, PAID TO M/S. ARS ENERGY AUDITORS AGAINST INVOICE NO. ARS/2021-22/031, DTD. 16/08/2022 FOR AUDIT CHARGES FOR ENERGY AUDIT & GREEN AUDIT FOR 2020 & 2021 AS PER STATEMENT SUBMITTED BY DR. MEGHA TRIVEDI, IQAC COORDINATOR / MR. SWAPNIL MANE	
Amount (in words) :	
Indian Rupees Forty Eight Thousand Six Hundred Only	₹ 48,600.00

Receiver's Signature: Authorised Signatory

To

The Principal

VCET, Vasai

Subject: Release of Payment for Energy Audit & Green Audit for the Year 2020 and 2021

Respected Sir,

This is to bring to your kind consideration that the Energy Audit and Green Audit for the year 2020 and 2021 is successfully completed by **ARS Energy Auditors, Virar** and the final Report is submitted by them. As per the enclosed bill, I request you to clear the due amount of **Rs. 53,100/- (Fifty-Three Thousand One Hundred Only)** including GST.

Attached with this letter is the correspondence mail related to conduct of Energy and Green Audit for the Year 2020 and 2021.

Yours faithfully,

S R Mane

Assistant Professor, MECH.

Dr. Megha Trivedi

IQAC Co-ordinator

To
Regist/Accounts
Please do the
needful
19/7/23

[illegible]
[illegible] Auditor & [illegible] Energy Auditors [illegible]
[illegible] Office Address [illegible] Near Air India Colony
Virar (East), Maharashtra India. Pin Code 401 305 Ph No +91 7507184478
E-Mail ID: sachin.[illegible]@gmail.com, sachin@arsenergyauditors.com
Web: www.arsenergyauditors.com
State : Maharashtra State Code: 27

INVOICE

Invoice No. : ARS/2021-22/031
Invoice Date : 16-Aug-2022

Vidyavardhini's College of Engineering & Technology
vasai (west)
palghar State : Maharashtra Pin Code : 401202

27AAATV2687C1ZD

No.	Quantity	Description	Unit Price	TOTAL (Rs.)	
1	1	**For Energy Audit and Green Audit for 2020 and 2021**	45,000.00		45,000.00
				- TDS @ 10%	4500-00
					40500-00
			CGST	9%	4,050.00
			SGST	9%	4,050.00
			IGST	0%	48600-00
			Total		53,100.00
		Travelling Expenses as per Debit Note			-
			Total Amount Payble		53,100.00

Amount in Words : Rupees FiftyThree Thousand One Hundred Only

Bank Details :		For ARS Energy Auditors :	
NAME OF THE BANK :	BANK OF MAHARASHTRA		A.R.S. ENERGY AUDITORS VIRAR
IFSC CODE :	MAHB0000094		
NAME OF THE FIRM :	A.R.S. ENERGY AUDITORS		
A/C NO :	60038379509		
BANK ADDRESS :	KSHIRSAGAR BHAVAN, VIRAR (W)		
Company Details :			
PAN No. :	ACXPD2190H	Authorised Signatory	Company Seal
GST No. :	27ACXPD2190H1ZC	Mr. Sachin S. Deshpande.	
HSN Code :	998331	Mob. No. : +917507184478	

Kindly release the payment
S R More

·oposal for Energy Audit, Water Audit & Green Audit at Vidyavardhini College of ngineering and Technology

ı messages

RS Energy Auditors <arskcal@gmail.com> Tue, Dec 7, 2021 at 12:01 PM
ɔ: vcet_inbox@vcet.edu.in, Swapnil Mane <swapnil.mane@vcet.edu.in>
c: Sachin Deshpande <sachin.ameya@gmail.com>, Himanshu Patil <himanshup1801@gmail.com>, ervice@arsenergyauditors.com

Approved letter

Dear Sir,

Greetings of the day !!!

Kindly find the attached proposal as per the requirement.

In case of any queries please feel free to contact us.

Mr. Sachin Deshpande
Mob : 7507184478

Regards
A.R.S. Energy Auditors
http://www.arsenergyauditors.com/

1273_Energy Audit, Water Audit & Green Audit_ Of Vidyavardhini's College of Engineering and Technology.pdf
1350K

Swapnil Mane <swapnil.mane@vcet.edu.in> Thu, Dec 9, 2021 at 2:33 PM
To: "Dr. Harish Vankudre" <principal@vcet.edu.in>
Cc: Megha Trivedi <megha.trivedi@vcet.edu.in>, madhavi.waghmare@vcet.edu.in

[Quoted text hidden]
--
Regards,
Swapnil R Mane, Assistant Professor
M. Tech Energy Sci & Engg (IIT Bombay)
Department of Mechanical Engineering
Vidyavardhini`s College of Engineering & Technology, Vasai West.

1273_Energy Audit, Water Audit & Green Audit_ Of Vidyavardhini's College of Engineering and Technology.pdf
1350K

Megha Trivedi <megha.trivedi@vcet.edu.in> Tue, May 10, 2022 at 9:30 PM
To: principal@vcet.edu.in, registrar@vcet.edu.in
Cc: madhavi.waghmare@vcet.edu.in, swapnil.mane@vcet.edu.in

Dear Sir,
Energy Audit and Green Audit for 2020 and 2021 is to be done. As per the proposal received from A.R. S Energy Auditor(proposal attached) the estimated cost for the same is 49,000/- (+18% GST)= Rs. 57820/-
I request you to sanction the same.
thanks and regards
[Quoted text hidden]

1273_Energy Audit, Water Audit & Green Audit_ Of Vidyavardhini's College of Engineering and Technology.pdf
1350K

Mane <swapnil.mane@vcet.edu.in>
...hin Deshpande <sachin.ameya@gmail.com>

Hello Sir,
Please provide final discounted price
[Quoted text hidden]

1273_Energy Audit, Water Audit & Green Audit Of Vidyavardhini's College of Engineering and Technology.pdf
1350K

Sachin Deshpande <sachin.ameya@gmail.com> Thu, May 12, 2022 at 11:57 AM
To: Swapnil Mane <swapnil.mane@vcet.edu.in>

Dear sir,
Greetings fir the day!!
Sir our final discounted price will be Rs 45,500/ plus GST.
Thanks & Regards,

Sachin Deshpande,
7507184478
A.R.S Energy Auditors,
Accredited Energy Auditor (BEE, GOI), CEM (AEE), M. Tech. (Energy), Solar System Tech (IIT-Madras), Lead Auditor En-MS 50001 (BSI), F.I.E., F.I.V.
[Quoted text hidden]

Swapnil Mane <swapnil.mane@vcet.edu.in> Thu, May 12, 2022 at 1:51 PM
To: "Dr. Harish Vankudre" <principal@vcet.edu.in>
Cc: registrar@vcet.edu.in, Megha Trivedi <megha.trivedi@vcet.edu.in>, madhavi.waghmare@vcet.edu.in, Sachin Deshpande <sachin.ameya@gmail.com>, abhay.jadhav@vcet.edu.in

Respected Sir,
Please find appended mail regarding final quotation for energy audit and green audit for the year 2020 and 2021.
I request you to approve the same.
[Quoted text hidden]

Dr. Harish Vankudre <principal@vcet.edu.in> Thu, May 12, 2022 at 3:09 PM
To: Swapnil Mane <swapnil.mane@vcet.edu.in>
Cc: Vishal Save <registrar@vcet.edu.in>, Megha Trivedi <megha.trivedi@vcet.edu.in>, madhavi waghmare <madhavi.waghmare@vcet.edu.in>, Sachin Deshpande <sachin.ameya@gmail.com>, abhay jadhav <abhay.jadhav@vcet.edu.in>

Approved. Pl do the needful
[Quoted text hidden]

Sachin Deshpande <sachin.ameya@gmail.com> Thu, May 12, 2022 at 4:02 PM
To: "Dr. Harish Vankudre" <principal@vcet.edu.in>
Cc: Swapnil Mane <swapnil.mane@vcet.edu.in>, Vishal Save <registrar@vcet.edu.in>, Megha Trivedi <megha.trivedi@vcet.edu.in>, madhavi waghmare <madhavi.waghmare@vcet.edu.in>, abhay jadhav <abhay.jadhav@vcet.edu.in>

Dear sir,
Thank you for entrusting us the work.
We will complete the report in stipulated time.
Thanks & Regards,

Sachin Deshpande,
7507184478
A.R.S Energy Auditors,
Accredited Energy Auditor (BEE, GOI), CEM (AEE), M. Tech. (Energy), Solar System Tech (IIT-Madras), Lead Auditor En-MS 50001 (BSI), F.I.E., F.I.V.
[Quoted text hidden]

Swapnil Mane <swapnil.mane@vcet.edu.in> Mon, May 16, 2022 at 10:44 PM

Deshpande <sachin.ameya@gmail.com>
...Deshpande <sachin.ameya@gmail.com>, Vishal Save <registrar@vcet.edu.in>, Megha Trivedi
...rish Vankudre" <principal@vcet.edu.in>, madhavi waghmare <madhavi.waghmare@vcet.edu.in>, abhay jadhav
...ha.trivedi@vcet.edu.in>
...bhay.jadhav@vcet.edu.in>

Gentle Reminder
Awaiting for the certificate and audit summary report.
[Quoted text hidden]

Sachin Deshpande <sachin.ameya@gmail.com> Tue, May 17, 2022 at 10:19 AM
To: Swapnil Mane <swapnil.mane@vcet.edu.in>, saurabh raul <saurabhraul12@gmail.com>

Dear sir,
Greetings for the day!
We will send the required documents shortly.
Thanks & Regards,

Sachin Deshpande,
7507184478
A.R.S Energy Auditors,
Accredited Energy Auditor (BEE, GOI), CEM (AEE), M. Tech. (Energy), Solar System Tech (IIT-Madras), Lead Auditor En-MS 50001 (BSI), F.I.E., F.I.V.

On Wed, 11 May, 2022, 12:30 pm Swapnil Mane, <swapnil.mane@vcet.edu.in> wrote:
[Quoted text hidden]

VIDYA VARDHINI'S COLLEGE OF ENGINEERING & TECHNOLOGY VASAI ROAD-401202 DIST. PALGHAR

VIDYAVARDHINI'S COLLEGE OF ENGG. & TECHNOLOGY, VASAI ROAD.

To

Date: 03/08/2023

The Branch Manager
UNION BANK OF INDIA
Vidyavardhini's College Campus,
VASAI ROAD - 401 202.

Sir / Madam,

Enclosed please find a Cheque No. 210593, Dated 28/07/2023 for Rs. 48,600/--(Rs. Forty Eight Thousand Six Hundred Only.)

We request you to credit the following amount to the respective A/C s.

NAME	BANK NAME	BRANCH	A/c NO.	IFSC CODE	AMOUNT
ARS ENERGY AUDITORS	BANK OF MAHARASHTRA	VIRAR W	60038379509	MAHB0000094	48600.00
TOTAL					48600.00

Rs. 48,600/--(Rs. Forty Eight Thousand Six Hundred Only.)

Thanking you.

यूनियन बैंक ऑफ इंडिया / Union Bank of India
अंतरण
0 3 AUG 2023
TRANSFER
Vidhya Vardhini College Rd. Br. Vasai (W)
विद्यावर्धिनी कॉलेज रोड शाखा, वसई (प.)

Click here for summary page

ARS

A.R.S. ENERGY AUDITORS

BEE Accredited & Empaneled Energy Auditor Firm, MEDA Class-A Energy Auditor
Head Office Address: A/1, A/101, Pramodini Palace CHS Ltd., Near Air India Colony, Virar (East), Maharashtra, India. Pin Code: - 401 305. Ph. No. : +91 7507184478.
E-Mail IDs :- sachin.ameya@gmail.com, sachin@arsenergyauditors.com
Web- www.arsenergyauditors.com

Ref.: ARS/2023/VCET/001 ***Date: 19/10/2023***

Completion Certificate

This is to Certify that **Vidyavardhini`s College of Engineering and Technology**, Vasai Dist Palghar State Maharashtra has carried out **Detailed Energy Audit** of the building campus during the period from **April 2022 to March 2023**. The report is hereby compiled and presented to VCET in **October 2023.** The Energy Audit was carried out by M/s A.R.S. Energy Auditors, Virar.

Hope to have future endeavors with you. Thanking you for your cooperation and follow-up during the entire Audit Activity.

Regards,

Authorized Signature & Seal:

A.R.S. ENERGY AUDITORS VIRAR

SACHIN S. DESHPANDE (AEA0261) B.E.E. GOV. OF INDIA ACCREDITED ENERGY AUDITORS

Name of Authorized Person	**: Mr. Sachin S. Deshpande. (AEA-0261)**
Company Name	**: A.R.S. Energy Auditor, Virar.**
Designation	**: Chief Consultant.**
Date	**: 19/10/2023**
Place	**: Virar.**

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ARS

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Ref.: ARS/2021/VCET/001 ***Date: 13/12/2021.***

Completion Certificate

This is to Certify that **Vidyavardhinis College of Engineering and Technology**, Vasai Dist Palghar State Maharashtra has carried out **Detailed Energy Audit** of the building campus during the Month of **December 2021**. The Energy Audit was carried out by M/s A.R.S. Energy Auditors, Virar.

Authorized Signature & Seal:

A.R.S. ENERGY AUDITORS VIRAR

SACHIN S. DESHPANDE (AEA0261) B.E.E. GOV. OF INDIA ACCREDITED ENERGY AUDITORS

Name of Authorized Person	**: Mr. Sachin S. Deshpande. (AEA-0261)**
Company Name	**: A.R.S. Energy Auditor, Virar.**
Designation	**: Chief Consultant.**
Date	**: 13/12/2021.**
Place	**: Virar.**

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Energy Audit Certificate 2020-21

A.R.S. ENERGY AUDITORS

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Ref.: ARS/2020/VCET/001 ***Date: 20/01/2020.***

Completion Certificate

This is to Certify that **Vidyavardhinis College of Engineering and Technology**, Vasai Dist Palghar State Maharashtra has carried out **Detailed Energy Audit** of the building campus during the Month of **January 2020**. The Energy Audit was carried out by M/s A.R.S. Energy Auditors, Virar.

Authorized Signature & Seal:

A.R.S. ENERGY AUDITORS VIRAR

SACHIN S. DESHPANDE (AEA0261) B.E.E. GOV. OF INDIA ACCREDITED ENERGY AUDITORS

Name of Authorized Person	**: Mr. Sachin S. Deshpande. (AEA-0261)**
Company Name	**: A.R.S. Energy Auditor, Virar.**
Designation	**: Chief Consultant.**
Date	**: 20/01/2020.**
Place	**: Virar.**

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ENERGY AUDIT REPORT OF VIDYAVARDHINI COLLEGE OF ENGINEERING AND TECHNOLOGY, VASAI.

Vidyavardhini College of Engineering and Technology

Address: K.T. Marg, Vasai Road (West), Dist.-Palghar,
Vasai-401202, Maharashtra, India.

Prepared By

ARS ENERGY AUDITORS

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October 2023

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ACKNOWLEDGEMENT

ARS ENERGY AUDITORS thanks the management of **Vidyavardhini College of Engineering and Technology** for assigning this important work of Energy Study at their Engineering Collage at **VASAI.** We appreciate the cooperation and guidance extended to ARS Execution Team for completion of study.

Our special thanks to:

- *Dr. Harish V. Vankudre (Principal)*
- *Dr. Megha Trivedi, HOD (Computer)*
- *Dr. Uday Aswalekar, HOD (Mechanical)*
- *Mr. Swapnil Mane, Asst Prof. Mechanical*
- *Mr. Vishwas Palve, Asst Prof. Mechanical*
- *Mr. Prabhakar Patil, Substation Incharge, VCET*

For giving us necessary inputs to carry out this very vital exercise of Energy Audit Assessment.

We are also thankful to other Staff Members and Students who were actively involved and supported while collecting the data and conducting field measurements.

For A.R.S. Energy Auditors,

Mr. Sachin S. Deshpande.

A.R.S. ENERGY AUDITORS VIRAR

ABOUT CONSULTANT

A.R.S ENERGY AUDITOR is a leading name in the field of energy conservation. The company has diversified its business from the Solar Water Heating Application to the field of Energy Conservation through Energy Audit & Electrical Safety Audits. With a team of experienced professionals the company has successfully completed the Safety Audit Assignments for many prestigious clients. The company has empanelment with Prestigious Organization Like – *Bureau of Energy Efficiency (BEE), Maharashtra Energy Development Agency (MEDA), Gujarat Energy Development Agency (GEDA), Karnataka Renewable Energy Development Agency Ltd. (KREDAL), Rural Electrification Corporation (REC), and PCRA for Energy Conservation Activities.*

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Junior Engineer, B.E. Mechanical Eng.

EXECUTIVE SUMMARY OF PLANT ENERGY SAVING POTENTIAL

Sr. No.	Energy Conservation Measures	Annual Saving	Total Annual Cost Saving	Approximate Investment Cost	SPP - Simple Payback Period	
		kWh/year	Rs./year	Rs.	Years	Months
1	Stoppage of 10 no of fans in library.	**1,536**	**21,504**	**Nil**	**Immediate**	**Immediate**
2	Installation of water level controller to reduce the working time of pumps.	**312.5**	**4,375**	**20,000**	**4.57**	54
Total Saving		**26,424.5**	**3,69,943**	**9,80,000**	**7.36**	**87.4**

1. INTRODUCTION

1.1 About Vidyavardhini's College of Engineering & Technology

Vidyavardhini means a Body committed to enhancement of Knowledge. Vidyavardhini was established as a registered society in 1970 by late Padmashri H. G. alias Bhausaheb Vartak for the noble cause of education in rural areas.

Vidyavardhini’s College of Engineering and Technology, Vasai is located on the sprawling campus of Vidyavardhini, spread over an area of 12.27 acres. It is a short, two minutes’ walk from Vasai Road (W) Railway Station. The college is also accessible by road from Mumbai.

Vidyavardhini Society received approval from AICTE to start the new college of Engineering & Technology with effect from July, 1994. The college is affiliated to the University of Mumbai for the four year degree program leading to the degree of Bachelor of Engineering.

VISION:

- To be premier institution of technical education, aiming at becoming a valuable resource for industry and society

MISSION

- To provide technologically inspiring environment for learning
- To promote creativity, innovation and professional activities
- To inculcate ethical and moral values
- To cater personal, professional and societal needs through quality education

1.2 Organization Energy Meter Details

Details	Service No:	Consumer Name	Sanctioned & Connected Load	Contract demand	Tariff Type	Electricity Provider
Meter	001849021636	M/S Vidyavardhini Collage of Engg. & Tech	1000 kW	525 kVA	HT – IX B HT – VIII B	MSEDCL

- The tariff type was changed from HT – IX B to HT – VIII B after April 2020

2 ABOUT ENERGY AUDIT

2.1 Introduction

Energy audits are a powerful tool for uncovering operational and equipment improvements that will save energy, reduce energy costs, and lead to high performance. Energy audits can be done as a stand-alone effort but may be conducted as part of a larger analysis across a group of facilities, or across an owner's entire portfolio.

The purpose of an energy audit (sometimes called an "energy assessment" or "energy study") is to determine where, when, why and how energy is used in a facility, and to identify opportunities to improve efficiency. Energy auditing services are offered by energy services companies (ESCOs), energy consultants and engineering firms. The energy auditor leads the audit process but works closely with building owners, staff and other key participants throughout to ensure accuracy of data collection and appropriateness of energy efficiency recommendation.

The audit typically begins with a review of historical and current utility data and benchmarking of your building's energy use against similar buildings. This sets the stage for an onsite inspection of the physical building. The main outcome of an energy audit is a list of recommended energy efficiency measures (EEMs), their associated energy savings potential, and an assessment of whether EEM installation costs are a good financial investment.

2.2 Types of Energy Audits :

Energy audits typically take a whole building approach by examining the building envelope, building systems, operations and maintenance procedures, and building schedules. Whole building audits provide the most accurate picture of energy savings opportunities at your facility.

Alternately, energy audits can be targeted to specific systems (i.e., lighting or heating, ventilation and air conditioning). Targeted audits may miss significant bigger picture energy savings opportunities, but may be a good route if you have specific energy efficiency retrofit projects in mind and limited funds to invest.

2.3 Energy Audits Identify:

- ✓ No-cost operational or maintenance adjustments that will save energy
- ✓ Short-term, low-cost energy efficiency retrofit recommendations
- ✓ Action plans for energy efficiency capital investments
- ✓ Comfort and code issues that can be addressed immediately
- ✓ Opportunities for better adherence to lighting and comfort standards

3 ELECTRICITY BILL ANALYSIS

There is electricity meter requirement of lighting, Air conditioners & other electrical load.Contract demand of for meter is 525 kVA. The below table indicates average consumptionfor the reference period.

Sr No	Billing Month	Contract Demand (CD) (KVA)	Billed Demand (BD) (KVA)	Adjusment (Solar Units) (kWh)	Units Consumed (kWh)	Billed Power Factor (lagg.)
1	Apr-22	525	341	-759	29751	0.951
2	May-22	525	341	-555	20322	0.920005433
3	Jul-22	525	341	0	5827	0.938930068
4	Aug-22	525	341	-171	25878	0.95
5	Sep-22	525	341	-333	21570	0.940
6	Oct-22	525	341	-993	21705	0.937986171
7	Nov-22	525	341	-207	20589	0.93200851
8	Dec-22	525	341	-372	19056	0.925992517
9	Jan-23	525	341	-483	17316	0.919010721
10	Feb-23	525	341	-204	25206	0.960009141
11	Mar-23	525	341	-525	31446	0.971995549
Total			**3751**	**-4602**	**238666**	**10.34692758**
Avg			**341**	**-418.3636364**	**21696.90909**	**0.94062978**
Min			**341**	**-993**	**5827**	**0.919010721**
Max			**341**	**0**	**31446**	**0.971995549**

Demand Charges (DC) (Rs)	Wheeling Charges (Rs)	Energy Charges (EC) (Rs)	FAC (Rs)	TOD Tariff EC (Rs)	Electricity Duty	Tax on Sale of Electricity, TOSE (Rs)
154814	17206.2	280304.64	6256.8	5497.6	97456.64	5664.59
154814	12148.95	197917.44	4417.8	3292	78243.94	3869.31
154814	3413.3	55605.76	10860.5	1099.5	47416.54	1109.46
154814	14982	244070.4	47670	3554.9	97669.17	4927.17
154814	12620.85	205605.12	40157.25	3124.3	87427.52	4106.93
154814	12727	207334.4	40495	2349.7	87721.22	4132.63
154814	12150.05	197935.36	38659.25	2583.5	85289.85	3920.15
154814	11318.45	184387.84	36013.25	1915	81574.19	3628.26
154814	10363.1	168824.32	32973.5	336.7	77135.44	3296.97
154814	14440.8	235253.76	45948	2664.3	95155.38	4799.22
154814	17793.6	289873.92	56616	4329.8	109919.74	5987.32
1702954	**139164.3**	**2267112.96**	**360067.4**	**30747.3**	**945009.63**	**45442.01**
154814	**12651.3**	**206101.1782**	**32733.4**	**2795.209091**	**85909.96636**	**4131.091818**
154814	**3413.3**	**55605.76**	**4417.8**	**336.7**	**47416.54**	**1109.46**
154814	**17793.6**	**289873.92**	**56616**	**5497.6**	**109919.74**	**5987.32**

Incremental Consumption Rebate	Tax Collection at Source	Total Current Bill	Principal Arrears	Total Bill Amount (Rounded)	Delay Payment	Total Amount Payable	Total Units Consumed	Per Unit Electricity Cost
(Rs)	(Rs)	(Rs)	(Rs)	(Rs)	(Rs)	(Rs)	(kWh)	(Rs/kWh)
-4167	0	564378.22	-17098.18	547280.04	7054.73	554330	29751	18.63231488
0	0	454703.44	-227098.96	227600	5683.79	233283.79	20322	11.47937162
0	0	274319.06	-0.58	274320	3428.99	277750	5827	47.66603741
-1113.75	4927.17	566573.89	0.48	566570	7082.18	573660	25878	22.1678646
0	0	507855.97	4.37	507860	6348.2	514210	21570	23.83912842
0	0	510081.81	-0.46	510080	6376.02	516460	21705	23.79451739
0	0	495861.73	4.35	495870	6198.27	502060	20589	24.3848657
0	0	474146.34	-3.92	474140	5926.83	480070	19056	25.19259026
0	0	448217.68	-1.58	448220	5602.72	453820	17316	26.20813121
-577.5	447.74	552945.7	-3.1	552950	6911.82	559860	25206	22.21137824
5858.25	552.5	645745.13	3.8	645750	8071.82	653820	31446	20.79183362
0	**5927.41**	**5494828.97**	**-244193.78**	**5250640.04**	**68685.37**	**5319323.79**	**238666**	**266.3680334**
0	**538.8554545**	**499529.9064**	**-22199.43455**	**477330.9127**	**6244.124545**	**483574.89**	**21696.90909**	**24.21527576**
-4167	**0**	**274319.06**	**-227098.96**	**227600**	**3428.99**	**233283.79**	**5827**	**11.47937162**
5858.25	**4927.17**	**645745.13**	**4.37**	**645750**	**8071.82**	**653820**	**31446**	**47.66603741**

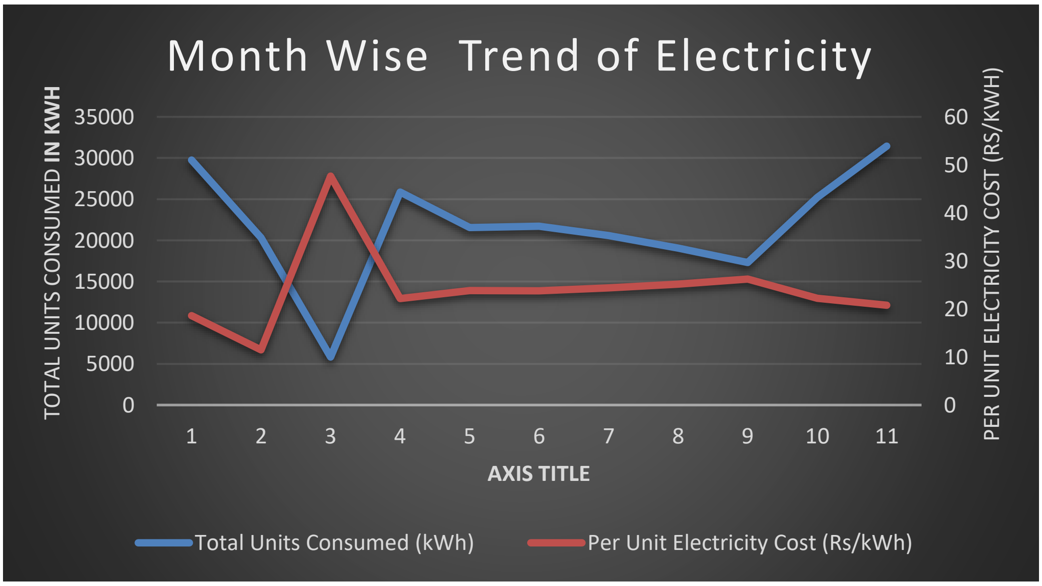
The following are the conclusions of Electrical Bill Analysis:

- For meters Maximum Demands are in near to the 50% of Contract Demand. Hence, it is ok.
- Average monthly electricity consumption is 21696.90 kWh and avg. monthly bill is Rs. 477330.91 /-.
- The average PF was found to be 0.94062978 which is OK
- Average of last 12 months unit cost is Rs**.** 24.21/ kWh, is very high. The avg. unit costdepends on the tariff of MSEB.

- Present Tariff Details :-

Parameter	Value	Unit
Tariff Type :	**HT- IX B/HT VIII B**	
Contract Demand :	**525**	**kVA**
TOD Tariff :-		
2200 Hrs-0600 Hrs	-1.50	Rs./kVAh
0600 Hrs-0900 Hrs & 1200 Hrs-1800 Hrs	0.00	Rs./kVAh
0900 Hrs-1200 Hrs	0.80	Rs./kVAh
1800 Hrs-2200 Hrs 1.10	1.10	Rs./kVAh

The following graph shows the trend of electricity consumption and its unit rate



- The highest per unit electricity cost was recorded in July 2022 at 47.66 Rs/kWh, while the lowest was noted in May 2022 at 11.47 Rs/kWh. In May 2023, the graph illustrates the highest total units consumed, reaching 31,446 kWh, whereas in July 2023, the consumption peaked at 5,827 kWh.

3.1 Electricity TOD Tarif

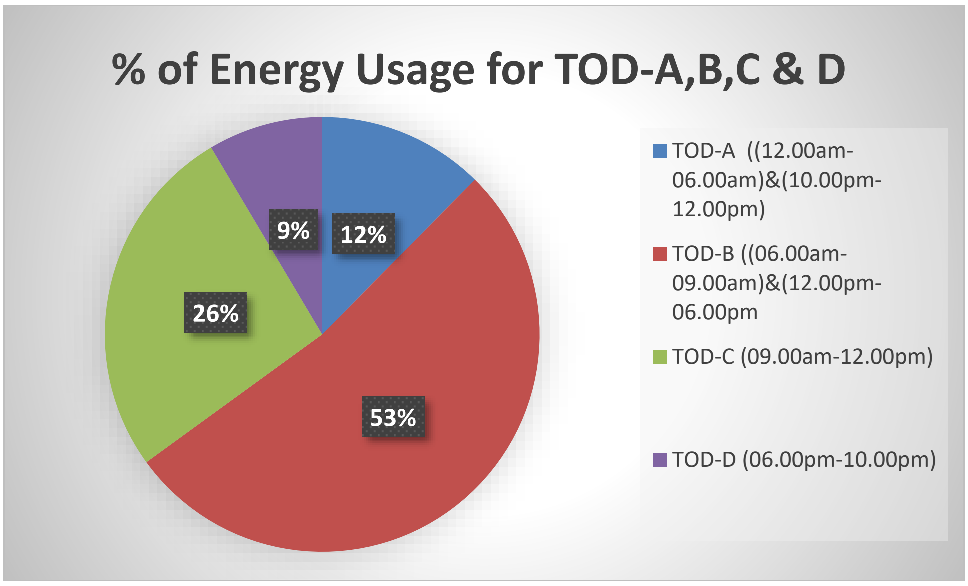
The following table gives information regarding the tariff rates, Units consumed during different tariff zones & its Energy charges.

Sr. No.	Month	TOD-A ((12.00am-06.00am)&(10.00pm-12.00pm))				TOD-B ((06.00am-09.00am)&(12.00pm-06.00pm))			
		Units Consumed	Rate of Electricity	Energy Charges (EC)-A	% Usages	Units Consumed	Rate of Electricity	Energy Charges (EC)-B	% Usages
		(kWh)	(Rs.kWh)	(Rs.)	%	(kWh)	(Rs.kWh)	(Rs.)	%
1	Apr-22	2,511	(1.50)	(3,767)	8.03	17,950.00	-	-	57.38
2	May-22	2,341	(1.50)	(3,512)	10.60	11,778.00	-	-	53.32
3	Jun-22	2	(1.50)	(3)	100.00	-	-	-	-
4	Jul-22	614	(1.50)	(921)	9.90	3,227.00	-	-	52.01
5	Aug-22	3,025	(1.50)	(4,538)	11.10	14,836.00	-	-	54.46
6	Sep-22	2,694	(1.50)	(4,041)	11.74	11,920.00	-	-	51.95
7	Oct-22	2,958	(1.50)	(4,437)	12.78	12,409.00	-	-	53.63
8	Nov-22	2,797	(1.50)	(4,196)	12.66	11,472.00	-	-	51.93
9	Dec-22	2,990	(1.50)	(4,485)	14.53	10,312.00	-	-	50.11
10	Jan-23	3,754	(1.50)	(5,631)	19.92	8,736.00	-	-	46.36
11	Feb-23	3,672	(1.50)	(5,508)	13.99	13,428.00	-	-	51.14
12	Mar-23	3,957	(1.50)	(5,936)	12.23	16,583.00	-	-	51.26
Total		**27,358.00**	**(16.50)**	**(35,529.00)**	**12.40**	**1,16,068.00**	**-**	**-**	**52.60**
Avg.		**2,487.09**	**(1.50)**	**(3,552.90)**	**19.22**	**10,551.64**	**-**	**-**	**47.11**
Min.		**2.00**	**(1.50)**	**(5,631.00)**	**8.03**	**-**	**-**	**-**	**-**
Max.		**3,754.00**	**(1.50)**	**(3.00)**	**100.00**	**17,950.00**	**-**	**-**	**57.38**

TOD-C (09.00am-12.00pm)				TOD-D (06.00pm-10.00pm)				Units Consumed	TOD - TOTAL TOD CHARGES
Units Consumed	Rate of Electricity	Energy Charges (EC)-B	% Usages	Units Consumed	Rate of Electricity	Energy Charges (EC)-B	% Usages		
(kWh)	(Rs.kWh)	(Rs.)	%	(kWh)	(Rs.kWh)	(Rs.)	%	(kWh)	(Rs.)
8,804.00	0.80	7,043.20	28.14	2,019.00	1.10	2,220.90	6.45	31,284	5,497.60
6,545.00	0.80	5,236.00	29.63	1,425.00	1.10	1,567.50	6.45	22,089	3,292.00
-	0.80	-	-	-	1.10	-	-	2	(3.00)
1,933.00	0.80	1,546.40	31.15	431.00	1.10	474.10	6.95	6,205	1,099.50
7,415.00	0.80	5,932.00	27.22	1,964.00	1.10	2,160.40	7.21	27,240	3,554.90
6,670.00	0.80	5,336.00	29.07	1,663.00	1.10	1,829.30	7.25	22,947	3,124.30
5,875.00	0.80	4,700.00	25.39	1,897.00	1.10	2,086.70	8.20	23,139	2,349.70
6,084.00	0.80	4,867.20	27.54	1,738.00	1.10	1,911.80	7.87	22,091	2,583.50
5,349.00	0.80	4,279.20	25.99	1,928.00	1.10	2,120.80	9.37	20,579	1,915.00
3,402.00	0.80	2,721.60	18.05	2,951.00	1.10	3,246.10	15.66	18,843	336.70
6,331.00	0.80	5,064.80	24.11	2,825.00	1.10	3,107.50	10.76	26,256	2,664.30
9,093.00	0.80	7,274.40	28.11	2,719.00	1.10	2,990.90	8.40	32,352	4,329.80
58,408.00	**8.80**	**41,661.60**	**26.47**	**18,841.00**	**12.10**	**17,617.60**	**8.54**	**2,20,675.00**	**23,750.20**
5,309.82	**0.80**	**4,166.16**	**24.22**	**1,712.82**	**1.10**	**1,761.76**	**8.54**		**2,375.02**

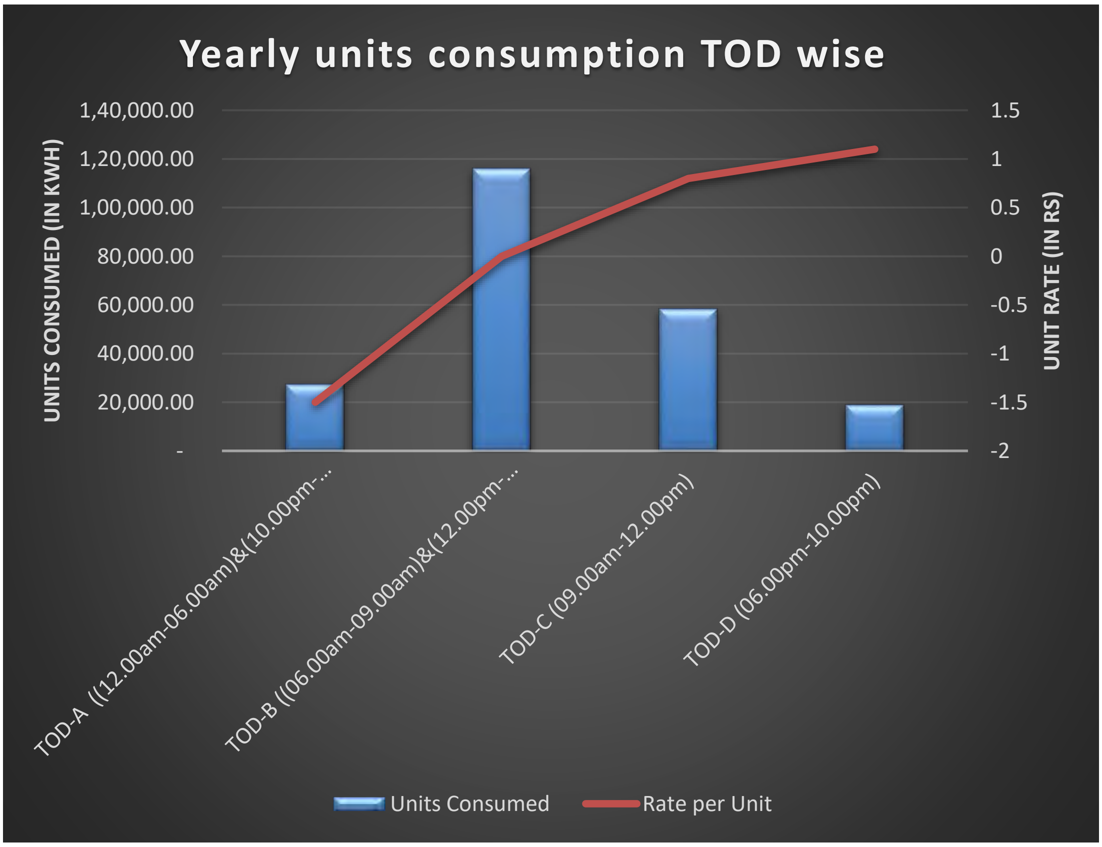
								20,061.36	
-	0.80	-	-	-	1.10	-	-	2.00	(3.00)
8,804.00	0.80	7,043.20	31.15	2,951.00	1.10	3,246.10	9.43	31,284.00	5,497.60

The % of Energy usage during different Tariff rates is described in the pie chart below



	Parameter	Value	Unit
	TOD Tariff :-		
TOD-A	2200 Hrs-0600 Hrs	-1.50	Rs./kVAh
TOD-B	0600 Hrs-0900 Hrs & 1200 Hrs-1800 Hrs	0.00	Rs./kVAh
TOD-C	0900 Hrs-1200 Hrs	0.80	Rs./kVAh
TOD-D	1800 Hrs-2200 Hrs	1.10	Rs./kVAh

- As seen from the pie chart 53 % of total energy is used during the TOD-B where the unit rate is 0 Rs/kVAh.
- Also, 26% of energy is used during the TOD-C, when the tariff rate is 0.80 Rs/kVAh.
- Also, 12 % of energy is used during the TOD-A, when the tariff rate is -1.50 Rs/kVAh.
- Also, 9 % of energy is used during the TOD-D, when the tariff rate is 1.10 Rs/kVAh.



- The graph shows yearly units consumption TOD wise
- It is observed that TOD-B has highest units consumption (In KWh) about 1,16,068.00.
- It is observed that TOD-D has highest units consumption (In KWh) about 18,841.00.

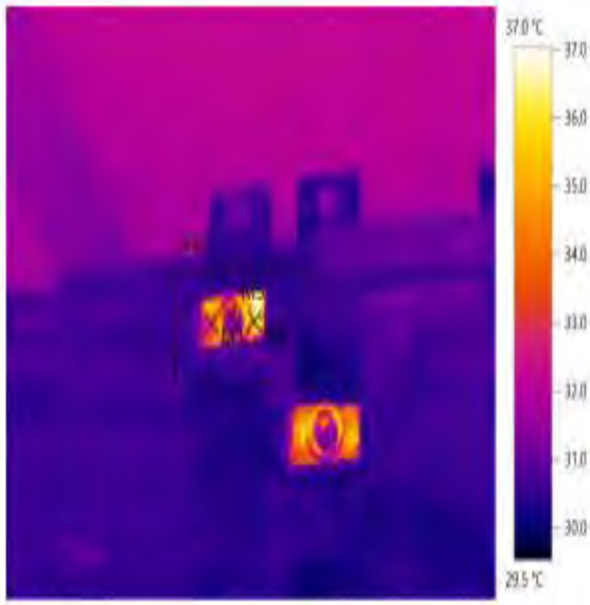
4. Lux Level Measurement

Location	Lux Readings								Avg. LUX Reading	Remark
	1	2	3	4	5	6	7	8		
Ground Floor Main Entrance lobby	65	68	84	72	69	81	75	84	*74.8*	***Sufficient LUX available***
Ground Floor Basic Workshop I-07	102	106	108	107	104	105	109	110	*106.4*	***Sufficient LUX available***
Ground Floor Thermal Engineering Lab- 013	120	129	127	122	128	130	121	125	*125.3*	***Sufficient LUX available***
Ground Floor Theory of Machines lab-014	125	122	128	135	132	131	126	127	*128.3*	***Sufficient LUX available***
Ground Floor Refrigeration & Air Conditioning Lab-015	145	138	139	142	144	137	142	141	*141.0*	***Sufficient LUX available***
Ground Floor Geotechnics Lab -017	155	152	158	156	151	157	155	152	*154.5*	***Sufficient LUX available***
Ground Floor Building Material Construction Technology lab-018	145	138	135	142	144	139	143	141	*140.9*	***Sufficient LUX available***
Ground Floor Transportation lab- 019	129	120	127	124	125	122	130	121	124.75	***Sufficient LUX available***
Ground Floor Fuild Mechanics Lab-20	134	140	132	137	133	131	139	139	135.625	***Sufficient LUX available***
Ground Floor Applied Hyrdaulic Lab-21	135	139	142	144	142	138	139	135	139.25	***Sufficient LUX available***
Ground Floor Basic Workshop II-022	170	164	162	161	166	168	165	164	165	***Sufficient LUX available***
Ground Floor Material Testing Lab-023	108	109	103	102	101	100	106	105	104.25	***Sufficient LUX available***
Ground Floor Head of Department Mechanical Engineering	78	75	85	89	90	97	82	99	86.875	***Sufficient LUX available***
Ground Floor Semiar Hall	190	198	188	205	209	202	188	196	197	***Sufficient LUX available***
1st Floor Training & Placement Office	108	103	107	106	109	110	102	101	105.75	***Sufficient LUX available***
1st Floor Cad Center-112	110	102	98	112	104	109	106	105	105.75	***Sufficient LUX available***
1st Floor Networking Lab & Operating System Lab-114	115	102	108	104	111	114	107	105	108.25	***Sufficient LUX available***
1st Floor Administrative Office-101	13	13	13	13	13	13	13	13	135.1	***Sufficient LUX***

	2	8	1	9	4	8	6	3	25	***available***
1st Floor Conference Room-128	309	307	302	301	311	315	312	301	307.25	***Sufficient LUX available***
1st FloorRefrigeration & Air Conditioning -124	67	60	71	68	64	66	63	69	66	***Sufficient LUX available***
1st Floor Exam Section	77	79	71	73	77	75	72	81	75.625	***Sufficient LUX available***
1st Floor Dean Cabins	208	199	206	206	202	208	206	205	205	***Sufficient LUX available***
2nd Floor- Room No-208	80	84	88	90	89	81	82	85	84.875	***Sufficient LUX available***
2nd Floor Lab-05	132	128	132	136	140	131	138	139	134.5	***Sufficient LUX available***
2nd Floor Lab-06	136	125	133	138	130	140	136	137	134.375	***Sufficient LUX available***
2nd Floor Lab-07	133	127	129	132	134	135	139	133	132.75	***Sufficient LUX available***
2nd Floor Room 210	210	213	217	220	218	219	211	215	215.375	***Sufficient LUX available***
2nd floor Floor Passage Area	180	188	182	198	192	200	195	194	191.125	***Sufficient LUX available***
2nd Floor Room No- 214	110	105	102	108	112	118	113	109	109.625	***Sufficient LUX available***
2nd Floor Room No-215	103	107	108	112	116	111	120	102	109.875	***Sufficient LUX available***
2nd Floor Room No-216	109	112	114	119	120	113	110	119	114.5	***Sufficient LUX available***
3rd Floor Physics Lab-319	114	110	118	117	119	114	116	118	115.75	***Sufficient LUX available***
3rd Floor Chemistry Lab-322	125	134	132	125	127	135	122	125	128.125	***Sufficient LUX available***
3rd Floor Room No-313	105	111	106	103	107	114	117	120	110.375	***Sufficient LUX available***
3rd Floor Room No-314	102	112	101	100	114	117	112	110	108.5	***Sufficient LUX available***
3rd Floor Room No-315	108	111	106	107	117	119	120	112	112.5	***Sufficient LUX available***
3rd Floor Room No-320	98	102	100	108	115	112	114	111	107.5	***Sufficient LUX available***
3rd Foor Room No-321	107	112	115	118	113	119	122	114	115	***Sufficient LUX available***
3rd Foor Room No-323	115	117	114	112	119	120	107	106	113.75	***Sufficient LUX available***
3rd Floor Seminar Hall	165	178	198	188	200	210	178	171	186	***Sufficient LUX available***
4th Floor Embedded System & VLSI lab-401	67	65	69	62	78	72	77	74	70.5	***Sufficient LUX available***

4th Floor Analog & Digital Communication Lab-402	61	68	72	69	78	71	72	79	71.25	***Sufficient LUX available***
4th Floor Project Lab- 403	68	69	76	79	74	62	79	75	72.75	***Sufficient LUX available***
4th Floor Basic Electrical Lab-408	73	71	65	77	86	87	88	73	77.5	***Sufficient LUX available***
4th Floor Microwave & Antenna Lab-409	65	69	76	72	81	82	84	81	76.25	***Sufficient LUX available***
4th Floor Signal Processing Lab-410	67	65	72	79	82	89	82	88	78	***Sufficient LUX available***
4th Floor Centre of Excellence Siemens	125	132	140	145	142	137	132	139	136.5	***Sufficient LUX available***
4th Floor Room No-415	108	111	105	107	117	122	120	112	112.75	***Sufficient LUX available***
4th Floor Room No-416	99	107	114	112	116	110	118	102	109.75	***Sufficient LUX available***
4th Floor Room No-417	102	112	115	118	118	112	125	115	114.625	***Sufficient LUX available***
4th Floor Room No-420	113	117	114	113	119	122	109	106	114.125	***Sufficient LUX available***
4th Floor Room No-422	101	111	106	103	109	112	117	121	110	***Sufficient LUX available***
4th Floor Room No-423	95	107	109	106	111	112	117	111	108.5	***Sufficient LUX available***
4th Floor Room No-421	100	107	115	118	112	116	118	114	112.5	***Sufficient LUX available***
4th Floor Room No-422	118	112	114	112	119	121	111	106	114.125	***Sufficient LUX available***
5th Floor Room No-515	112	118	114	119	125	113	110	111	115.25	***Sufficient LUX available***
5th Floor Room No-516	115	117	114	112	119	120	107	106	113.75	***Sufficient LUX available***
5th Floor Room No-517	105	107	114	112	112	110	116	102	109.75	***Sufficient LUX available***
5th Floor Room No-519	103	111	105	110	117	110	123	117	112	***Sufficient LUX available***
5th Floor Room No-520	100	112	114	122	120	113	110	119	113.75	***Sufficient LUX available***
Main Sub Station	120	132	125	138	127	122	136	139	129.875	***Sufficient LUX available***
Canteen	98	92	89	96	102	99	105	95	97	***Sufficient LUX available***

5 Thermal Survey



Picture parameters:

Emissivity:	0.95
Refl. temp. [°C]:	20.0

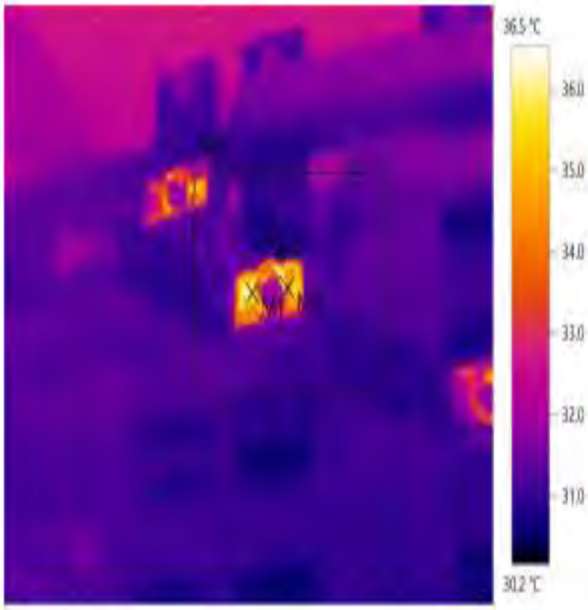
Picture markings:

Measurement Objects	Temp. [°C]	Emiss.	Refl. temp. [°C]	Remarks
Measure point 1	33.2	0.95	20.0	It is found to be OK
Measure point 2	35.8	0.95	20.0	It is found to be OK
Measure point 3	31.8	0.95	20.0	It is found to be OK
Average Area 1	31.2	0.95	20.0	-

Remarks:

Loaction- VCET Substation Main Supply R phase

No abnormality, NO action required.The average temperature found to be 31.2 degree celsius which is within permissible limit.



Picture parameters:

Emissivity:	0.95
Refl. temp. [°C]:	20.0

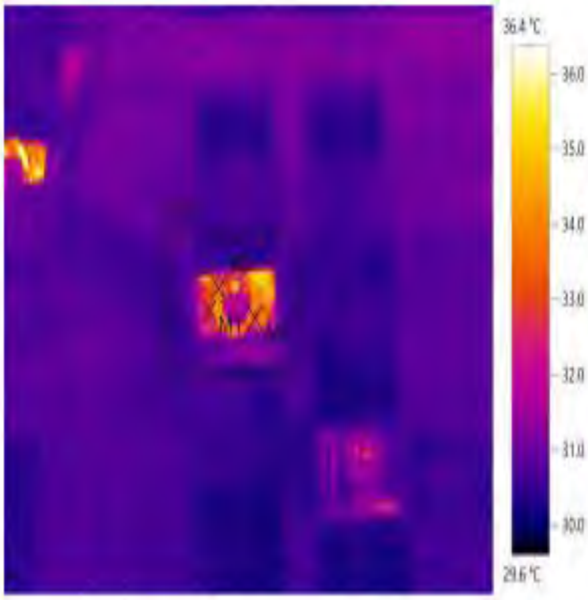
Picture markings:

Measurement Objects	Temp. [°C]	Emiss.	Refl. temp. [°C]	Remarks
Measure point 1	35.7	0.95	20.0	It is found to be OK
Measure point 2	34.2	0.95	20.0	It is found to be OK
Measure point 3	30.9	0.95	20.0	It is found to be OK
Average Area 1	31.5	0.95	20.0	-

Remarks:

Loaction-VCET Subsation Main Supply Y Phase

No abnormality, NO action required.The average temperature found to be 31.5 degree celsius which is within permissible limit.



Picture parameters:

Emissivity:	0.95
Refl. temp. [°C]:	20.0

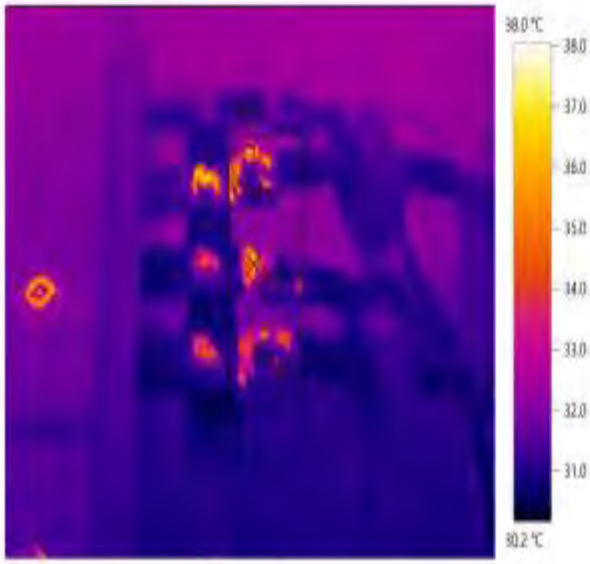
Picture markings:

Measurement Objects	Temp. [°C]	Emiss.	Refl. temp. [°C]	Remarks
Measure point 1	32.3	0.95	20.0	It is found to be OK
Measure point 2	32.9	0.95	20.0	It is found to be OK
Measure point 3	33.7	0.95	20.0	It is found to be OK
Average Area 1	31.4	0.95	20.0	-

Remarks:

Loaction-VCET Subsation Main Supply B Phase

No abnormality, NO action required.The average temperature found to be 31.4 degree celsius which is within permissible limit.



Picture parameters:

Emissivity: 0.95
Refl. temp. [°C]: 20.0

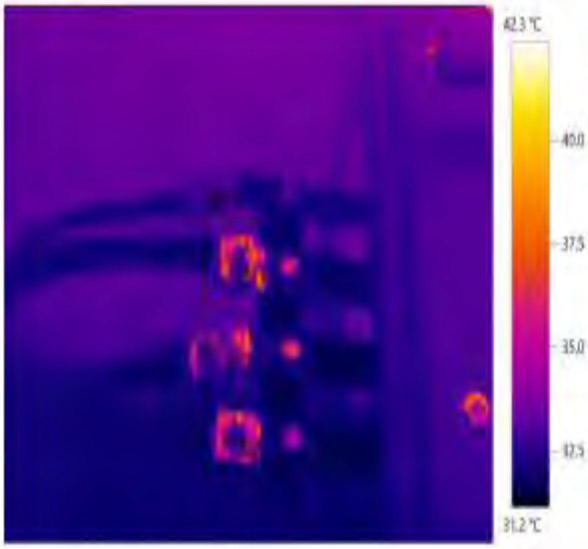
Picture markings:

Measurement Objects	Temp. [°C]	Emiss.	Refl. temp. [°C]	Remarks
Measure point 1	34.0	0.95	20.0	It is found to be OK
Measure point 2	35.7	0.95	20.0	It is found to be OK
Measure point 3	30.9	0.95	20.0	It is found to be OK
Average Area 1	32.0	0.95	20.0	-

Remarks:

Location-VCET Subsation Polytechnic College distribution RYB phase

No abnormality, NO action required.The average temperature found to be 32.0 degree celsius which is within permissible limit.



Picture parameters:

Emissivity:	0.95
Refl. temp. [°C]:	20.0

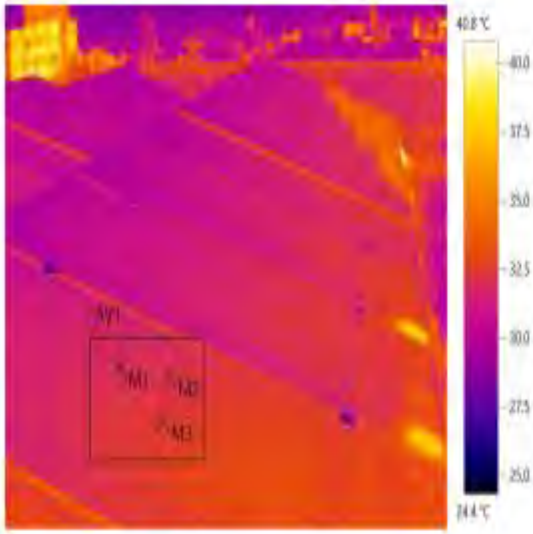
Picture markings:

Measurement Objects	Temp. [°C]	Emiss.	Refl. temp. [°C]	Remarks
Measure point 1	33.3	0.95	20.0	It is found to be OK
Measure point 2	36.0	0.95	20.0	It is found to be OK
Measure point 3	33.4	0.95	20.0	It is found to be OK
Average Area 1	33.1	0.95	20.0	-

Remarks:

Location-VCET Substation Main Switch Distribution Panel 2 RYB Phase

No abnormality, NO action required.The average temperature found to be 33.1 degree celsius which is within permissible limit.



Picture parameters:

Emissivity:	0.95
Refl. temp. [°C]:	20.0

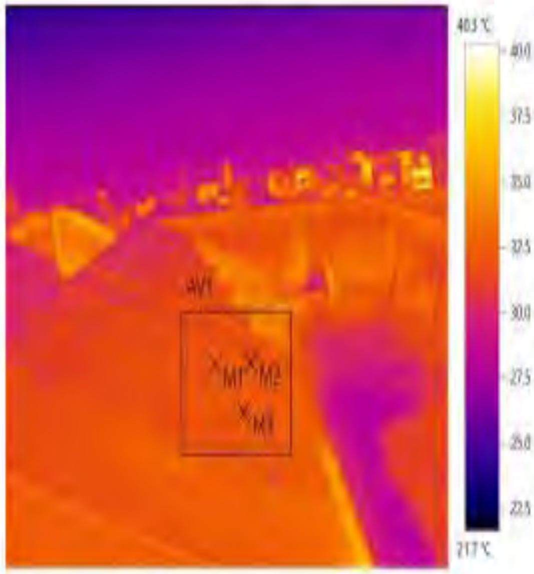
Picture markings:

Measurement Objects	Temp. [°C]	Emiss.	Refl. temp. [°C]	Remarks
Measure point 1	32.1	0.95	20.0	It is found to be OK
Measure point 2	32.3	0.95	20.0	It is found to be OK
Measure point 3	32.1	0.95	20.0	It is found to be OK
Average Area 1	32.2	0.95	20.0	-

Remarks:

Location-VCET Terrace Solar Panel

No abnormality, NO action required.The average temperature found to be 32.2 degree celsius which is within permissible limit.



Picture parameters:

Emissivity:	0.95
Refl. temp. [°C]:	20.0

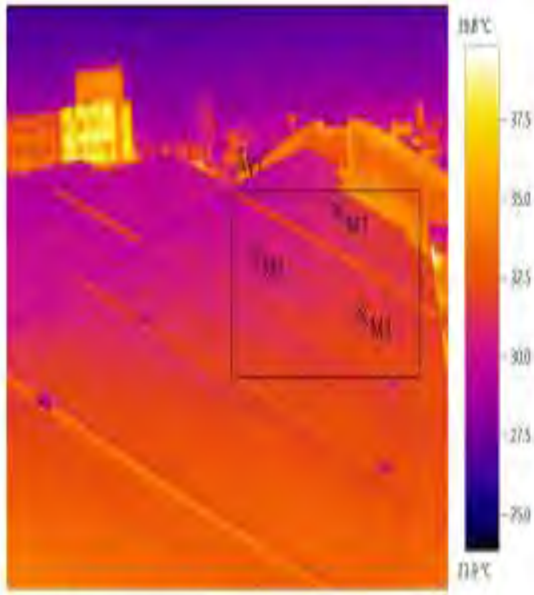
Picture markings:

Measurement Objects	Temp. [°C]	Emiss.	Refl. temp. [°C]	Remarks
Measure point 1	31.9	0.95	20.0	It is found to be OK
Measure point 2	32.3	0.95	20.0	It is found to be OK
Measure point 3	32.2	0.95	20.0	It is found to be OK
Average Area 1	32.1	0.95	20.0	-

Remarks:

Location-VCET Terrace Solar Panel

No abnormality, NO action required.The average temperature found to be 32.1 degree celsius which is within permissible limit.



Picture parameters:

Emissivity:	0.95
Refl. temp. [°C]:	20.0

Picture markings:

Measurement Objects	Temp. [°C]	Emiss.	Refl. temp. [°C]	Remarks
Measure point 1	31.1	0.95	20.0	It is found to be OK
Measure point 2	30.5	0.95	20.0	It is found to be OK
Measure point 3	31.5	0.95	20.0	It is found to be OK
Average Area 1	31.6	0.95	20.0	-

Remarks:

Location-VCET Terrace Solar Panel

No abnormality, NO action required.The average temperature found to be 31.6 degree celsius which is within permissible limit.

6. Pumps

Sr. No.		1
Description		Pump-1
Location		Drinking Water Pump
Status		Working
Total Head Developed by Pump	Measured Hd, (m)	14.00
Water flow	Measured ($m^{3/hr)}$	55.00
	Measured Q, (m3/s.)	0.015
Electrical Measurement	Measured Power, Pm (kW)	4.40
Hydraulic Power, Ph (kW)	Ph = (Q*Hd*1000*9.81)/1000	2.10
Electrical Input To Pump, Ps (kW)	Ps = (Pm *0.88 Motor Eff.)	4.09
Motor-Pump Set Efficiency , nm-p (%)	%np = (Ph / Pm)*100	47.69
Pump Efficiency, np (%)	%np = (Ph / Ps)*100	51.28

- The efficiency of pump was found to be satisfactory however it can be improved further.
- Installation of water level controller to reduce the working time of pumps

7 CONSERVATION MEASURES

7.1 ENCON Measure-01

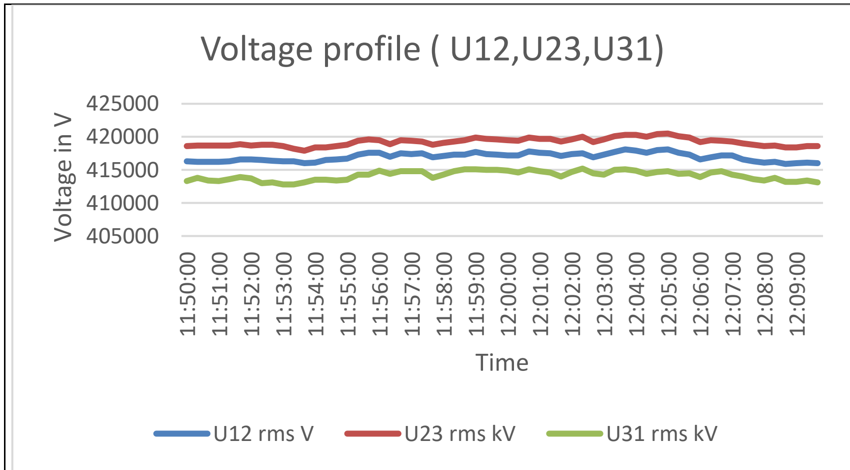
ENCON Measures – 01			
A:	**Title of Recommendation**	:	Stoppage of 10 no of fans in library.
B:	**Description of Existing System and its Operation**	:	The fans are placed at very closed distance.
C:	**Description of Proposed System**	:	The fans can be placed at proper distance so that 10 to 15 fans can be removed.
D:	**Existing System Actual Electrical Consumption (Kwh/Month)**	:	Considering 8 hrs of Operation for 240 Days/year, Existing fan load will consumes Energy Around, 10*80*8*240 = **1536 kWh Annum.** (10 no of fans of 80 W each, operating for 8 hours each day for 240 days)
E:	**Total annual kWh saving/year**	:	**1536 kWh/Annum**
	Per unit Cost (Rs./kWh)	:	**14 Rs./kWh**
	Annual cost saving (Rs./Year)	:	**21,504 Rs./Annum**
F:	**Approximate Total Investment Cost**	:	**Nil.**
G:	**Simple Payback Period**	: :	**Immediate**

7.2 ENCON Measure-02

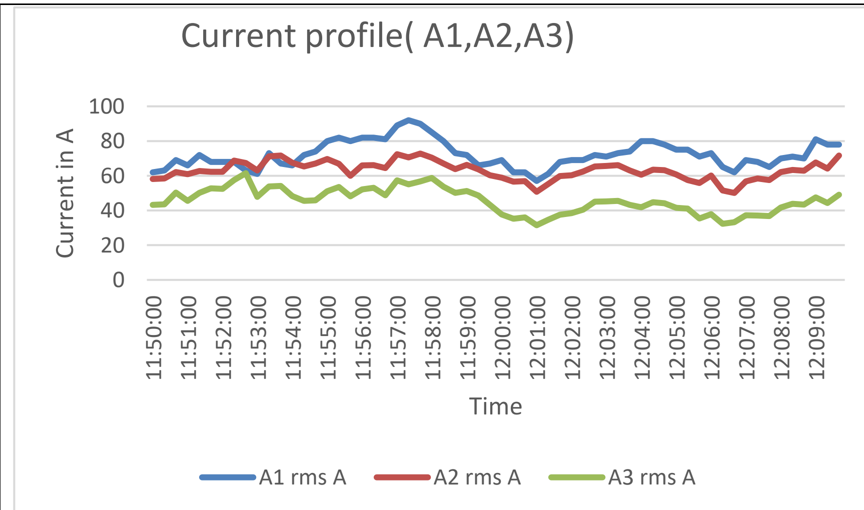
ENCON Measures – 02			
A:	**Title of Recommendation**	:	Installation of water level controller to reduce the working time of pumps.
B:	**Description of Existing System and its Operation**	:	Two pumps of 5 kW are used to fill up the tank. At present both the pumps are operated manually. After the tank is filled the pumps are turned OFF manually which leads to wastage of water and increase in operating time of pumps which leads to increase in energy consumption.
C:	**Description of Proposed System**	:	A water level controller can be installed which eliminates the wastage of water and reduces the operating time of the pump which further leads to reduced energy consumption.
D:	**Existing System Actual Electrical Consumption (Kwh/Month)**	:	Considering 15 minutes of operation after the tank is filled which results in wastage of approx. 200 litre/day Operation for 240 Days/year, Existing operating condition will consumes Energy Around, 5*0.25*240 = **312.5 kWh Annum.** (5 kW pump operated for extra 15 minutes for 240 days/year)
E:	**Modified System**	:	A water level controller can be installed which eliminates the wastage of water and reduces the operating time of the pump which further leads to reduced energy consumption.
	Proposed System Actual Electrical Consumption (kWh/Month)	:	
F:	**Total annual kWh saving/year**	:	**312.5 kWh/Annum**
	Per unit Cost (Rs./kWh)	:	**14 Rs./kWh**
	Annual cost saving (Rs./Year)	:	**4375 Rs./Annum**
H:	**Approximate Total Investment Cost**	:	**20,000 Rs**
I:	**Simple Payback Period**	:	**4.57 Years**
		:	**54 Months**

Incomer

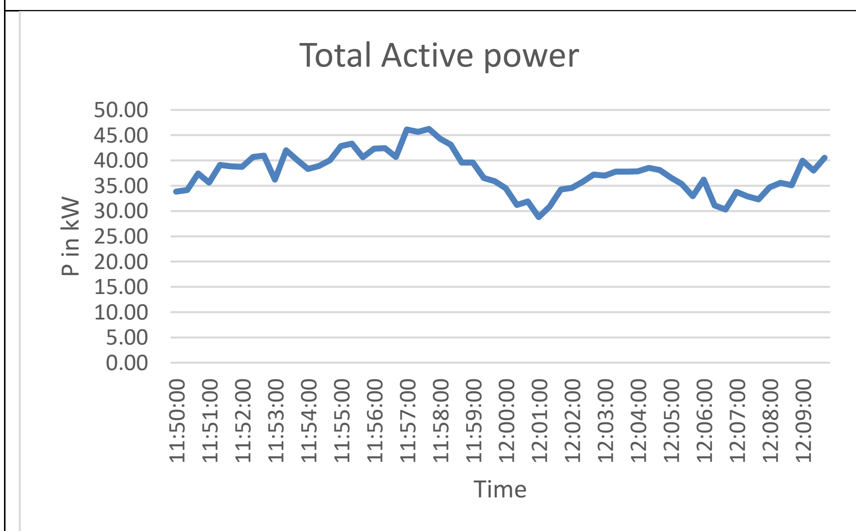
VCETA



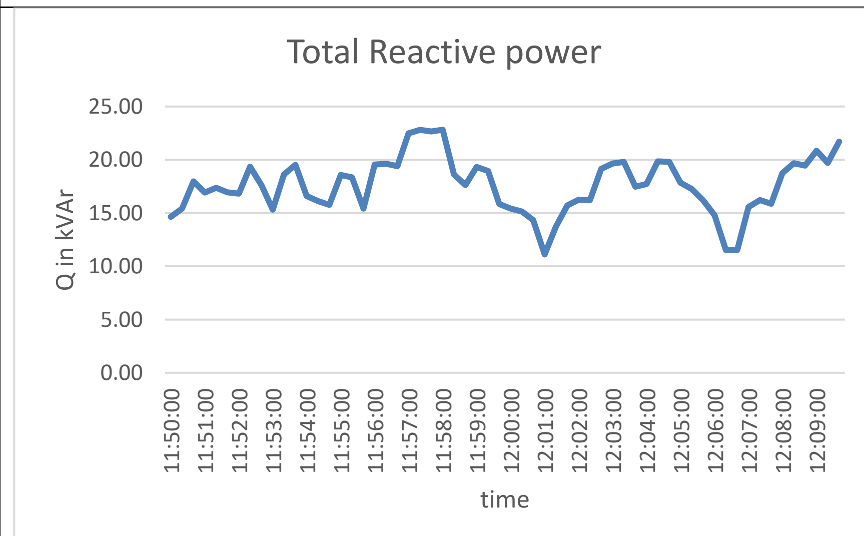
Average voltage is 416.7 V with the maximum spike up to 417.8V.



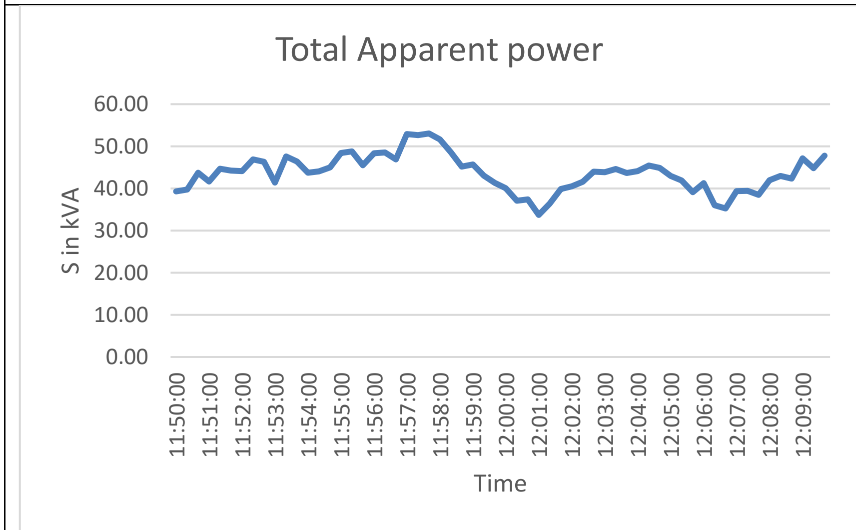
: Average current is 60.24 A with maximum current read is 73.2 A



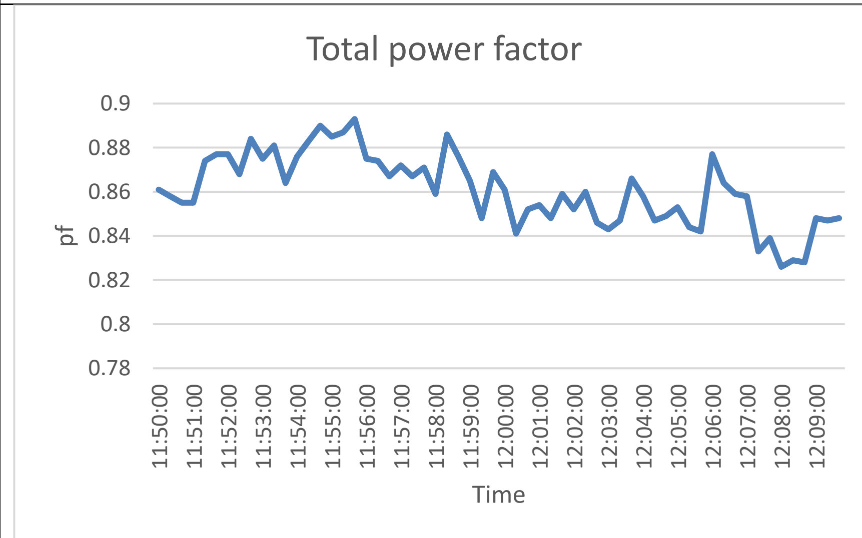
Active power profile(Average power consumed is 37.59 kW)



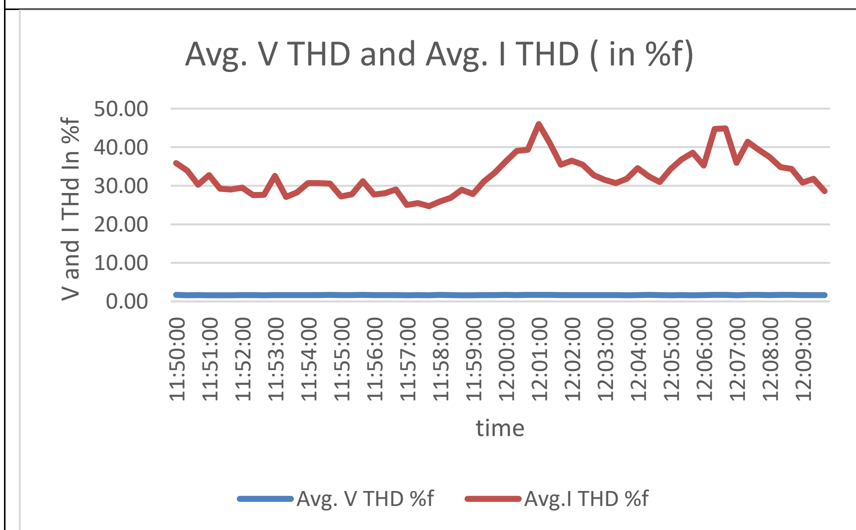
Reactive power profile(Average reactive power is 17.58 kVar)



Apparent power profile(Average apparent power is 43.61 kVA)

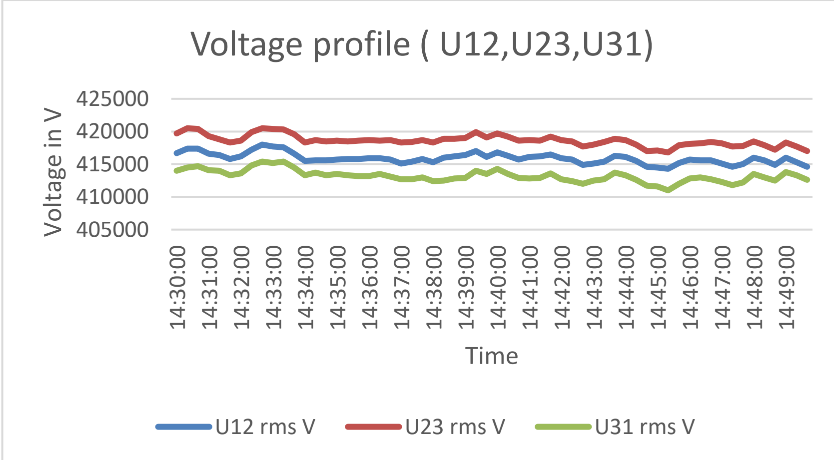


Power factor profile (Average PF is 0.86)

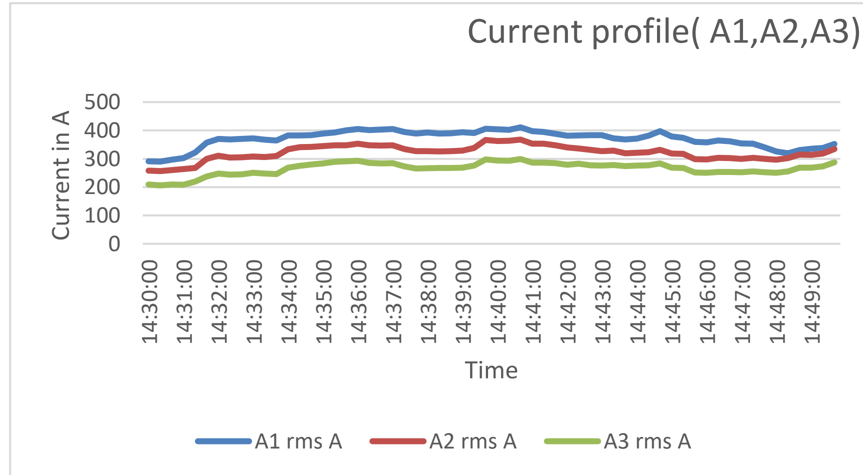


Average Voltage is 1.6 & Current Harmonics profile is 32.65 (Current THD is not Within the permissible limits which is 8%)

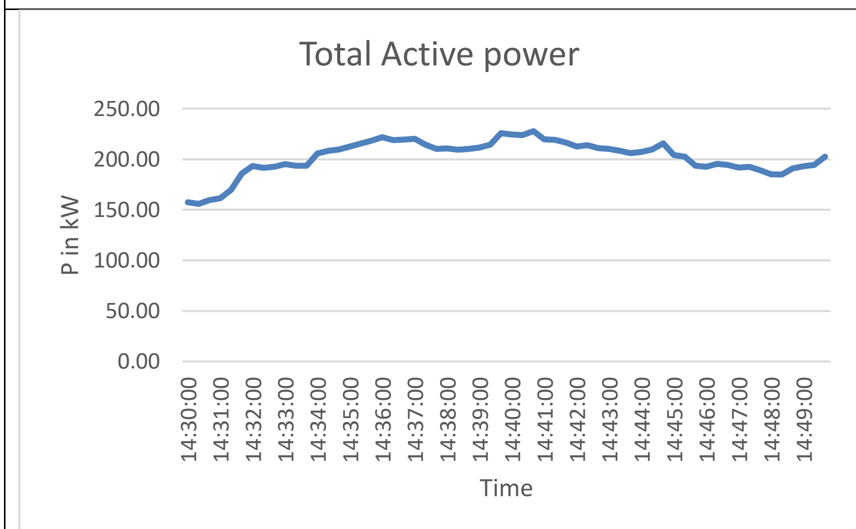
VCET-C



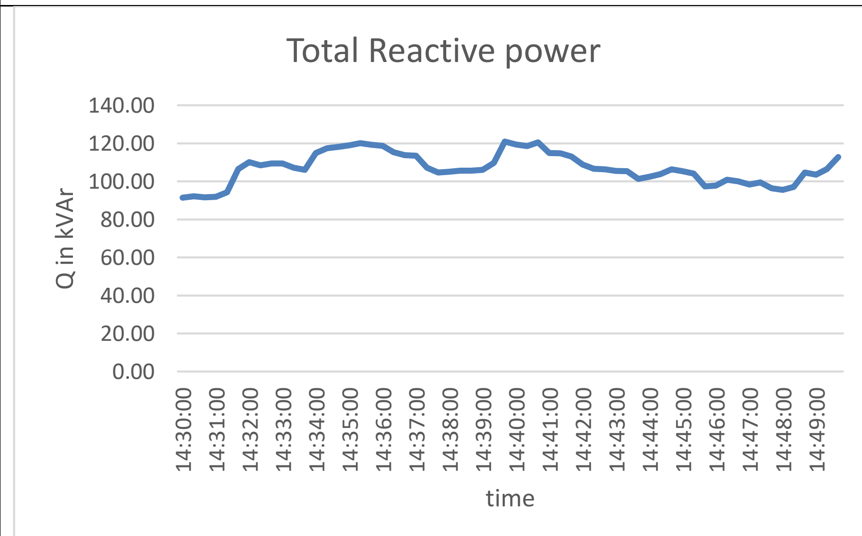
Average voltage is 415.9 V with the maximum spike up to 417.9 V.



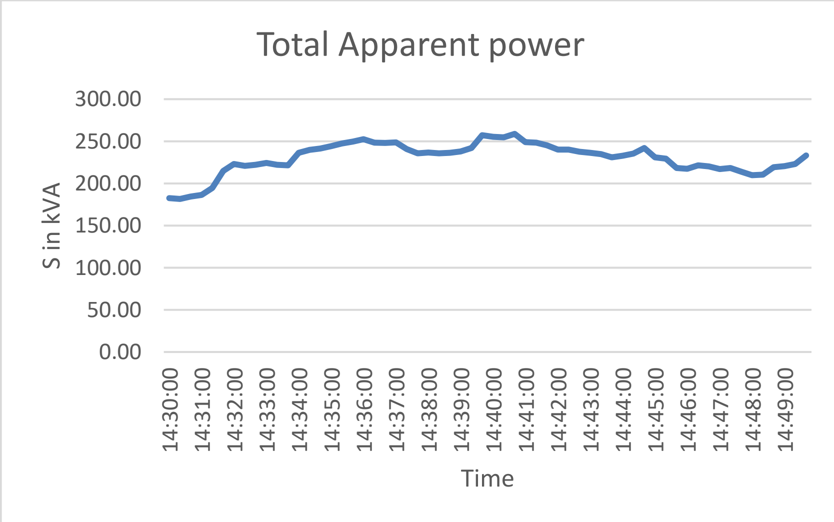
: Average current is 319.2 A with maximum current read is 359.2 A



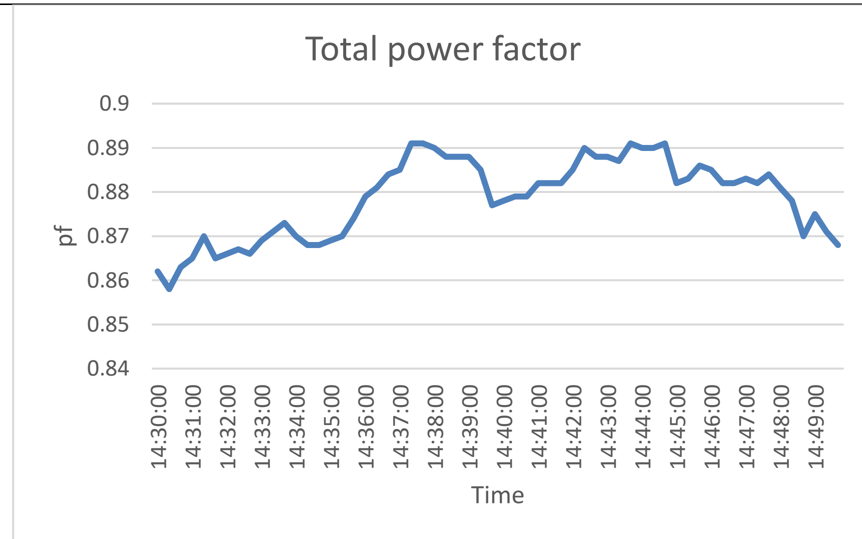
Active power profile(Average power consumed is 202.2 kW)



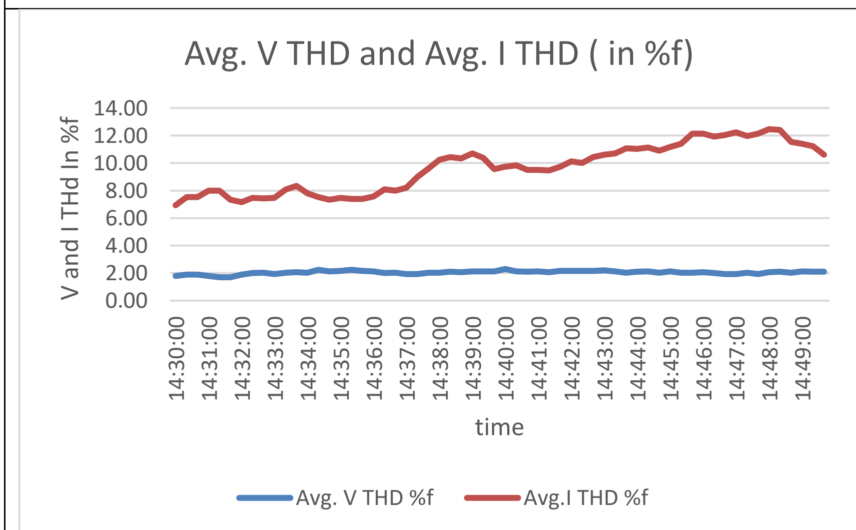
Reactive power profile(Average reactive power is 106.9 kVar)



Apparent power profile(Average apparent power is 230.07 kVA)



Power factor profile (Average PF is 0.87)



Average Voltage is 9.4 & Current Harmonics profile is 12.4 (Current THD is not Within the permissible limits which is 8%)

ANNEXURE-01 BEST PRACTICE CHECKLIST

The following are key energy best practices within common systems in industrial facilities. Spreadsheets to estimate the possible energy savings for some of these common system best practices can be found on the enclosed CD-ROM. For more information on these best practices, free technical support to estimate the best practice energy savings for your systems and possible financial incentives call the Focus on Energy - Industrial Program at 800-762-7077.

System	Best Practices	System	Best Practices
Compressed Air		**Area Comfort Heating**	
	Reduce system pressure		Reduce waste heat
	Repair leaks		De-stratify heated air in plant
	Single vs. two stage		Control heating to desired temperature
	Variable inlet volume		Use infrared heating
	Variable speed control		Optimize CFM air exhausted
	Energy efficient motor		Automatic temperature control
Lighting			Minimize heat to storage areas
	Light meter used to verify levels	**Comfort Cooling**	
	T-8 or pulse start MH lighting are considered		Install removable insulation
	Occupancy sensors		Minimize unnecessary ventilation
	Lights off during process shutdown		Minimize moisture released
	Task lighting is maximized		Higher efficiency AC
	Night lighting is turned off		Optimize room air temperature
	LED lamps in exit signs	**Dehumidification**	
Motors			Reduce humidity load
	Premium efficiency motor vs. repair		Accurately controlling humidity
	Cogged belts vs. V-belts		Optimize ventilation
	Premium efficiency motors specified		Desiccant dehumidification
Pumps			Minimize reheat energy
	Trim impeller to meet maximum Load		
	Use VSD instead of throttled control		
	Use VSD instead of bypass control		

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ANNEXURE -02 GENERAL TIPS FOR ENERGY CONSUMPTION

General Tips for Energy Conservation in Different Utilities Systems

Electricity

- Schedule your operations to maintain a high load factor
- Minimize maximum demand by tripping loads through a demand controller
- Use standby electric generation equipment for on-peak high load periods.
- Correct power factor to at least 0.99 under rated load conditions.
- Set transformer taps to optimum settings.
- Shut off unnecessary computers, printers, and copiers at night.

Motors

- Properly size to the load for optimum efficiency.
- (High efficiency motors offer of 4 - 5% higher efficiency than standard motors)
- Check alignment.
- Provide proper ventilation
- (For every 10°C increase in motor operating temperature over recommended peak, the motor life is estimated to be halved)
- Check for under-voltage and over-voltage conditions.
- Balance the three-phase power supply.
- (An Imbalanced voltage can reduce 3 - 5% in motor input power)
- Demand efficiency restoration after motor rewinding.

Drives

- Use variable-speed drives for large variable loads.
- Use high-efficiency gear sets.
- Use precision alignment.
- Check belt tension regularly.
- Eliminate variable-pitch pulleys.
- Use flat belts as alternatives to v-belts.
- Use synthetic lubricants for large gearboxes.
- Eliminate eddy current couplings.
- Shut them off when not needed.

Fans

- Use smooth, well-rounded air inlet cones for fan air intakes.
- Avoid poor flow distribution at the fan inlet.
- Minimize fan inlet and outlet obstructions.
- Clean screens, filters, and fan blades regularly.
- Use aerofoil-shaped fan blades.
- Minimize fan speed.
- Use low-slip or flat belts.
- Check belt tension regularly.
- Eliminate variable pitch pulleys.

- Use variable speed drives for large variable fan loads.
- Use energy-efficient motors for continuous or near-continuous operation
- Eliminate leaks in ductwork.
- Minimize bends in ductwork
- Turn fans off when not needed.

Pumps

- Operate pumping near best efficiency point.
- Modify pumping to minimize throttling.
- Adept to wide load variation with variable speed drives or sequenced control of smaller units.
- Stop running both pumps -- add an auto-start for an on-line spare or add a booster pump in the problem area.
- Use booster pumps for small loads requiring higher pressures.
- Increase fluid temperature differentials to reduce pumping rates.
- Repair seals and packing to minimize water waste.
- Balance the system to minimize flows and reduce pump power requirements.
- Use siphon effect to advantage: don't waste pumping head with a free-fall (gravity) return.

HVAC (Heating / Ventilation / Air Conditioning)

- Tune up the HVAC control system.
- Consider installing a building automation system (BAS) or energy management system (EMS) or restoring an out-of-service one.
- Balance the system to minimize flows and reduce blower/fan/pump power requirements.
- Eliminate or reduce reheat whenever possible.
- Use appropriate HVAC thermostat setback.
- Use building thermal lag to minimize HVAC equipment operating time.
- In winter during unoccupied periods, allow temperatures to fall as low as possible without freezing water lines or damaging stored materials.
- In summer during unoccupied periods, allow temperatures to rise as high as possible without damaging stored materials.
- Improve control and utilization of outside air.
- Use air-to-air heat exchangers to reduce energy requirements for heating and cooling of outside air.
- Reduce HVAC system operating hours (e.g. -- night, weekend).
- Optimize ventilation.
- Ventilate only when necessary. To allow some areas to be shut down when unoccupied, install dedicated HVAC systems on continuous loads (e.g. -- computer rooms).
- Provide dedicated outside air supply to kitchens, cleaning rooms, combustion equipment, etc. to avoid excessive exhausting of conditioned air.
- Use evaporative cooling in dry climates.
- Clean HVAC unit coils periodically and comb mashed fins.
- Upgrade filter banks to reduce pressure drop and thus lower fan power requirements.

- Check HVAC filters on a schedule (at least monthly) and clean/change if appropriate.
- Check pneumatic controls air compressors for proper operation, cycling, and maintenance.
- Isolate air-conditioned loading dock areas and cool storage areas using high-speed doors or clear PVC strip curtains.
- Install ceiling fans to minimize thermal stratification in high-bay areas.
- Relocate air diffusers to optimum heights in areas with high ceilings.
- Consider reducing ceiling heights.
- Eliminate obstructions in front of radiators, baseboard heaters, etc.
- Check reflectors on infrared heaters for cleanliness and proper beam direction.
- Use professionally designed industrial ventilation hoods for dust and vapour control.
- Use local infrared heat for personnel rather than heating the entire area.
- Use spot cooling and heating (e.g. -- use ceiling fans for personnel rather than cooling the entire area).
- Purchase only high-efficiency models for HVAC units.
- Put HVAC window units on timer control.
- Don't oversize cooling units. (Oversized units will "short cycle" which results in poor humidity control.)
- Install multi-fuelling capability and run with the cheapest fuel available at the time.
- Consider dedicated make-up air for exhaust hoods. (Why exhaust the air conditioning or heat if you don't need to?)
- Minimize HVAC fan speeds.
- Consider desiccant drying of outside air to reduce cooling requirements in humid climates.
- Seal leaky HVAC ductwork.
- Seal all leaks around coils.
- Repair loose or damaged flexible connections (including those under air handling units).
- Eliminate simultaneous heating and cooling during seasonal transition periods.
- Zone HVAC air and water systems to minimize energy use.
- Inspect, clean, lubricate, and adjust damper blades and linkages.
- Establish an HVAC efficiency-maintenance program. Start with an energy audit and follow-up, then make an HVAC efficiency-maintenance program a part of your continuous energy management program.

Lighting

- Reduce excessive illumination levels to standard levels using switching; delamping, etc. (Know the electrical effects before doing delamping.)
- Aggressively control lighting with clock timers, delay timers, photocells, and/or occupancy sensors.
- Install efficient alternatives to incandescent lighting, mercury vapour lighting, etc. Efficiency (lumens/watt) of various technologies range from best to worst approximately as follows: low pressure sodium, high-pressure sodium, metal halide, fluorescent, mercury vapour, incandescent.
- Select ballasts and lamps carefully with high power factor and long-term efficiency in mind.

- Upgrade obsolete fluorescent systems to Compact fluorescents and electronic ballasts
- Consider lowering the fixtures to enable using less of them.
- Consider day lighting, skylights, etc.
- Consider painting the walls a lighter colour and using less lighting fixtures or lower wattages.
- Use task lighting and reduce background illumination.
- Re-evaluate exterior lighting strategy, type, and control. Control it aggressively.
- Change exit signs from incandescent to LED.

DG sets

- Optimize loading
- Use waste heat to generate steam/hot water /power absorption chillers or preheat process or utility feeds.
- Use jacket and head cooling water for process needs
- Clean air filters regularly
- Insulate exhaust pipes to reduce DG set room temperatures
- Use cheaper heavy fuel oil for capacities more than 1MW

Buildings

- Seal exterior cracks/openings/gaps with caulk, gasketing, weather stripping, etc.
- Consider new thermal doors, thermal windows, roofing insulation, etc.
- Install windbreaks near exterior doors.
- Replace single-pane glass with insulating glass.
- Consider covering some window and skylight areas with insulated wall panels inside the building.
- If visibility is not required but light is required, consider replacing exterior windows with insulated glass block.
- Consider tinted glass, reflective glass, coatings, awnings, overhangs, draperies, blinds, and shades for sunlit exterior windows.
- Use landscaping to advantage.
- Add vestibules or revolving doors to primary exterior personnel doors.
- Consider automatic doors, air curtains, strip doors, etc. at high-traffic passages between conditioned and non-conditioned spaces. Use self-closing doors if possible.
- Use intermediate doors in stairways and vertical passages to minimize building stack effect.
- Use dock seals at shipping and receiving doors.
- Bring cleaning personnel in during the working day or as soon after as possible to minimize lighting and HVAC costs.

Water & Wastewater

- Recycle water, particularly for uses with less-critical quality requirements.
- Recycle water, especially if sewer costs are based on water consumption.
- Balance closed systems to minimize flows and reduce pump power requirements.
- Eliminate once-through cooling with water.
- Use the least expensive type of water that will satisfy the requirement.

- Fix water leaks.
- Test for underground water leaks. (It's easy to do over a holiday shutdown.)
- Check water overflow pipes for proper operating level.
- Automate blow down to minimize it.
- Provide proper tools for wash down -- especially self-closing nozzles.
- Reduce flows at water sampling stations.
- Eliminate continuous overflow at water tanks.
- Promptly repair leaking toilets and faucets.
- Use water restrictors on faucets, showers, etc.
- Use the lowest possible hot water temperature.
- Do not use a heating system hot water boiler to provide service hot water during the cooling season -- install a smaller, more-efficient system for the cooling season service hot water.
- If water must be heated electrically, consider accumulation in a large insulated storage tank to minimize heating at on-peak electric rates.
- Use multiple, distributed, small water heaters to minimize thermal losses in large piping systems.
- Use freeze protection valves rather than manual bleeding of lines.
- Consider leased and mobile water treatment systems, especially for deionized water.
- Seal sumps to prevent seepage inward from necessitating extra sump pump operation.
- Install pre-treatment to reduce TOC and BOD surcharges.
- Verify the water meter readings. (You'd be amazed how long a meter reading can be estimated after the meter breaks or the meter pit fills with water!)
- Verify the sewer flows if the sewer bills are based on them

Miscellaneous

- Meter any unmetered utilities. Know what normal efficient use is. Track down causes of deviations.
- Shut down spare, idling, or unneeded equipment.
- Make sure that all of the utilities to redundant areas are turned off -- including utilities like compressed air and cooling water.
- Install automatic control to efficiently coordinate multiple air compressors, chillers, cooling tower cells, boilers, etc.
- Renegotiate utilities contracts to reflect current loads and variations.
- Consider buying utilities from neighbours, particularly to handle peaks.
- Leased space often has low-bid inefficient equipment. Consider upgrades if your lease will continue for several more years.
- Adjust fluid temperatures within acceptable limits to minimize undesirable heat transfer in long pipelines.
- Minimize use of flow bypasses and minimize bypass flow rates.
- Provide restriction orifices in purges (nitrogen, steam, etc.).
- Eliminate unnecessary flow measurement orifices.
- Consider alternatives to high-pressure drops across valves.
- Turn off winter heat tracing that is on in summer.

ANNEXURE -03 ELECTRICITY BILL COPY

MAHAVITARAN
Maharashtra State Electricity Distribution Co. Ltd.

Maharashtra State Electricity Distribution Co. Ltd.

BILL OF SUPPLY FOR THE MONTH OF JAN-2023 202301454021115

GSTIN:27AAECM2933K1ZB Website:www.mahadiscom.in HSN CODE:27160000

VASAI CIRCLE - 540 VASAI O&M DN - 434 VASAI RD WEST S/DN - 697

Consumer No. : 001849021636

Consumer Name : M/S VIDYAVARDHINI COLLEGE OF ENGG & TECH

Address : VASAI ROAD NAVGHAR TAL VASAI

Village: VASAU Pin Code : 401202

BILL DATE	06/02/2023	
DUE DATE	20/02/2023	4,48,220.00
IF PAID UPTO	13/02/2023	4,44,540.00
IF PAID AFTER	20/02/2023	4,53,820.00

Last Receipt No./Date: 0007172284 / 11-01-2023

Last Month Payment : 4,70,260.00

Scale / Sector : Small Scale /

Email : ***t_inbox@vcet.edu.in

Mobile No. : 98******16	Meter No : 055-X0364386	Seasonal :	Load Shed Ind : INDUST
Sanctioned Load (KW): 1000	Connected Load (KW) : 1000.00	Urban/Rural : Urban	Express Feeder : No
Contract Demand (KVA) :525.00	65% of Con. Demand (KVA) : 341.25	Feeder Voltage (KV) : 22	LIS Indicator :
Tariff : 170 HT-VIII B	old trf HT-VIII B		

Date of Connection : 10/06/1998	Category : PUBL. SERVICES OTH	GSTIN :
Supply at : HT	Elec. Duty : 06 PART B	PAN : AAATV2687C
Prev. Highest (Mth) : APR	Prev. Highest Bill Demand (KVA) : 242	
S.D. Held Rs. : 4,47,000.00	Addl. S.D. Demanded Rs. : 0.00	MIDC Zone:OTHER
Bank Guarantee Rs. : 0	S.D. Arrears Rs. : 2,27,100.00	

BILLING HISTORY

Bill Month	Units	Bill Demand(KVA)	Bill Amount
DEC-22	20,579	341	4,74,146
NOV-22	22,091	341	4,95,862
OCT-22	23,140	341	5,10,082
SEP-22	22,947	341	5,07,856
AUG-22	27,240	341	5,67,688
JUL-22	6,206	341	2,74,319
JUN-22	2	341	1,87,349
MAY-22	22,089	341	4,54,703
APR-22	31,284	341	5,68,545
MAR-22	27,521	315	5,07,417
FEB-22	15,174	315	3,48,002
JAN-22	11,933	315	3,05,905

CUSTOMER CARE Toll Free No. 1912, 1800-233-3435, 1800-212-3435

IGRC: 2/3 DEEPSHREE BULDG,NAVGHAR (EAST) VASAI RAOD, Phone - 0250-2393373

In case of non-redressal of grievance here, consumer may make his representation to below forum

CGRF: BEHIND "TEJASHREE",JAHANGIR MEHERWANJI RAOD,KALYAN(W), Phone - 0251-2210707

For making Energy Bill payment through RTGS/NEFT mode, use following details
- Beneficiary Name: MSEDCL
- Beneficiary Account Number: MSEDHT01001849021636
- IFS Code: SBIN0008965 (fifth,sixth and seventh character is zero)
- Name of Bank: SBI Bank
- Name of Branch: IFB, BKC Branch-MSEDCL

Disclaimer: Please use above bank details only for payment against consumer number mentioned in beneficiary account number

Follow us on :

- Tariff Revised w.e.f. 01.04.2022. Tariff Order is available at Mahavitaran Portal.
- Physical Bills are not served. You can view and pay bill online at portal https://wss.mahadiscom.in/wss/wss
- Consumer can pay bill through portal using various online modes.
- As per Income Tax provision vide section 269 ST cash receipt of Rs. 2.00 lakhs and above will not be accepted by MSEDCL against any type of payment.
- As per MERC order dt. 24/02/2021, monthly energy bill payment in cash is limited Rs.5000/- w.e.f. 01/11/2021.
- As per GoM Notification dtd. 14.08.2020, rate of Electricity Duty for Part-F Industrial is revised from 9.3% to 7.5% from billing month Aug-20
- Activity: CHARITABLE EDUCATION INSTITUTION REGISTERED UNDER PUBLIC TRUST ACT 1950

Important Message :
- Consumers can pay online using Net Banking, Credit/Debit cards at https://wss.mahadiscom.in/wss/wss after registration.
- Submit / update your E-mail id and mobile number to Circle office for receiving prompt alerts through SMS.
- Submit / update your PAN and GSTIN to circle office with copies of PAN and GSTIN for verification.
- Special desk is operational for HT Consumers, please contact : htconsumer@mahadiscom.in for any clarification / query or grievance.
- This Electricity Bill should not be used for the address proof and as a proof of property ownership.
- For any payment to MSEDCL , ENSURE & INSIST for computerized receipt with unique system generated receipt number. Do not accept hand written receipt. Pay online to avoid any inconvenience.

ANNEXURE -04 Completion Certificate

ARS

A.R.S. ENERGY AUDITORS

BEE Accredited & Empaneled Energy Auditor Firm, MEDA Class-A Energy Auditor
Head Office Address: A/1, A/101, Pramodini Palace CHS Ltd., Near Air India Colony, Virar (East), Maharashtra, India. Pin Code: - 401 305. Ph. No. : +91 7507184478.
E-Mail IDs :- sachin.ameya@gmail.com, sachin@arsenergyauditors.com
Web- www.arsenergyauditors.com

Ref.: ARS/2023/VCET/001 *Date: 19/10/2023*

Completion Certificate

This is to Certify that **Vidyavardhini`s College of Engineering and Technology**, Vasai Dist Palghar State Maharashtra has carried out **Detailed Energy Audit** of the building campus during the period from **April 2022 to March 2023**. The report is hereby compiled and presented to VCET in **October 2023.** The Energy Audit was carried out by M/s A.R.S. Energy Auditors, Virar.

Hope to have future endeavors with you. Thanking you for your cooperation and follow-up during the entire Audit Activity.

Regards,

Authorized Signature & Seal:

A.R.S. ENERGY AUDITORS VIRAR

SACHIN S. DESHPANDE (AEA0261) B.E.E. GOV. OF INDIA ACCREDITED ENERGY AUDITORS

Name of Authorized Person	: **Mr. Sachin S. Deshpande. (AEA-0261)**
Company Name	: **A.R.S. Energy Auditor, Virar.**
Designation	: **Chief Consultant.**
Date	: **19/10/2023**
Place	: **Virar.**

ANNEXURE -04 INSTRUMENTS LIST

Sr. No.	Model No.	Instrument Sr. No.	Instrument Name
1	LM31	2548/140618	Krykard LM 31-Power Analyser
2	G15	G15-03	ACRON-Ultrasonic Flow Meter
3	BHUFM1000	81700411	BASE-Ultrasonic Flow Meter
4	17.05.GOB	2092	Globlin 1-Power Analyser
5	3510PHW	140610933	MECO- Power Analyser
6	3510PHW	151100113	MECO- Power Analyser

ENERGY IS LIFE
B E E
CONSERVE IT

ऊर्जा दक्षता ब्यूरो
(भारत सरकार, विद्युत मंत्रालय)
BUREAU OF ENERGY EFFICIENCY
(Government of India, Ministry of Power)

10/02/Accred./BEE/17/749-59 **04 May, 2017**

Shri Sachin Deshpande
A.R.S. Energy Auditors
A1/101, Pramodoni Palace Chs,
Near Air India Colony, Virar (E),
Maharashtra- 401305

Sub: Application for accreditation as accredited energy auditors- reg.

Sir,

The undersigned is to refer to your application for the accreditation of Energy Auditors and the subsequent Oral interview you had before the Accreditation Advisory Committee at BEE office, New Delhi.

We are pleased to inform that the Accreditation Advisory Committee has recommended your name for the accreditation as Accredited Energy Auditor .The recommendation of Accredited Energy Advisory Committee will be put up to Management Advisory Committee of BEE for approval in its next meeting. After approval, BEE will include your name in the list of Accredited Energy Auditor, maintained by BEE on its website (www.beeindia.nic.in).

Yours faithfully,

Rajini

(Rajini Thomson)
Coordinator (Exam)

स्वहित एवं राष्ट्रहित में ऊर्जा बचाएँ Save Energy for Benefit of Self and Nation

ANNEXURE -06 Power data logging

VCET A

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
01-12-2023	11:50:00	416.1	54.4	50.03	33.82	14.64	39.29	0.861	1.70	35.87
01-12-2023	11:50:20	416.2	55.0	50.01	34.14	15.42	39.76	0.858	1.60	33.93
01-12-2023	11:50:40	416.1	60.5	50.01	37.41	17.97	43.73	0.855	1.63	30.27
01-12-2023	11:51:00	416.1	57.5	50.02	35.62	16.93	41.63	0.855	1.60	32.77
01-12-2023	11:51:20	416.2	61.7	50.03	39.09	17.38	44.68	0.874	1.60	29.27
01-12-2023	11:51:40	416.5	61.0	50.03	38.85	16.94	44.23	0.877	1.60	29.07
01-12-2023	11:52:00	416.3	60.9	50.02	38.72	16.82	44.10	0.877	1.67	29.50
01-12-2023	11:52:20	416.1	64.8	50.03	40.67	19.35	46.87	0.868	1.63	27.60
01-12-2023	11:52:40	416.1	63.9	50.04	40.94	17.60	46.34	0.884	1.60	27.67
01-12-2023	11:53:00	415.9	57.3	50.05	36.23	15.33	41.38	0.875	1.63	32.53
01-12-2023	11:53:20	415.8	66.0	50.07	41.99	18.62	47.62	0.881	1.63	27.07
01-12-2023	11:53:40	415.7	64.2	50.06	40.10	19.53	46.38	0.864	1.63	28.27
01-12-2023	11:54:00	416.0	60.6	50.05	38.34	16.58	43.75	0.876	1.63	30.70
01-12-2023	11:54:20	416.1	61.0	50.05	38.92	16.12	44.05	0.883	1.63	30.70
01-12-2023	11:54:40	416.2	62.3	50.06	40.05	15.76	44.97	0.89	1.70	30.53
01-12-2023	11:55:00	416.3	66.9	50.06	42.86	18.58	48.41	0.885	1.63	27.20
01-12-2023	11:55:20	417.0	67.5	50.05	43.32	18.35	48.81	0.887	1.63	27.80
01-12-2023	11:55:40	417.2	62.7	50.04	40.66	15.41	45.51	0.893	1.70	31.17
01-12-2023	11:56:00	417.3	66.7	50.03	42.32	19.56	48.35	0.875	1.67	27.70
01-12-2023	11:56:20	416.8	67.1	50.02	42.41	19.62	48.51	0.874	1.67	28.03
01-12-2023	11:56:40	417.3	64.7	50.02	40.67	19.40	46.87	0.867	1.63	29.03
01-12-2023	11:57:00	417.2	72.9	50.03	46.14	22.49	52.90	0.872	1.60	25.03
01-12-2023	11:57:20	417.2	72.5	50.05	45.63	22.80	52.62	0.867	1.63	25.53

01-12-2023	11:57:40	416.5	73.2	50.06	46.24	22.67	53.05	0.871	1.60	24.70
01-12-2023	11:58:00	416.8	71.4	50.07	44.35	22.82	51.63	0.859	1.70	25.90
01-12-2023	11:58:20	417.1	66.9	50.07	43.10	18.62	48.59	0.886	1.63	26.87
01-12-2023	11:58:40	417.3	62.3	50.06	39.59	17.62	45.15	0.876	1.60	28.97
01-12-2023	11:59:00	417.6	63.2	50.08	39.59	19.32	45.72	0.865	1.60	27.83
01-12-2023	11:59:20	417.4	59.4	50.09	36.52	18.95	43.06	0.848	1.63	31.13
01-12-2023	11:59:40	417.3	56.8	50.08	35.91	15.85	41.33	0.869	1.67	33.40
01-12-2023	12:00:00	417.2	55.2	50.07	34.54	15.42	40.07	0.861	1.70	36.27
01-12-2023	12:00:20	417.1	51.3	50.06	31.21	15.13	37.09	0.841	1.67	39.03
01-12-2023	12:00:40	417.6	51.6	50.07	31.88	14.34	37.42	0.852	1.70	39.37
01-12-2023	12:01:00	417.4	46.4	50.08	28.80	11.11	33.72	0.854	1.70	46.00
01-12-2023	12:01:20	417.3	50.3	50.09	30.91	13.71	36.40	0.848	1.70	41.13
01-12-2023	12:01:40	416.8	55.1	50.07	34.25	15.71	39.84	0.859	1.63	35.43
01-12-2023	12:02:00	417.2	55.9	50.09	34.55	16.24	40.51	0.852	1.63	36.53
01-12-2023	12:02:20	417.6	57.3	50.1	35.81	16.21	41.61	0.86	1.67	35.50
01-12-2023	12:02:40	416.9	60.8	50.09	37.22	19.16	43.98	0.846	1.63	32.77
01-12-2023	12:03:00	417.1	60.6	50.09	36.98	19.64	43.86	0.843	1.67	31.50
01-12-2023	12:03:20	417.6	61.5	50.1	37.81	19.79	44.59	0.847	1.63	30.67
01-12-2023	12:03:40	417.8	60.1	50.11	37.81	17.48	43.66	0.866	1.60	31.77
01-12-2023	12:04:00	417.7	60.8	50.08	37.86	17.72	44.11	0.858	1.67	34.57
01-12-2023	12:04:20	417.3	62.7	50.07	38.55	19.86	45.47	0.847	1.70	32.40
01-12-2023	12:04:40	417.7	61.8	50.09	38.13	19.79	44.86	0.849	1.63	31.00
01-12-2023	12:05:00	417.8	59.1	50.09	36.64	17.84	42.96	0.853	1.60	34.37
01-12-2023	12:05:20	417.4	57.9	50.07	35.35	17.25	41.89	0.844	1.67	36.83
01-12-2023	12:05:40	417.2	54.1	50.06	32.96	16.19	39.10	0.842	1.60	38.57
01-12-2023	12:06:00	416.6	57.0	50.03	36.20	14.79	41.27	0.877	1.63	35.27
01-12-2023	12:06:20	417.0	49.6	50.03	31.11	11.54	35.99	0.864	1.70	44.73

01-12-2023	12:06:40	417.1	48.5	50.02	30.32	11.53	35.27	0.859	1.70	44.90
01-12-2023	12:07:00	416.9	54.3	50	33.79	15.57	39.36	0.858	1.60	35.97
01-12-2023	12:07:20	416.5	54.5	50	32.88	16.22	39.44	0.833	1.70	41.43
01-12-2023	12:07:40	416.2	53.1	50	32.31	15.87	38.49	0.839	1.70	39.33
01-12-2023	12:08:00	416.0	57.9	50.01	34.66	18.74	41.95	0.826	1.67	37.50
01-12-2023	12:08:20	416.2	59.4	50.01	35.60	19.67	42.95	0.829	1.70	34.83
01-12-2023	12:08:40	415.8	58.8	50.01	35.12	19.46	42.36	0.828	1.70	34.33
01-12-2023	12:09:00	415.9	65.4	50.01	39.98	20.84	47.12	0.848	1.63	30.83
01-12-2023	12:09:20	416.0	62.2	50.02	38.00	19.70	44.83	0.847	1.63	31.77
01-12-2023	12:09:40	415.9	66.2	50.03	40.53	21.72	47.77	0.848	1.63	28.60
Average		**416.775**	**60.249444**	**50.0503**	**37.599**	**17.5882**	**43.6199**	**0.86083**	**1.6483333**	**32.653889**
minimum		**415.6667**	**46.4**	**50**	**28.802**	**11.109**	**33.717**	**0.826**	**1.6**	**24.7**
Maximum		**417.8333**	**73.2**	**50.11**	**46.243**	**22.819**	**53.047**	**0.893**	**1.7**	**46**

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
01-12-2023	14:30:00	416.8	252.7	49.94	157.46	91.40	182.58	0.862	1.80	6.93
01-12-2023	14:30:20	417.5	250.9	49.96	155.82	92.09	181.61	0.858	1.90	7.53
01-12-2023	14:30:40	417.5	255.2	49.98	159.45	91.65	184.56	0.863	1.90	7.53
01-12-2023	14:31:00	416.7	258.0	49.98	161.39	91.85	186.38	0.865	1.80	8.00
01-12-2023	14:31:20	416.4	269.6	49.98	169.47	94.28	194.63	0.87	1.70	8.00
01-12-2023	14:31:40	415.8	298.1	49.98	185.80	106.40	214.77	0.865	1.70	7.33
01-12-2023	14:32:00	416.1	309.5	49.96	193.35	110.14	223.18	0.866	1.90	7.17
01-12-2023	14:32:20	417.3	305.6	49.96	191.53	108.46	220.81	0.867	2.00	7.47
01-12-2023	14:32:40	418.0	306.7	49.95	192.42	109.35	222.02	0.866	2.03	7.43
01-12-2023	14:33:00	417.8	310.0	49.95	195.19	109.40	224.44	0.869	1.93	7.47
01-12-2023	14:33:20	417.8	306.9	49.95	193.65	107.18	222.12	0.871	2.03	8.07
01-12-2023	14:33:40	416.9	306.8	49.93	193.65	106.08	221.63	0.873	2.07	8.33
01-12-2023	14:34:00	415.7	328.0	49.93	205.66	114.83	236.36	0.87	2.03	7.80
01-12-2023	14:34:20	416.0	332.9	49.95	208.33	117.42	239.90	0.868	2.23	7.53
01-12-2023	14:34:40	415.8	335.0	49.97	209.72	118.09	241.41	0.868	2.13	7.33
01-12-2023	14:35:00	415.9	339.2	49.96	212.56	118.97	244.36	0.869	2.17	7.47
01-12-2023	14:35:20	415.9	343.3	49.95	215.42	120.03	247.36	0.87	2.23	7.40
01-12-2023	14:35:40	415.9	346.4	49.95	218.45	119.31	249.67	0.874	2.17	7.40
01-12-2023	14:36:00	415.9	350.3	49.95	221.91	118.69	252.43	0.879	2.13	7.57
01-12-2023	14:36:20	416.0	344.7	49.96	218.99	115.37	248.38	0.881	2.00	8.10
01-12-2023	14:36:40	415.8	344.4	49.96	219.39	113.80	247.99	0.884	2.03	8.00
01-12-2023	14:37:00	415.4	345.8	49.95	220.34	113.53	248.74	0.885	1.93	8.20
01-12-2023	14:37:20	415.5	334.4	49.94	214.51	107.11	240.75	0.891	1.93	9.00
01-12-2023	14:37:40	415.8	327.3	49.93	210.11	104.59	235.80	0.891	2.03	9.60
01-12-2023	14:38:00	415.3	328.8	49.94	210.63	104.99	236.60	0.89	2.03	10.23
01-12-2023	14:38:20	415.8	327.4	49.95	209.49	105.59	235.87	0.888	2.10	10.43
01-12-2023	14:38:40	416.0	328.2	49.96	210.19	105.57	236.50	0.888	2.07	10.33
01-12-2023	14:39:00	416.1	330.3	49.95	211.57	106.04	238.00	0.888	2.13	10.70
01-12-2023	14:39:20	417.0	335.0	49.96	214.30	109.73	242.07	0.885	2.13	10.37
01-12-2023	14:39:40	416.2	356.8	49.96	225.86	120.91	257.39	0.877	2.13	9.57
01-12-2023	14:40:00	416.9	353.4	49.97	224.34	119.44	255.35	0.878	2.30	9.73
01-12-2023	14:40:20	416.3	352.9	49.96	224.00	118.56	254.67	0.879	2.13	9.83
01-12-2023	14:40:40	415.7	359.3	49.97	227.77	120.46	258.83	0.879	2.10	9.50
01-12-2023	14:41:00	415.9	345.7	49.95	219.80	114.83	249.11	0.882	2.13	9.50

01-12-2023	14:41:20	415.9	344.9	49.96	219.17	114.70	248.49	0.882	2.07	9.47
01-12-2023	14:41:40	416.4	339.8	49.95	216.40	113.03	245.31	0.882	2.17	9.73
01-12-2023	14:42:00	415.8	333.4	49.94	212.64	108.92	240.15	0.885	2.17	10.13
01-12-2023	14:42:20	415.5	333.7	49.94	213.92	106.67	240.27	0.89	2.17	10.00
01-12-2023	14:42:40	414.9	330.6	49.92	211.07	106.29	237.61	0.888	2.17	10.43
01-12-2023	14:43:00	415.2	328.9	49.92	210.18	105.49	236.53	0.888	2.20	10.60
01-12-2023	14:43:20	415.5	326.3	49.93	208.42	105.33	234.90	0.887	2.13	10.70
01-12-2023	14:43:40	416.3	320.5	49.96	206.06	101.21	231.04	0.891	2.03	11.07
01-12-2023	14:44:00	416.0	322.9	49.94	207.34	102.45	232.76	0.89	2.10	11.03
01-12-2023	14:44:20	415.4	327.1	49.91	209.68	103.82	235.48	0.89	2.13	11.13
01-12-2023	14:44:40	414.4	337.4	49.9	215.86	106.29	242.12	0.891	2.03	10.90
01-12-2023	14:45:00	414.4	322.1	49.9	204.02	105.35	231.11	0.882	2.13	11.17
01-12-2023	14:45:20	414.0	319.6	49.91	202.62	104.10	229.31	0.883	2.03	11.40
01-12-2023	14:45:40	415.0	303.7	49.94	193.58	97.36	218.30	0.886	2.03	12.13
01-12-2023	14:46:00	415.5	301.9	49.95	192.42	97.74	217.44	0.885	2.07	12.13
01-12-2023	14:46:20	415.6	307.5	49.95	195.32	100.86	221.40	0.882	2.00	11.93
01-12-2023	14:46:40	415.6	306.0	49.95	194.39	100.01	220.21	0.882	1.93	12.03
01-12-2023	14:47:00	415.2	302.0	49.95	191.80	98.38	217.19	0.883	1.93	12.23
01-12-2023	14:47:20	414.7	303.8	49.94	192.54	99.43	218.28	0.882	2.03	11.97
01-12-2023	14:47:40	415.0	297.2	49.95	189.02	96.32	213.75	0.884	1.93	12.13
01-12-2023	14:48:00	416.0	291.0	49.97	185.05	95.52	209.89	0.881	2.07	12.47
01-12-2023	14:48:20	415.5	292.2	49.95	184.95	97.06	210.51	0.878	2.10	12.40
01-12-2023	14:48:40	414.9	304.8	49.94	190.89	104.62	219.19	0.87	2.03	11.53
01-12-2023	14:49:00	416.0	305.8	49.93	193.12	103.51	220.58	0.875	2.13	11.40
01-12-2023	14:49:20	415.4	309.9	49.92	194.36	106.46	223.06	0.871	2.10	11.23
01-12-2023	14:49:40	414.7	324.4	49.9	202.62	112.79	233.25	0.868	2.10	10.60
Average		**415.9056**	**319.285**	**49.9468**	**202.332**	**106.997**	**230.073**	**0.87858**	**2.0511111**	**9.6472222**
Minimum		**414.0333**	**250.9**	**49.9**	**155.822**	**91.402**	**181.609**	**0.858**	**1.7**	**6.9333333**
Maximum		**417.9667**	**359.26667**	**49.98**	**227.768**	**120.913**	**258.834**	**0.891**	**2.3**	**12.466667**

Current Distortion Limits

The table given below shows the Harmonic Current Limits for Non-Linear Load at the Point-of-Common-Coupling:

For voltages 120-69,000 Volts						
Individual Harmonic Order (Odd Harmonics)[A,B]						
ISC/IL	3≤h<11	11≤h<17	17≤h<23	23≤h<25	35≤h≤50	TDD
<20 [C]	4	2	1.5	0.6	0.3	5
20<50*	7	3.5	2.5	1	0.5	8
50<100	10	4.5	4	1.5	0.7	12
100<1000	12	5.5	5	2	1	15
>1000	15	7	6	2.5	1.4	20
For voltages 69,000-161,000 Volts						
Individual Harmonic Order (Odd Harmonics)						
ISC/IL	h<11	11≤h<17	17≤h<23	23≤h<25	35≤h	TDD
<20	2	1	0.75	0.3	0.15	2.5
20<50	3.5	1.75	1.25	0.5	0.25	4
50<100	5	2.25	2	0.75	0.35	6
100<1000	6	2.75	2.5	1	0.5	7.5
>1000	7.5	3.5	3	1.25	0.7	10
For voltages > 161,000 Volts						
Individual Harmonic Order (Odd Harmonics)[A,B]						
I_{SC}/I_L	3≤h<11	11≤h<17	17≤h<23	23≤h<25	35≤h≤50	TDD
<25 [C]	1.0	0.5	0.38	0.15	0.1	1.5
25<50	2.0	1.0	0.75	0.3	0.15	2.5
>1000	3.5	1.5	1.15	0.45	0.22	3.75

Even harmonics are limited to 25% of the odd harmonic limits above

Current distortions that result in a DC offset, e.g., half-wave converters, are not allowed

All power generation equipment is limited to these values of current distortion, regardless of actual I_{SC}/I_L

I_{SC} = Maximum short circuit current at point-of-common-coupling

I_L = Maximum demand load current (fundamental frequency) at point of common coupling TDD = Total demand distortion (RSS) in % of maximum demand.

* For the client, we have calculated I_{SC}/I_L ratio to be in the range of 20<50.

Short-circuit ratio : At a particular location, the ratio of the available short-circuit current, in amperes, to the load current, in amperes.Total demand distortion (TDD) : The ratio of the root mean square of the harmonic content, considering harmonic components up to the 50th order and specifically excluding inter- harmonics, expressed as a percent of the maximum demand current. Harmonic components of order greater than 50 may be included when necessary.

Total harmonic distortion (THD) : The ratio of the root mean square of the harmonic content, considering harmonic components up to the 50th order and specifically excluding inter- harmonics, expressed as a percent of the fundamental. Harmonic components of order greater than 50 may be included when necessary.

Voltage Distortion Limits

Voltage Distortion Limits		
Bus Voltage V at PCC	**Individual Harmonic (%)**	**Total harmonic Distortion THD (%)**
V≤1.0kV	5.0	8.0
1kV≤V≤69kV	3.0	5.0
69kV≤V≤161kV	1.5	2.5
161kV≤V	1.0	1.5 [A]

Vcet A

S.No	Feeder Name	Cases	Arms (A)			I THD in % f			Vrms(V)			VTHD in %f			Power			PF
			A1	A2	A3	A1 THD	A2 THD	A3 THD	V1	V2	V3	V1 THD	V2 THD	V2 THD	kW	kV Ar	kVA	
1		Average	72.15	62.9	45.6	23.1	34.1	40.6	416.9	419.2	414.1	1.7	1.5	1.6	37.5	17.5	43.6	**0.86**
		Min	57	50.1	31.5	17	28.1	26.4	415.9	417.9	412.8	1.7	1.5	1.6	28.8	11.1	33.7	**0.82**
		Max	92	72.8	61.5	30.5	45.3	64.5	418.1	420.5	415.2	1.8	1.6	1.7	46.2	22.8	53.0	**0.89**

- Maximum running load during the audit is observed to be ~72.8 A/46.2kW.
- Total Current Harmonics Distortion is observed to be not within the limit (I THD limit is 8% f)
- Total Voltage harmonics Distortion is observed to be within the limit. . (V THD limit is 8% f)
- Power factor is observed to be ~0.86

Vcet C

S.No	Feeder Name	Cases	Arms (A)			I THD in % f			Vrms(V)			VTHD in %f			Power			PF
			A1	A2	A3	A1 THD	A2 THD	A3 THD	V1	V2	V3	V1 THD	V2 THD	V3 THD	kW	kVAr	kVA	
1	S/S 1-TR2	Average	370.7	321.3	265.5	7.27	11.03	10.67	413.24	415.7	410.2	2.0	2.0	2.03	**202.3**	**106.9**	**230.0**	**0.87**
		Min	290	256.6	206.1	5.2	7.7	7.9	406.4	411.7	404.4	1.7	1.7	1.7	**155.8**	**91.4**	**181.6**	**0.85**
		Max	411	367.7	299.1	10	14.4	13.6	415.8	418.1	413	2.3	2.3	2.3	**227.7**	**120.9**	**258.8**	**0.89**

- Maximum running load during the audit is observed to be ~411A/227.7kW.
- Total Current Harmonics Distortion is observed to be not within the limit (I THD Limit is 8 % f)
- Total Voltage harmonics Distortion is observed to be within the limit. (V THD limit is 8% f)
- Power factor is observed to be ~0.87

Click here for summary page

ENERGY AUDIT REPORT OF VIDYAVARDHINI COLLEGE OF ENGINEERING AND TECHNOLOGY, VASAI.

Vidyavardhini College of Engineering and Technology

Address: K.T. Marg, Vasai Road (West), Dist.-Palghar, Vasai-401202, Maharashtra, India.

Prepared By

ARS ENERGY AUDITORS

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December 2022

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ENERGY IS LIFE
CONSERVE IT

ऊर्जा दक्षता ब्यूरो
(भारत सरकार, विद्युत मंत्रालय)
BUREAU OF ENERGY EFFICIENCY
(Government of India, Ministry of Power)

10/02/Accred./BEE/17/749-59 — 04 May, 2017

Shri Sachin Deshpande
A.R.S. Energy Auditors
A1/101, Pramodoni Palace Chs,
Near Air India Colony, Virar (E),
Maharashtra- 401305

Sub: Application for accreditation as accredited energy auditors- reg.

Sir,

The undersigned is to refer to your application for the accreditation of Energy Auditors and the subsequent Oral interview you had before the Accreditation Advisory Committee at BEE office, New Delhi.

We are pleased to inform that the Accreditation Advisory Committee has recommended your name for the accreditation as Accredited Energy Auditor .The recommendation of Accredited Energy Advisory Committee will be put up to Management Advisory Committee of BEE for approval in its next meeting. After approval, BEE will include your name in the list of Accredited Energy Auditor, maintained by BEE on its website (www.beeindia.nic.in).

Yours faithfully,

Rajini

(Rajini Thomson)
Coordinator (Exam)

स्वहित एवं राष्ट्रहित में ऊर्जा बचाएँ   Save Energy for Benefit of Self and Nation

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ACKNOWLEDGEMENT

ARS ENERGY AUDITORS thanks the management of **Vidyavardhini College of Engineering and Technology** for assigning this important work of Energy Study at their Engineering Collage at **VASAI.** We appreciate the cooperation and guidance extended to ARS Execution Team for completion of study.

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- *Dr. Uday Aswalekar, HOD (Mechanical)*
- *Mr. Swapnil Mane, Asst Prof. Mechanical*
- *Mr. Vishwas Palve, Asst Prof. Mechanical*
- *Mr. Prabhakar Patil, Substation Incharge, VCET*

For giving us necessary inputs to carry out this very vital exercise of Energy Audit Assessment.

We are also thankful to other Staff Members and Students who were actively involved and supported while collecting the data and conducting field measurements.

For A.R.S. Energy Auditors,

Mr. Sachin S. Deshpande.

A.R.S. ENERGY AUDITORS
VIRAR

ABOUT CONSULTANT

A.R.S ENERGY AUDITOR is a leading name in the field of energy conservation. The company has diversified its business from the Solar Water Heating Application to the field of Energy Conservation through Energy Audit & Electrical Safety Audits. With a team of experienced professionals the company has successfully completed the Safety Audit Assignments for many prestigious clients. The company has empanelment with Prestigious Organization Like – *Bureau of Energy Efficiency (BEE), Maharashtra Energy Development Agency (MEDA), Gujarat Energy Development Agency (GEDA), Karnataka Renewable Energy Development Agency Ltd. (KREDAL), Rural Electrification Corporation (REC), and PCRA for Energy Conservation Activities.*

AUDIT TEAM MEMBER

Mr. Sachin Deshpande.

Accredited Energy Auditor, Chief Consultant, M. Tech. (Energy), B.E. Mechanical Eng.

Mr. Saurabh Raul.

Senior Engineer, B.E. Mechanical Eng.

Mr. Himanshu Patil.

Senior Engineer, B.E. Mechanical Eng.

Mr. Pavan Sharma.

Senior Engineer, B.E. Electrical Eng.

Mr. Neeraj Naik.

Senior Engineer, B.E. Electrical Eng.

EXECUTIVE SUMMARY OF PLANT ENERGY SAVING POTENTIAL

Sr. No.	Energy Conservation Measures	Annual Saving	Total Annual Cost Saving	Approximate Investment Cost	SPP - Simple Payback Period	
		kWh/year	Rs./year	Rs.	Years	Months
1	Replace old Split AC With Energy Efficient 5-Star Split AC.	**24,576**	**3,44,064**	**9,60,000**	**2.79**	**33.4**
2	Stoppage of 10 no of fans in library.	**1,536**	**21,504**	**Nil**	**Immediate**	**Immediate**
3	Installation of water level controller to reduce the working time of pumps.	**312.5**	**4,375**	**20,000**	**4.57**	54
Total Saving		**26,424.5**	**3,69,943**	**9,80,000**	**7.36**	**87.4**

1. INTRODUCTION

1.1 About Vidyavardhini's College of Engineering & Technology

Vidyavardhini means a Body committed to enhancement of Knowledge. Vidyavardhini was established as a registered society in 1970 by late Padmashri H. G. alias Bhausaheb Vartak for the noble cause of education in rural areas.

Vidyavardhini's College of Engineering and Technology, Vasai is located on the sprawling campus of Vidyavardhini, spread over an area of 12.27 acres. It is a short, two minutes' walk from Vasai Road (W) Railway Station. The college is also accessible by road from Mumbai.

Vidyavardhini Society received approval from AICTE to start the new college of Engineering & Technology with effect from July, 1994. The college is affiliated to the University of Mumbai for the four year degree program leading to the degree of Bachelor of Engineering.

1.2 Organization Load List

Sr. No.	Organization Section	Details: Type, Total Capacity of All Units	Quantity (Nos)
1	Air Conditioning System	0.8 Ton	6 Nos
2		1 Ton	3 Nos
3		1.5 Ton	11 Nos
4		2 Ton	9 Nos
5		2.4 Ton	1 Nos
6		3 Ton	4 Nos
7		4 Ton	10 Nos
8		5.5 Ton	5 Nos
9		7.5 Ton	4 Nos
10		8.5 Ton	4 Nos
11	Computers	60 W	400 Nos.
12	Lighting Load & Types	LED Tube light (20 W), LED panel, Tube light (40 W)	952 Nos.
13	Fan	Ceiling Fan	473 Nos.
14	Water Pump	Pump- 5 hp	2 Nos.
15	Work shop	Lath M/Cs 40 kW	18 Nos.
16	Other Load	Exhaust Fan, Cooler, Elevator,	-

1.3 Organization Energy Meter Details

Details	Service No:	Consumer Name	Sanctioned & Connected Load	Contract demand	Tariff Type	Electricity Provider
Meter	001849021636	M/S Vidyavardhini Collage of Engg. & Tech	1000 kW	525 kVA	HT – IX B HT – VIII B	MSEDCL

- The tariff type was changed from HT – IX B to HT – VIII B after April 2020

2 ABOUT ENERGY AUDIT

2.1 Introduction

Energy audits are a powerful tool for uncovering operational and equipment improvements that will save energy, reduce energy costs, and lead to high performance. Energy audits can be done as a stand-alone effort but may be conducted as part of a larger analysis across a group of facilities, or across an owner's entire portfolio.

The purpose of an energy audit (sometimes called an "energy assessment" or "energy study") is to determine where, when, why and how energy is used in a facility, and to identify opportunities to improve efficiency. Energy auditing services are offered by energy services companies (ESCOs), energy consultants and engineering firms. The energy auditor leads the audit process but works closely with building owners, staff and other key participants throughout to ensure accuracy of data collection and appropriateness of energy efficiency recommendation.

The audit typically begins with a review of historical and current utility data and benchmarking of your building's energy use against similar buildings. This sets the stage for an onsite inspection of the physical building. The main outcome of an energy audit is a list of recommended energy efficiency measures (EEMs), their associated energy savings potential, and an assessment of whether EEM installation costs are a good financial investment.

2.2 Types of Energy Audits :

Energy audits typically take a whole building approach by examining the building envelope, building systems, operations and maintenance procedures, and building schedules. Whole building audits provide the most accurate picture of energy savings opportunities at your facility.

Alternately, energy audits can be targeted to specific systems (i.e., lighting or heating, ventilation and air conditioning). Targeted audits may miss significant bigger picture energy savings opportunities, but may be a good route if you have specific energy efficiency retrofit projects in mind and limited funds to invest.

2.3 Energy Audits Identify:

- ✓ No-cost operational or maintenance adjustments that will save energy
- ✓ Short-term, low-cost energy efficiency retrofit recommendations
- ✓ Action plans for energy efficiency capital investments
- ✓ Comfort and code issues that can be addressed immediately
- ✓ Opportunities for better adherence to lighting and comfort standards

3 ELECTRICITY BILL ANALYSIS

There is electricity meter requirement of lighting, Air conditioners & other electrical load. Contract demand of for meter is 525 kVA. The below table indicates average consumption for the reference period.

Sr. No.	Billing Month	Contract Demand (CD)	Billed Demand (BD)	Maximum Demand (MD)	Units Consumed	Units Consumed	Adjustment (Solar Units)	Total Consumption	Billed Power Factor
		(kVA)	(kVA)	(kVA)	(kVAh)	(kWh)	(kWh)	(kWh)	(lagg.)
1	Apr-21	525	315	39	4,904	5,055	-2,196	2,859	0.583
2	May-21	525	315	27	5,726	4,692	-1,806	2,886	0.504
3	Jun-21	525	315	48	8790	4407	1113	5,520	0.628
4	Jul-21	525	315	96	15,154	13,851	-228	13,623	0.899
5	Aug-21	525	315	111	14,455	12,933	-213	12,720	0.88
6	Sep-21	525	315	110	17,664	16,752	-183	16,569	0.938
7	Oct-21	525	315	105	16,361	15,492	-816	14,676	0.897
8	Nov-21	525	315	111	16621	15006	-147	14,859	0.894
9	Dec-21	525	315	110	20,327	18,510	-114	18,396	0.905
10	Jan-22	525	315	57	11,933	9,186	-678	8,508	0.713
11	Feb-22	525	315	114	15,174	14,235	-594	13,641	0.899
12	Mar-22	525	315	196	27,521	26,685	-513	26,172	0.951
13	Apr-22	525	341	242	31,284	30,510	-759	29,751	0.951
14	May-22	525	341	211	22,089	20,877	-555	20,322	0.92
Total			**4462**	**1577**	**228003**	**208191**	**-7689**	**200502**	**11.562**
Avg.			**318.714286**	**112.6429**	**16285.93**	**14870.79**	**-549.214**	**14321.57**	**0.825857**
Min.			**315**	**27**	**4904**	**4407**	**-2196**	**2859**	**0.504**
Max.			**341**	**242**	**31284**	**30510**	**1113**	**29751**	**0.951**

Sr. No.	Billing Month	Contract Demand (CD)	TOD Zone				TOD Tariff EC	FAC (@ 20 Ps/Unit)	Electricity duty	Tax on sale (@ 19.04 Ps/unit)	T Colle at So
		(kVA)	Zone-1	Zone-2	Zone-3	Zone-4	(Rs)	(Rs)	(Rs.)		(R
1	Apr-21	525	-4,399.50	0	0.00	2,168.10	-2,231.40	0.00	38,169.74	544.35	0.
2	May-21	525	-5,017.50	0	0.00	2,619.10	-2,398.40	0	39,821.17	549.49	(
3	Jun-21	525	-5,689.50	0	948.00	2,049.30	-2,692.20	0	46045.88	1051.01	(
4	Jul-21	525	-4,290.00	0	2,645.60	1,611.50	-32.90	0	59,661.35	2593.82	(

5	Aug-21	525	-4,075.50	0	2,686.40	1,578.50	189.40	0	58,273.90	2,421.89	0.
6	Sep-21	525	-3,814.50	0	3,467.20	1,562.00	1,214.70	0	65,073.12	3,154.74	0.
7	Oct-21	525	-3,847.50	0	3,438.40	1,633.50	1,224.40	0	62,401.79	2,794.31	0.
8	Nov-21	525	-3,840.00	0	3,028.00	1,661.00	849.00	0	62856.4	2829.15	0
9	Dec-21	525	-3,804.00	0	4,428.80	1,841.40	2,466.20	0	70,799.61	3,502.60	0.
10	Jan-22	525	-5,080.50	0	1,363.20	2,434.30	-1,283.00	0	52,790.31	1,619.92	112
11	Feb-22	525	-3,849.00	0	2,349.60	2,374.90	875.50	0	59,893.15	2,597.25	305
12	Mar-22	525	-4,561.50	0	6,195.20	2,849.00	4,482.70	5504.2	87,138.88	4,983.15	347
13	Apr-22	525	-3,766.50	0	7,043.20	2,220.90	5,497.60	6256.6	97,456.64	5,664.59	0.
14	May-22	525	-3,511.50	0	5,236.00	1,567.50	3,292.00	**4,418**	**78243.94**	**3869.31**	0
Total			**-59547**	**0**	**42829.6**	**28171**	**11453.6**	**16178.6**	**878625.9**	**38175.58**	**760**
Avg.			**-4253.36**	**0**	**3059.257**	**2012.214**	**818.1143**	**1155.614**	**62758.99**	**2726.827**	**54.7**
Min.			**-5689.5**	**0**	**0**	**1562**	**-2692.2**	**0**	**38169.74**	**544.35**	**0**
Max.			**-3511.5**	**0**	**7043.2**	**2849**	**5497.6**	**6256.6**	**97456.64**	**5664.59**	**34**

Sr. No.	Billing Month	Contract Demand (CD)	Total Current Bill	Principal Arrears	Total Bill Amount	Total bill Rounded	Delayed payment Charges	Amount Payable	Total Units Consumed	Per Unit Electricity Cost
		(kVA)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(kWh)	(Rs/kWh)
1	Apr-21	525	220,474.77	-26672.38	193,802.39	193800	2,755.93	196560	2,859	68.75
2	May-21	525	229,995.28	4.39	229,999.67	230000	2,874.94	232870	2,886	80.69
3	Jun-21	525	266,362.99	3.67	266,366.66	266370	3329.54	269700	5,520	48.86
4	Jul-21	525	346,356.85	3.66	346,360.51	346,360	4,329.46	350,690	13,623	25.74
5	Aug-21	525	338,190.54	-0.49	338,190.05	338190	4,227.38	342420	12,720	26.92
6	Sep-21	525	378,099.84	-4.95	378,094.89	378090	4,726.25	382820	16,569	23.10
7	Oct-21	525	362,347.47	-4.11	362,343.36	362340	4,529.34	366870	14,676	25.00
8	Nov-21	525	365,001.72	1.36	365,003.08	365000	4562.52	369570	14,859	24.87
9	Dec-21	525	411,443.20	0.08	411,443.28	411440	5,143.04	416590	18,396	22.65
10	Jan-22	525	305,905.32	2.28	305,907.60	305910	3,823.82	309730	8,508	36.40
11	Feb-22	525	348,001.67	3.6	348,005.27	348010	4,350.02	352360	13,641	25.83

12	Mar-22	525	506,072.05	3.27	506,075.32	506080	6,325.90	512400	26,172	19.58
13	Apr-22	525	564,378.02	-17098.18	547,279.84	547280	7,054.73	554330	29,751	18.63
14	May-22	525	454,703.44	**-227099**	227,604.48	**227600**	**5,683.79**	**233290**	20,322	11.48
Total			**5097333**	**-270856.8**	**4826476.4**	**4826470**	**63716.66**	**4890200**	**200502**	**458.5**
Avg.			**364095.2**	**-19346.91**	**344748.314**	**344747.9**	**4551.19**	**349300**	**14321.57**	**32.8**
Min.			**220474.8**	**-227099**	**193802.39**	**193800**	**2755.93**	**196560**	**2859**	**11.5**
Max.			**564378**	**4.39**	**547279.84**	**547280**	**7054.73**	**554330**	**29751**	**80.7**

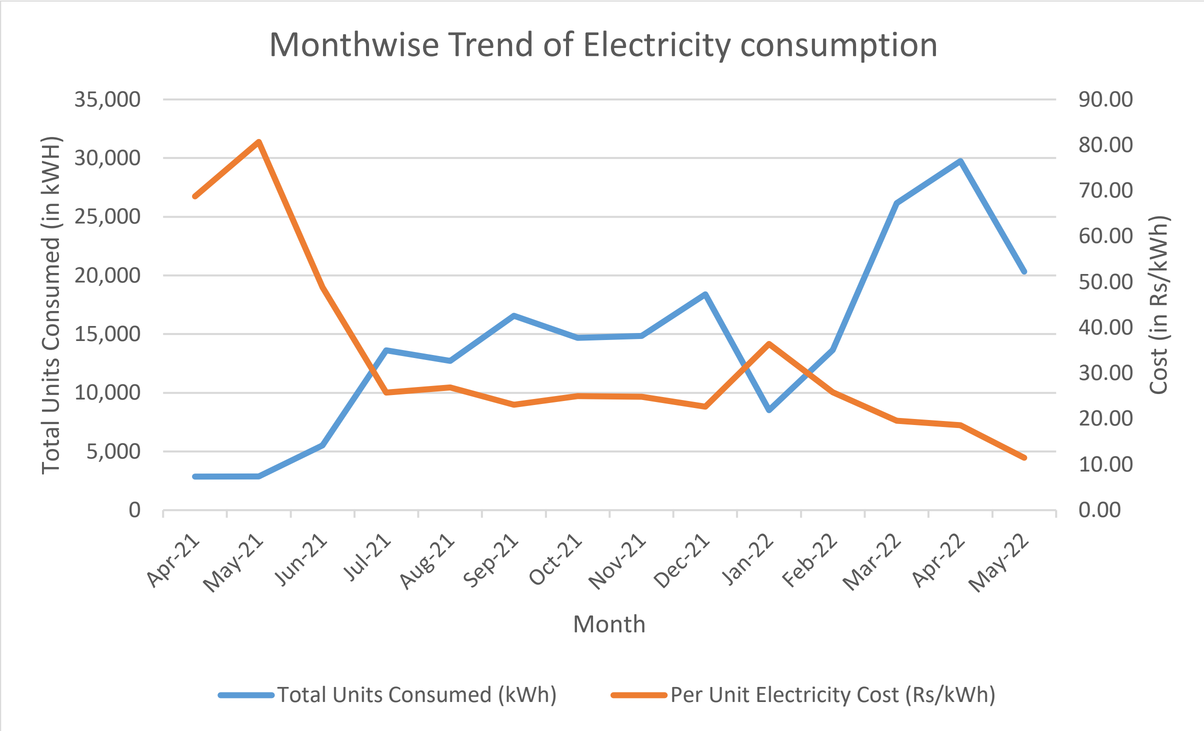
The following are the conclusions of Electrical Bill Analysis:

- For meters Maximum Demands are in near to the 50% of Contract Demand. Hence, it is ok.
- Average monthly electricity consumption is 14870.79 kWh and avg. monthly bill is Rs. **349300** /-.
- The average PF was found to be 0.825857 which is very low, adequate numbers of capacitors should be installed For Meter.
- Average of last 14 months unit cost is Rs**. 32.8** / kWh, is very high. The avg. unit cost depends on the tariff of MSEB.
- The per unit cost in the month of April was found to be Rs**. 80.69**/ kWh which may be due to Covid reasons as the maximum demand was about 27 kVA against the contract demand of 525 kVA..

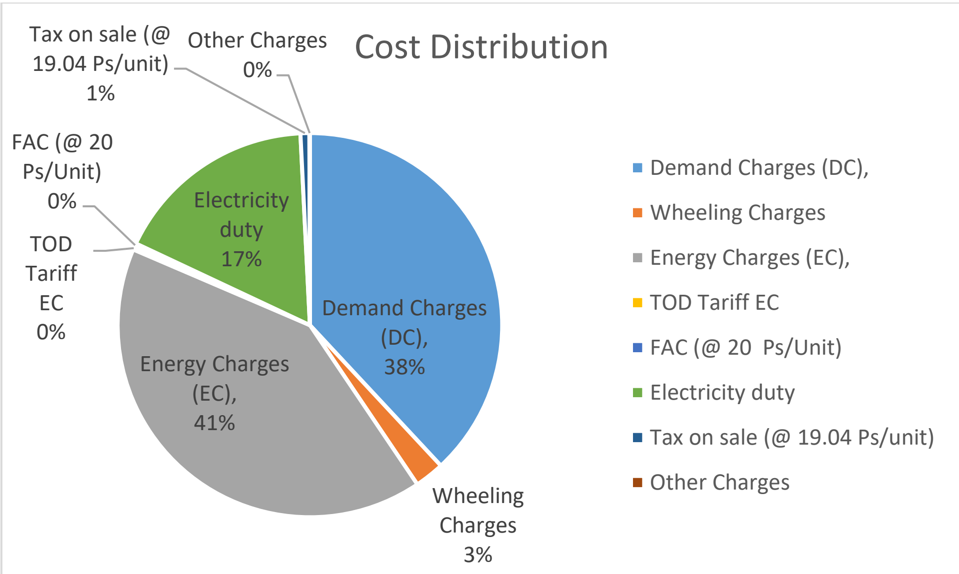
- Present Tariff Details :-

Parameter	Value	Unit
Tariff Type :	**HT- IX B/HT VIII B**	
Contract Demand :	**525**	**kVA**
TOD Tariff :-		
2200 Hrs-0600 Hrs	-1.50	Rs./kVAh
0600 Hrs-0900 Hrs & 1200 Hrs-1800 Hrs	0.00	Rs./kVAh
0900 Hrs-1200 Hrs	0.80	Rs./kVAh
1800 Hrs-2200 Hrs 1.10	1.10	Rs./kVAh

The following graph shows the trend of electricity consumption and its unit rate



The cost distribution of the Electricity bill is as shown in the pie chart.



- As seen from the above pie-chart Demand charges contribute about 38% of the amount in the electricity bill with Energy charges and Wheeling charges contributing 41% & 3 % respectively.
- The Demand charges are more due to high contract demand.

- The contract demand needs to be assessed properly based on previous year’s bill.

3.1 Electricity TOD Tariff

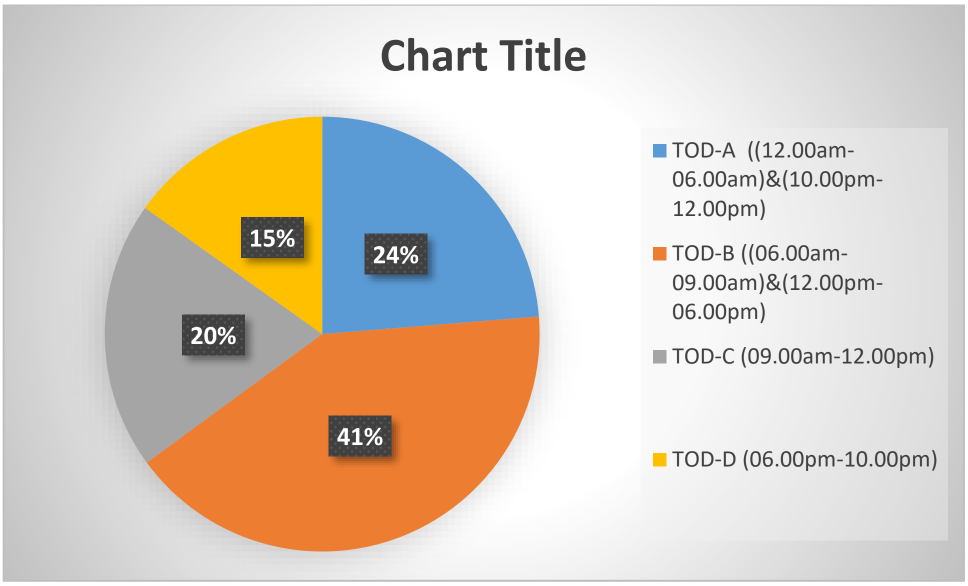
The following table gives information regarding the tariff rates, Units consumed during different tariff zones & its Energy charges.

Sr. No.	Month	TOD-A ((12.00am-06.00am)&(10.00pm-12.00pm)				TOD-B ((06.00am-09.00am)&(12.00pm-06.00pm)				TOD-C (09.00am-12.00pm)			
		Units Consumed	Rate of Electricity	Energy Charges (EC)-A	% Usages	Units Consumed	Rate of Electricity	Energy Charges (EC)-B	% Usages	Units Consumed	Rate of Electricity	Energy Charges (EC)-B	% Usages
		(kVAh)	(Rs.kVAh)	(Rs.)	%	(kVAh)	(Rs.kVAh)	(Rs.)	%	(kVAh)	(Rs.kVAh)	(Rs.)	%
1	Apr-21	2,933	-1.5	-4,399.50	60%	0	0	0	0%	0	0.8	0.00	0%
2	May-21	3345	-1.5	-5,017.50	58%	0	0	0	0%	0	0.8	0.00	0%
3	Jun-21	3793	-1.5	-5,689.50	43%	1949	0	0	22%	1185	0.8	948.00	13%
4	Jul-21	2860	-1.5	-4,290.00	19%	7522	0	0	50%	3307	0.8	2,645.60	22%
5	Aug-21	2,717	-1.5	-4,075.50	19%	6,944	0	0	48%	3,358	0.8	2,686.40	23%
6	Sep-21	2,543	-1.5	-3,814.50	14%	9,368	0	0	53%	4,334	0.8	3,467.20	25%
7	Oct-21	2,565	-1.5	-3,847.50	16%	8,013	0	0	49%	4,298	0.8	3,438.40	26%
8	Nov-21	2560	-1.5	-3,840.00	15%	8765	0	0	53%	3785	0.8	3,028.00	23%
9	Dec-21	2,536	-1.5	-3,804.00	12%	10,581	0	0	52%	5536	0.8	4,428.80	27%
10	Jan-22	3,387	-1.5	-5,080.50	28%	4,628	0	0	39%	1,704	0.8	1,363.20	14%
11	Feb-22	2,566	-1.5	-3,849.00	17%	7,512	0	0	50%	2,937	0.8	2,349.60	19%
12	Mar-22	3,041	-1.5	-4,561.50	11%	14,145	0	0	51%	7,744	0.8	6,195.20	28%
13	Apr-22	2,511	-1.5	-3,766.50	8%	17,950	0	0	57%	8,804	0.8	7,043.20	28%
14	May-22	2,341	-1.5	-3,511.50	11%	11,778	0	0	53%	6,545	0.8	5,236.00	30%
Total		**39,698.00**	**-21.00**	**-59,547.00**		**109,155.00**	**0.00**	**0.00**		**53,537.00**	**11.20**	**42,829.60**	
Avg.		**2,835.57**	**-1.50**	**-4,253.36**	**0.24**	**7,796.79**	**0.00**	**0.00**	**0.41**	**3,824.07**	**0.80**	**3,059.26**	**0.20**
Min.		**2,341**	**-2**	**-5,690**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**

Max.	**3,793.00**	**-1.50**	**-3,511.50**	**0.60**	**17,950.00**	**0.00**	**0.00**	**0.57**	**8,804.00**	**0.80**	**7,043.20**	**0.30**

Sr. No.	Month	TOD-D (06.00pm-10.00pm)				Units Consumed	TOD - TOTAL TOD CHARGES
		Units Consumed	Rate of Electricity	Energy Charges (EC)-B	% Usages		
		(kVAh)	(Rs.kVAh)	(Rs.)	%	(kVAh)	(Rs.)
1	Apr-21	1,971	1.1	2,168.10	40%	4,904	-2,231.40
2	May-21	2,381	1.1	2,619.10	42%	5,726	-2,398.40
3	Jun-21	1863	1.1	2,049.30	21%	8,790	-2,692.20
4	Jul-21	1,465	1.1	1,611.50	10%	15,154	-32.90
5	Aug-21	1,435	1.1	1,578.50	10%	14,454	189.40
6	Sep-21	1,420	1.1	1,562.00	8%	17,665	1,214.70
7	Oct-21	1,485	1.1	1,633.50	9%	16,361	1,224.40
8	Nov-21	1510	1.1	1,661.00	9%	16,620	849.00
9	Dec-21	1,674	1.1	1,841.40	8%	20,327	2,466.20
10	Jan-22	2,213	1.1	2,434.30	19%	11,932	-1,283.00
11	Feb-22	2,159	1.1	2,374.90	14%	15,174	875.50
12	Mar-22	2,590	1.1	2,849.00	9%	27,520	4,482.70
13	Apr-22	2,019	1.1	2,220.90	6%	31,284	5,497.60
14	May-22	**1,425.00**	1.1	1,567.50	6%	22,089	3,292.00
Total		**25,610.00**	**15.40**	**28,171.00**		**228,000.00**	**11,453.60**
Avg.		**1,829.29**	**1.10**	**2,012.21**	**0.15**	**16,285.71**	**818.11**
Min.		**1,420**	**1**	**1,562**	**0**	**4,904**	**-2,692**
Max.		**2,590.00**	**1.10**	**2,849.00**	**0.42**	**31,284.00**	**5,497.60**

The % of Energy usage during different Tariff rates is described in the pie chart below



	Parameter	Value	Unit
	TOD Tariff :-		
TOD-A	2200 Hrs-0600 Hrs	-1.50	Rs./kVAh
TOD-B	0600 Hrs-0900 Hrs & 1200 Hrs-1800 Hrs	0.00	Rs./kVAh
TOD-C	0900 Hrs-1200 Hrs	0.80	Rs./kVAh
TOD-D	1800 Hrs-2200 Hrs	1.10	Rs./kVAh

- As seen from the pie chart 41 % of total energy is used during the TOD-B where the unit rate is 0 Rs/kVAh.
- Also, 24% of energy is used during the TOD-A, when the tariff rate is -1.5 Rs/kVAh.

AC Performance

Sr No	Parameter	Unit	Ac 2	AC-Seminar Hall
A	Cooling Capacity	CFM	3000	3000
B	Cooling Capacity	TR	7.5	7.5
C	Cross section Area	Sq.m	0.36	0.18
D	Avg Velocity of Air	m/sec	5.14	7.80
E	Air flow rate = (C*D)* 3600	m3/hr	6693.41	5078.66
F	Actual Flow rate = E*0.59	CFM	3949.11	2996.41
G	Density of Air	kg/m3	1.11	1.1
H	Mass Flow Rate=(E*G)	kg/hr	7429.69	5586.53
I	Inlet Air DBT	Deg C	39.4	39.5
J	Inlet RH	%	55.6	49.4
K	Enthalpy of inlet air	kJ/kg	105.04	98.01
L	Outlet Air DBT	Deg C	51.2	54
M	Outlet RH	%	30	25
N	Enthalpy of Outlet air	kJ/kg	116.7	116.59
O	Power input to Compressor	kW	7.250	9.211
P	Heat rejected in condenser	TR	6.85	8.21
Q	Refrigerating effect(in TR) = Heat rejected in condenser(in TR) - Work done by compressor (in TR)	TR	4.78	5.58
R	KW/TR		1.52	1.65

6. CONSERVATION MEASURES

- The unit rate was high due to covid situations, so for calculation purpose previous year's average rate of 14 Rs/kWh is considered.

6.1 ENCON Measure-01

ENCON Measures – 01			
A :	**Title of Recommendation**	:	Replace old Split AC With Energy Efficient 5-Star Split AC.
B :	**Description of Existing System and its Operation**	:	Presently Organization has 8 AC which are not star rated
C :	**Description of Proposed System**	:	All 8 non star rated AC are replaced with Suitable Rating 5-Star AC which will result in saving of 0.3 kW/TR
D :	**Modified System**	:	
	Proposed System Actual Electrical Consumption (kWh/Month)	:	Savings will be 64*0.2=12.8 kWh (Total TR * saving achieved by replacing by 5 star rating AC)
E :	**Total annual kWh saving/year**	:	**24576 kWh/Annum**
	Per unit Cost (Rs./kWh)	:	**14 Rs./kWh**
	Annual cost saving (Rs./Year)	:	**344064 Rs./Annum**
F :	**Approximate Total Investment Cost**	:	**9,60,000 Rs.**
G :	**Simple Payback Period**	:	**2.79 Years**
		:	**33.4 Months**

6.2 ENCON Measure-02

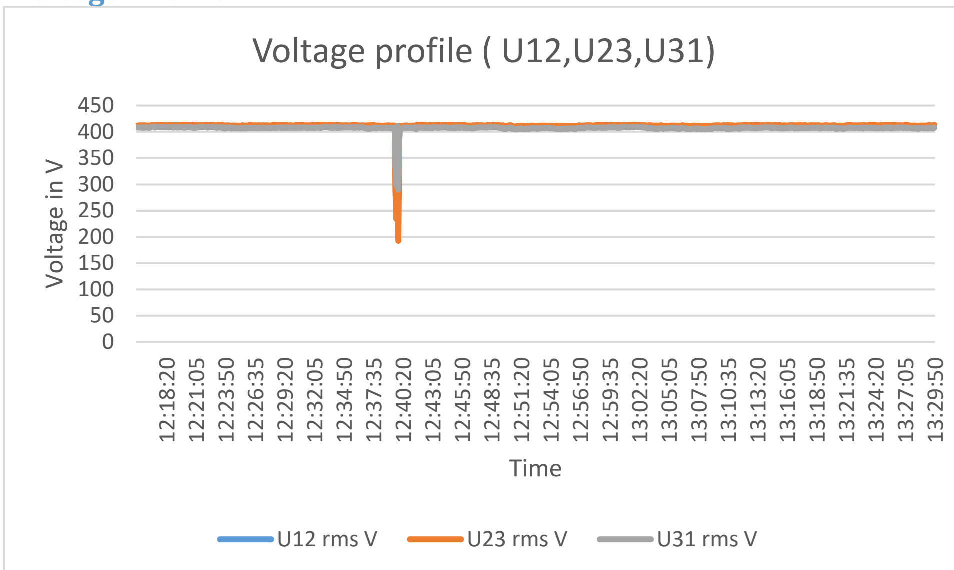
ENCON Measures – 02			
A:	**Title of Recommendation**	:	Stoppage of 10 no of fans in library.
B:	**Description of Existing System and its Operation**	:	The fans are placed at very closed distance.
C:	**Description of Proposed System**	:	The fans can be placed at proper distance so that 10 to 15 fans can be removed.
D:	**Existing System Actual Electrical Consumption (Kwh/Month)**	:	Considering 8 hrs of Operation for 240 Days/year, Existing fan load will consumes Energy Around, 10*80*8*240 = **1536 kWh Annum.** (10 no of fans of 80 W each, operating for 8 hours each day for 240 days)
E:	**Total annual kWh saving/year**	:	**1536 kWh/Annum**
	Per unit Cost (Rs./kWh)	:	**14 Rs./kWh**
	Annual cost saving (Rs./Year)	:	**21,504 Rs./Annum**
F:	**Approximate Total Investment Cost**	:	**Nil.**
G:	**Simple Payback Period**	: :	**Immediate**

6.3 ENCON Measure-03

ENCON Measures – 03			
A:	Title of Recommendation	:	Installation of water level controller to reduce the working time of pumps.
B:	Description of Existing System and its Operation	:	Two pumps of 5 kW are used to fill up the tank. At present both the pumps are operated manually. After the tank is filled the pumps are turned OFF manually which leads to wastage of water and increase in operating time of pumps which leads to increase in energy consumption.
C:	Description of Proposed System	:	A water level controller can be installed which eliminates the wastage of water and reduces the operating time of the pump which further leads to reduced energy consumption.
D:	Existing System Actual Electrical Consumption (Kwh/Month)	:	Considering 15 minutes of operation after the tank is filled which results in wastage of approx. 200 litre/day Operation for 240 Days/year, Existing operating condition will consumes Energy Around, 5*0.25*240 = **312.5 kWh Annum.** (5 kW pump operated for extra 15 minutes for 240 days/year)
E:	Modified System	:	A water level controller can be installed which eliminates the wastage of water and reduces the operating time of the pump which further leads to reduced energy consumption.
	Proposed System Actual Electrical Consumption (kWh/Month)	:	
F:	Total annual kWh saving/year	:	**312.5 kWh/Annum**
	Per unit Cost (Rs./kWh)	:	**14 Rs./kWh**
	Annual cost saving (Rs./Year)	:	**4375 Rs./Annum**
H:	Approximate Total Investment Cost	:	**20,000 Rs**
I:	Simple Payback Period	:	**4.57 Years**
		:	**54 Months**

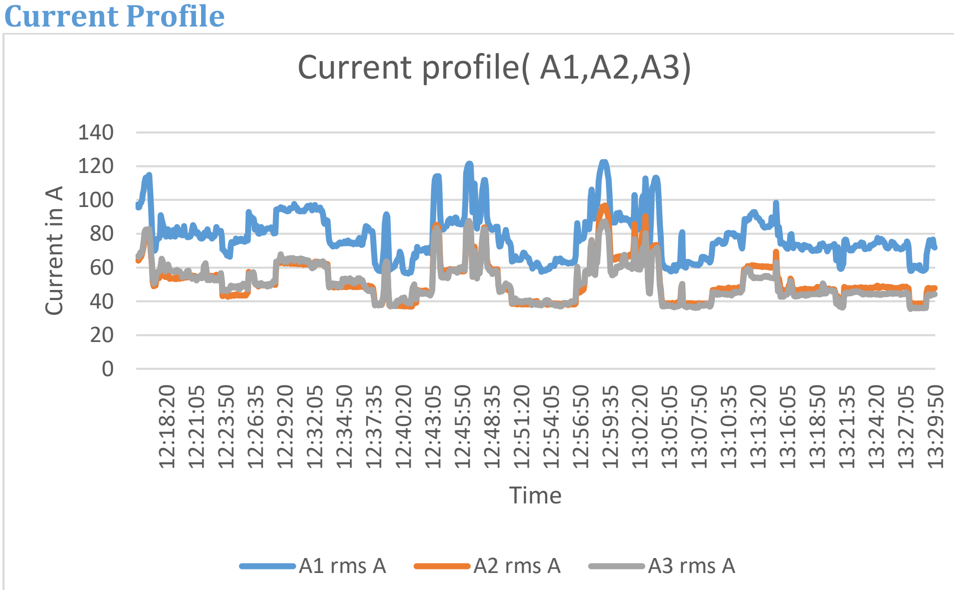
250 KVA DG Set Power Quality

5.1.1 Voltage Profile



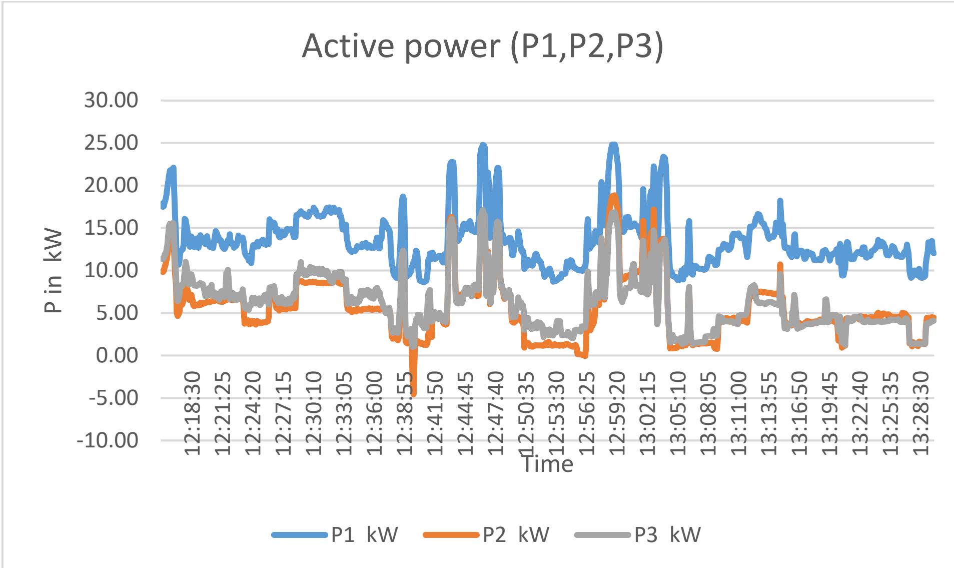
Minimum incoming Voltage recorded is 270.9 V and Maximum is 411.8 V. With average value 409.7 V. Which is in acceptable range.

5.1.2 Current Profile



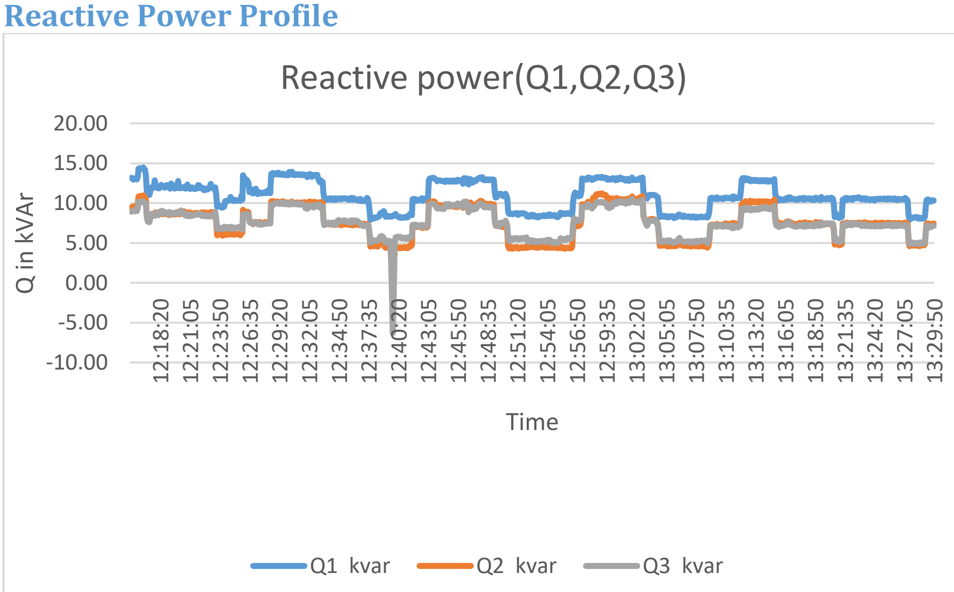
- Minimum incoming Current recorded is 43.8 A and Maximum is 102.2 A. With average value 60.5 A. Variation in current is depends on switching on and off of different electrical loads. However the load is distributed on each phase equally.

5.1.3 Actual Power Profile



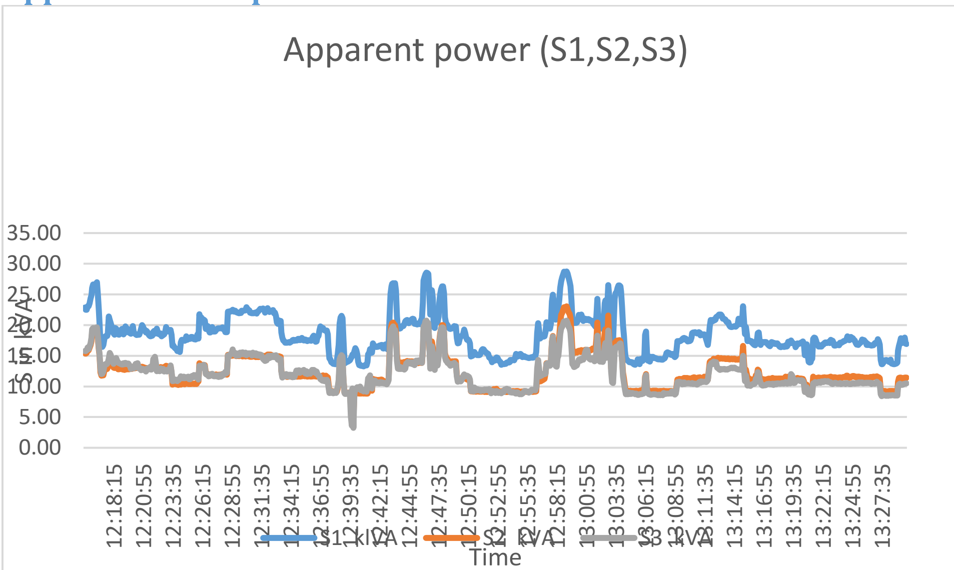
- Minimum incoming Active Power recorded 8.6kW and Maximum is 60.5 kW. With average value 25.4 kW. Variation in Power is depends on switching on and off of different electrical components.

5.1.4 Reactive Power Profile



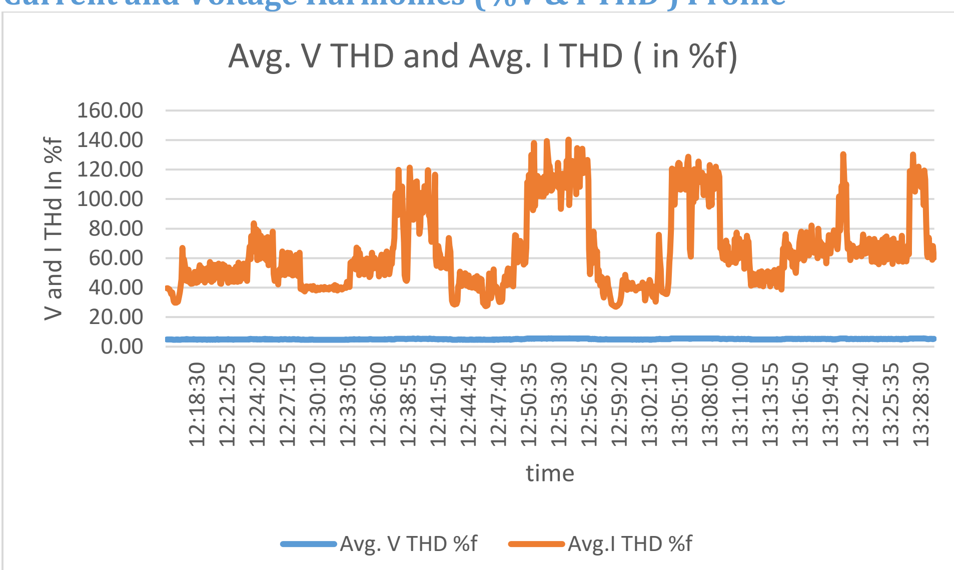
- Minimum incoming Reactive Power recorded 1.4 kVAR and Maximum is 35.7.kVAR.. With average value 26.1 kVAR. It is depends on switching's of load.

5.1.5 Apparent Power profile



Minimum incoming Apparent Power recorded 23.4KVA and Maximum is 72.5kVA. With average value 43.0 kVA. It is depends on switching's of load

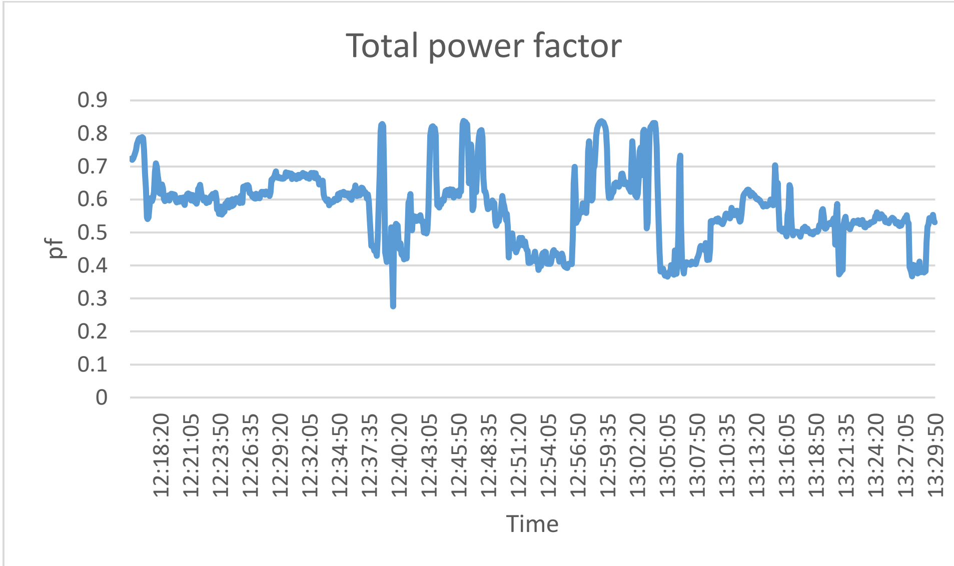
5.1.6 Current and Voltage Harmonics (%V & I THD) Profile



- The maximum voltage harmonic THD are found 5.6 % which is not within the IEEE Voltage harmonics permissible limit, i.e. 5%.
- Whereas the maximum current harmonics THD is 140.3% which is very higher than IEEE Current harmonics permissible limit, i.e 8%.

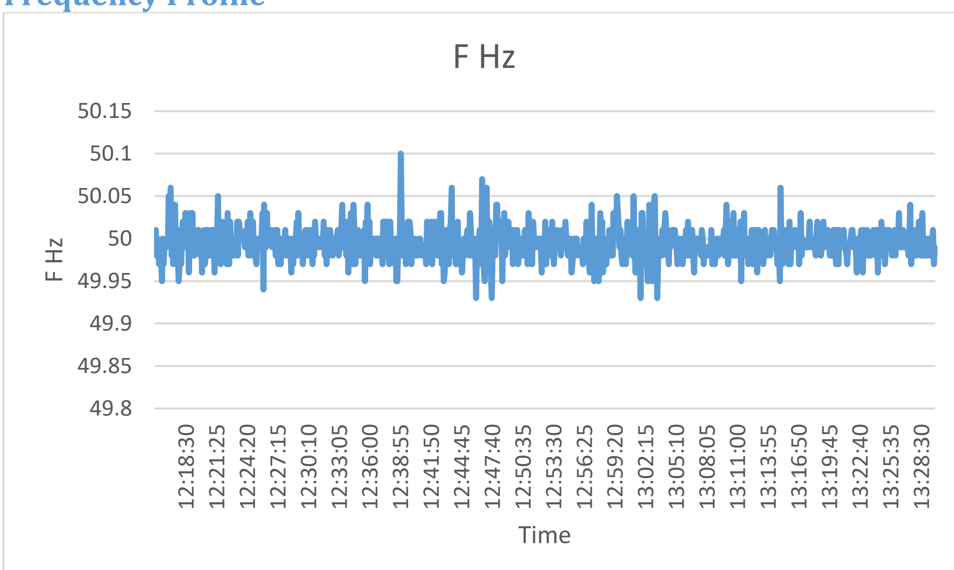
In order to limit this harmonics within permissible limit, the Harmonics Filter should be installed in facility

5.1.7 Power Factor vs Time Profile



- The power factor in the supply system is in lagging state. Minimum power factor is 0.3 and maximum PF is 0.8 , where average PF is 0.6 lagging.

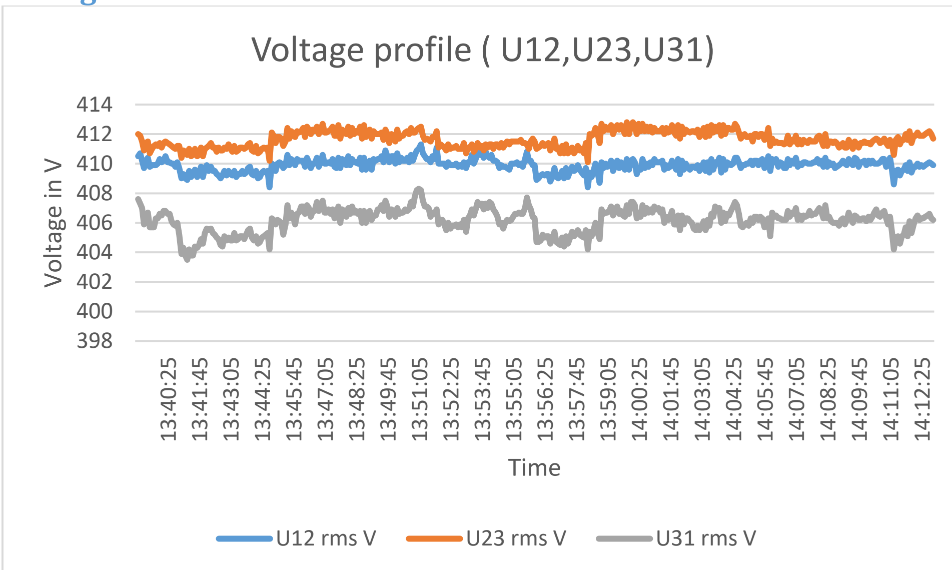
5.1.8 Frequency Profile



The minimum Frequency is 49.9 Hz and maximum is 50.0 Hz where average frequency is 50.1 Hz

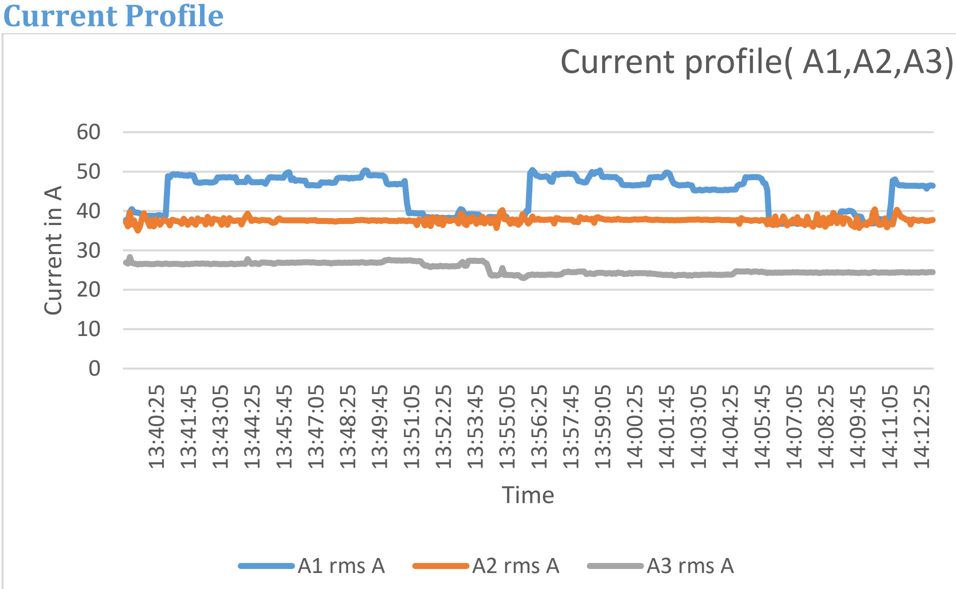
DB 1 Building Power Quality

5.1.9 Voltage Profile



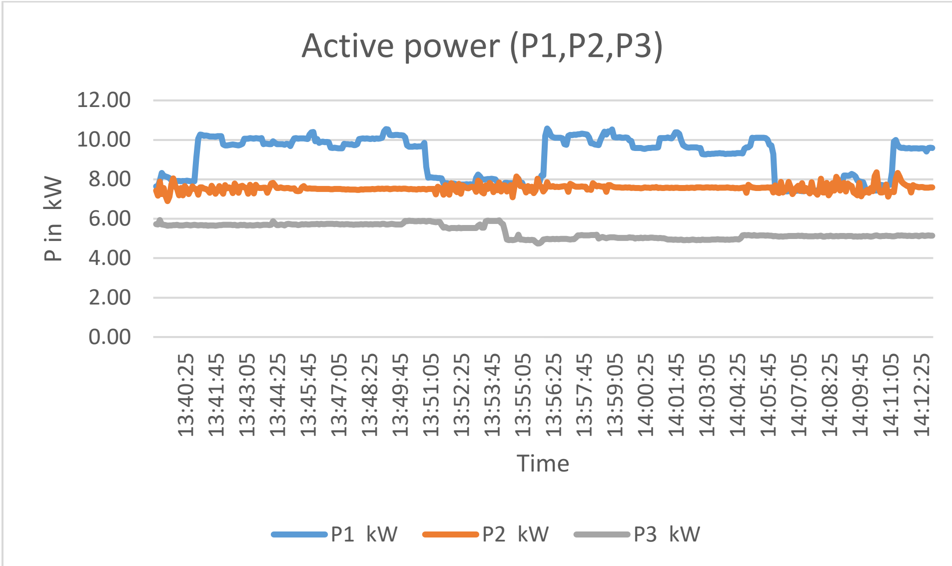
Minimum incoming Voltage recorded is 407.6 V and Maximum is 410.7 V. With average value 409.2V. Which is in acceptable range.

5.1.10 Current Profile



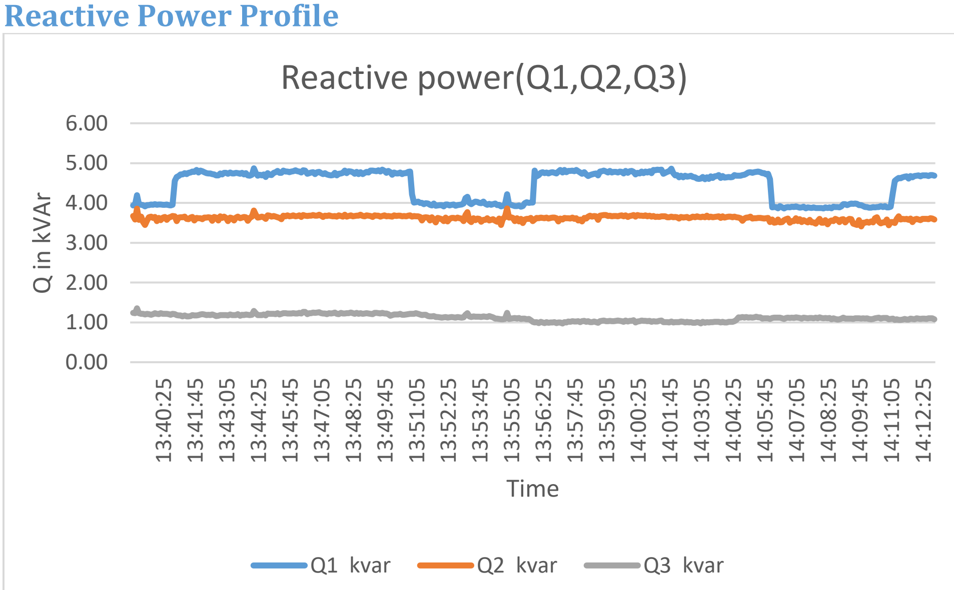
- Minimum incoming Current recorded is 32.4 A and Maximum is 38.5A. With average value 35.7 A. Variation in current is depends on switching on and off of different electrical loads. However the load is distributed on each phase equally.

5.1.11 Actual Power Profile



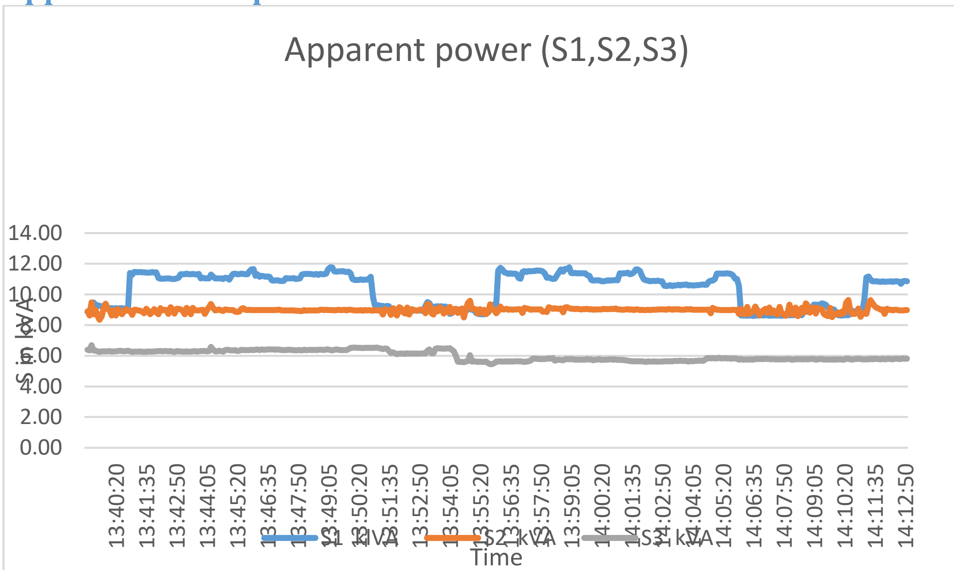
- Minimum incoming Active Power recorded 19.7 kW and Maximum is 23.8 kW. With average value 22 kW. Variation in Power is depends on switching on and off of different electrical components.

5.1.12 Reactive Power Profile



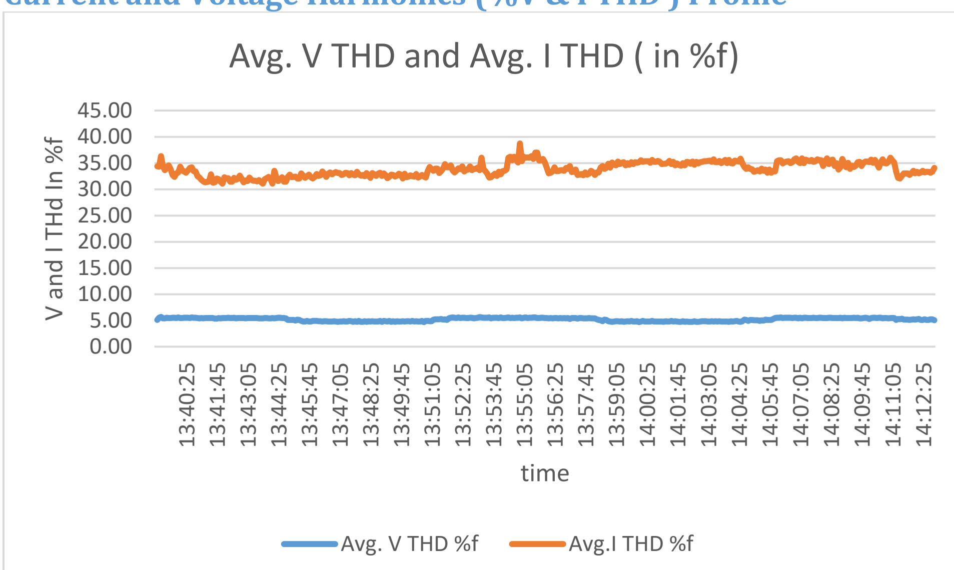
- Minimum incoming Reactive Power recorded 8.4 kVAR and Maximum is 10.0.kVAR.. With average value 9.2 kVAR. It is depends on switching's of load.

5.1.13 Apparent Power profile



Minimum incoming Apparent Power recorded 23.0 KVA and Maximum is 27.2 kVA. With average value 25.3 kVA. It is depends on switching's of load

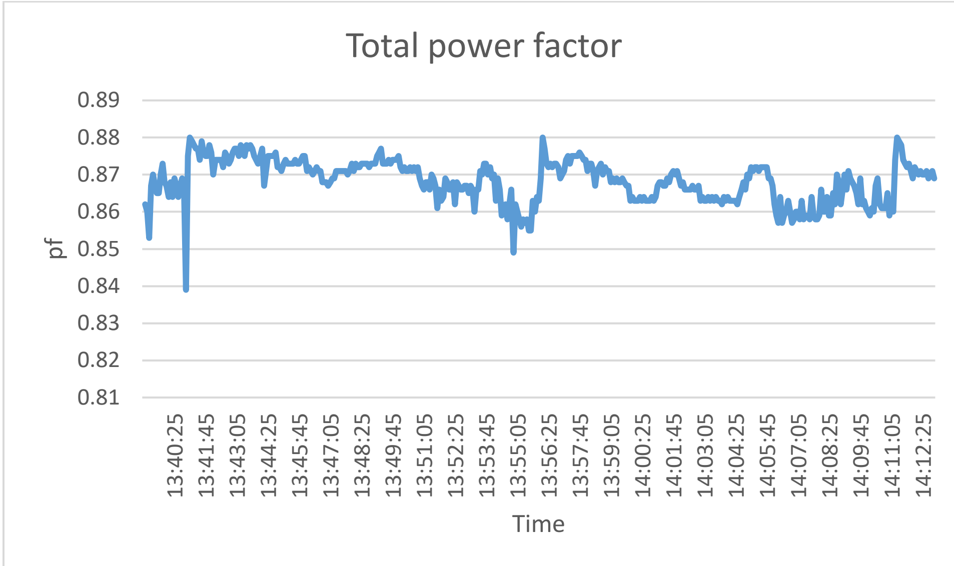
5.1.14 Current and Voltage Harmonics (%V & I THD) Profile



- The maximum voltage harmonic THD are found 5.7 % which is not within the IEEE Voltage harmonics permissible limit, i.e. 5%.
- Whereas the maximum current harmonics THD is 38.7 % which is very higher than IEEE Current harmonics permissible limit, i.e 8%.

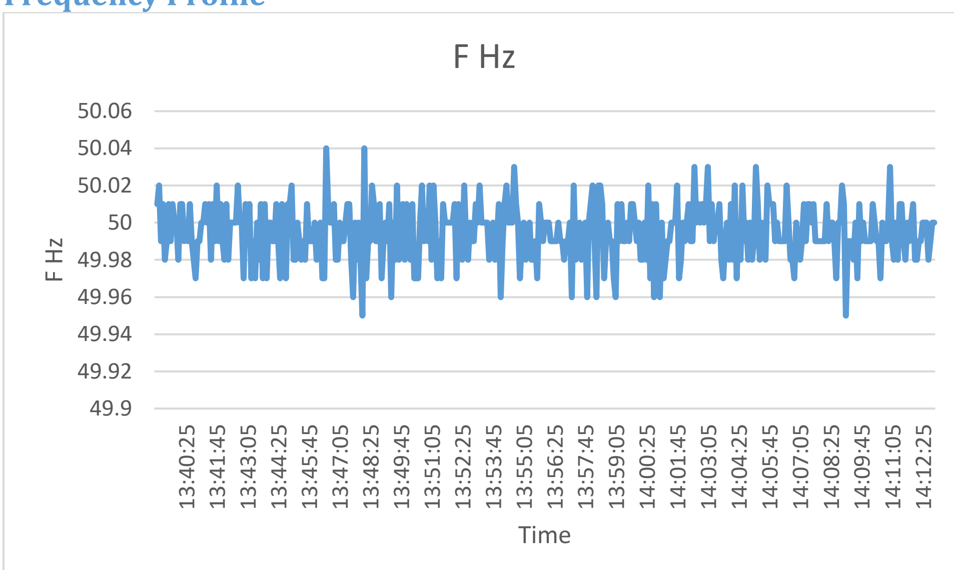
In order to limit this harmonics within permissible limit, the Harmonics Filter should be installed in facility

5.1.15 Power Factor vs Time Profile



- The power factor in the supply system is in lagging state. Minimum power factor is 0.8 and maximum PF is 0.9 , where average PF is 0.9 lagging.

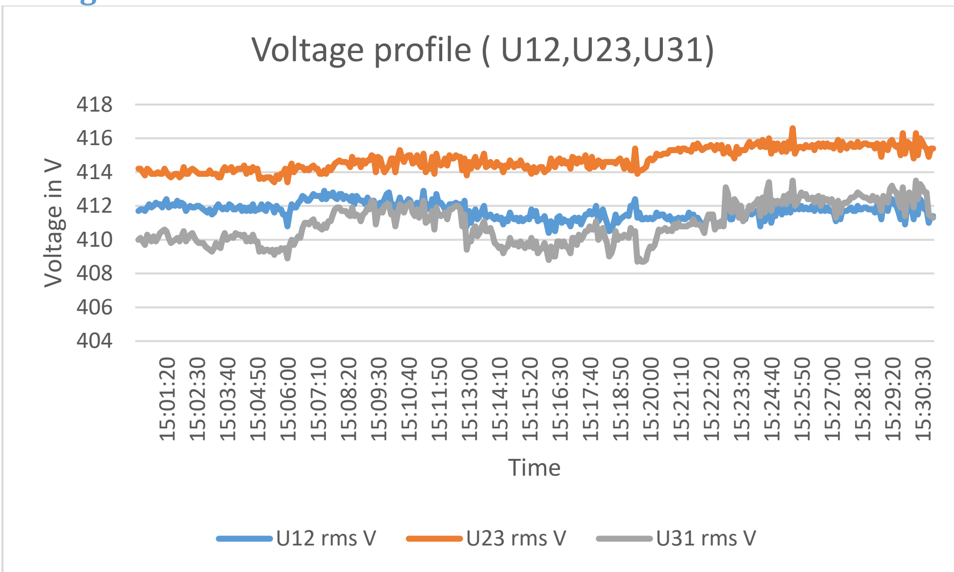
5.1.16 Frequency Profile



The minimum Frequency is 50 Hz and maximum is 50 Hz where average frequency is 50.00 Hz

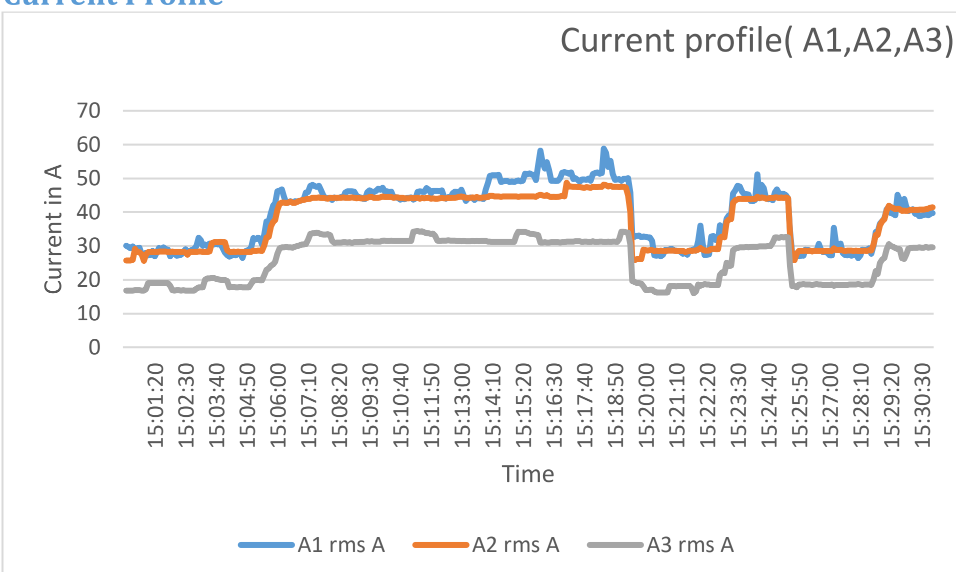
DB 2 Building Power Quality

5.1.17 Voltage Profile



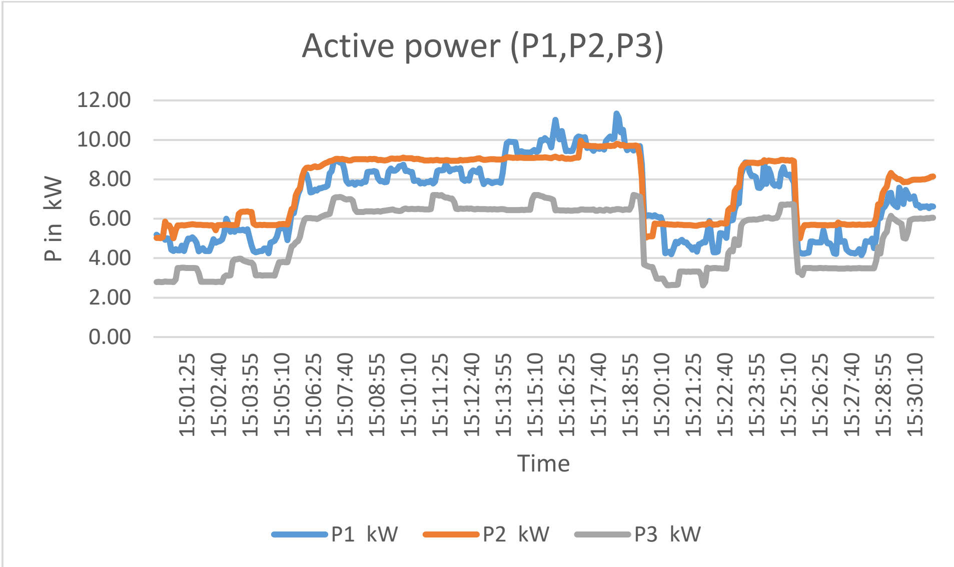
Minimum incoming Voltage recorded is 411 V and Maximum is 414.4 V. With average value 412.5 V. Which is in acceptable range.

5.1.18 Current Profile



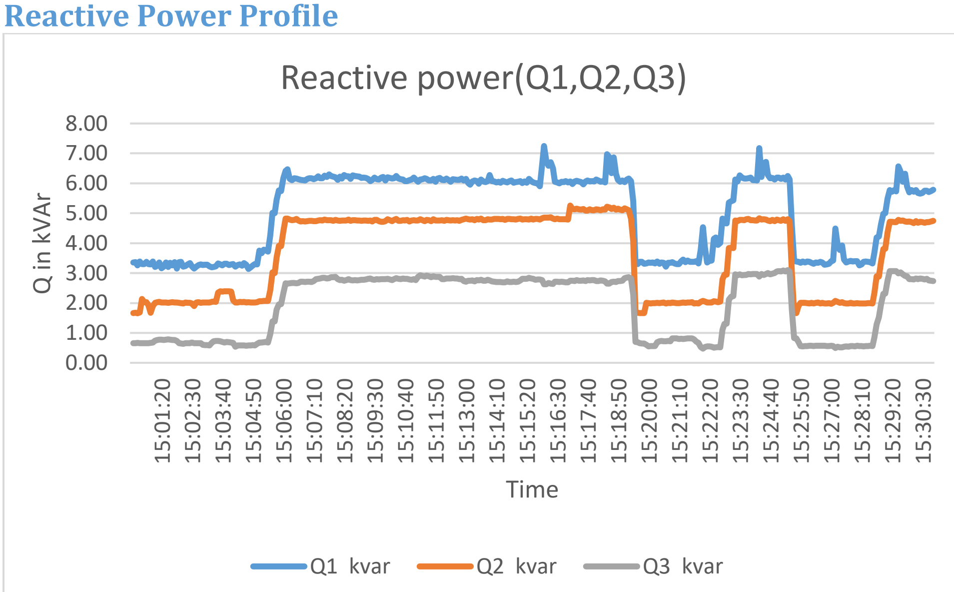
- Minimum incoming Current recorded is 23.2 A and Maximum is 46.1 A. With average value 34.4 A. Variation in current is depends on switching on and off of different electrical loads. However the load is distributed on each phase equally.

5.1.19 Actual Power Profile



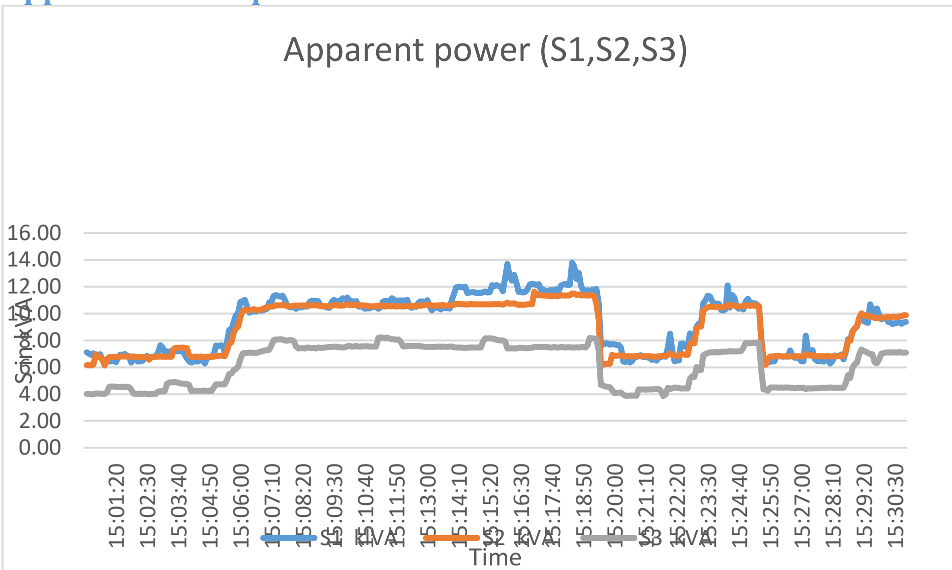
- Minimum incoming Active Power recorded 12.2 kW and Maximum is 27.6 kW. With average value 19.8 kW. Variation in Power is depends on switching on and off of different electrical components.

5.1.20 Reactive Power Profile



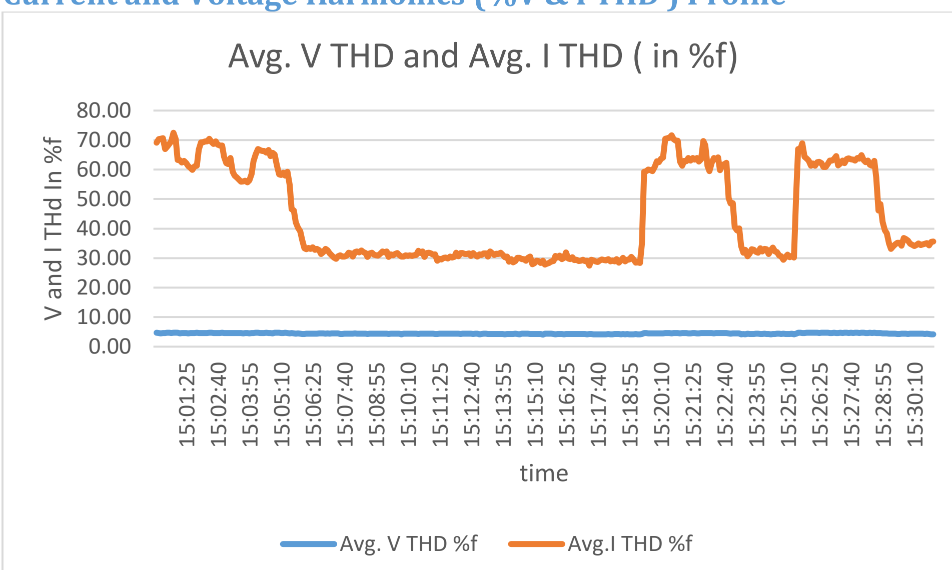
- Minimum incoming Reactive Power recorded 5.6 kVAR and Maximum is 14.9.kVAR.. With average value 10.6 kVAR. It is depends on switching's of load.

5.1.21 Apparent Power profile



Minimum incoming Apparent Power recorded 16.6 KVA and Maximum is 32.8 kVA. With average value 24.6 kVA. It is depends on switching's of load

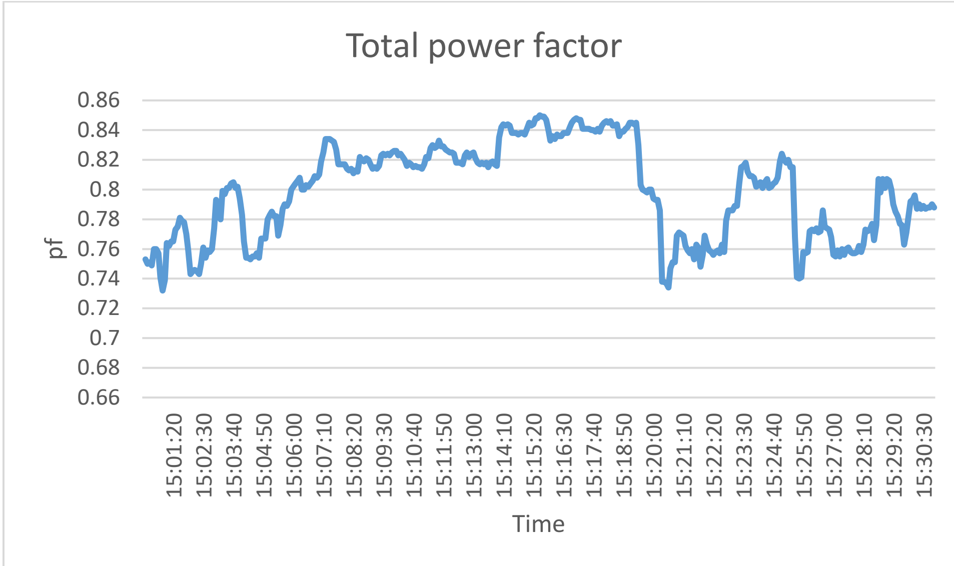
5.1.22 Current and Voltage Harmonics (%V & I THD) Profile



- The maximum voltage harmonic THD are found 4.7 % which is within the IEEE Voltage harmonics permissible limit, i.e. 5%.
- Whereas the maximum current harmonics THD is 72.5 % which is very higher than IEEE Current harmonics permissible limit, i.e 8%.

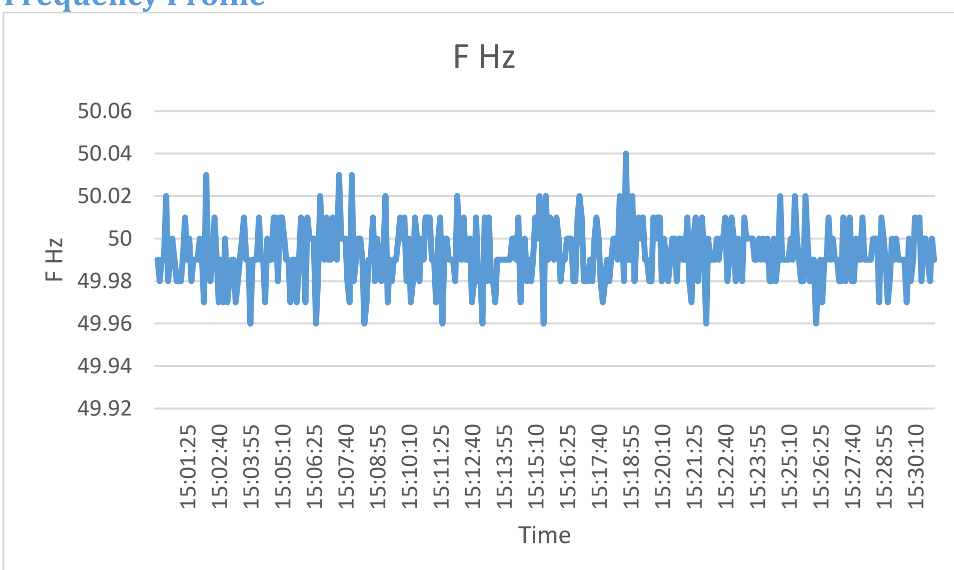
In order to limit this harmonics within permissible limit, the Harmonics Filter should be installed in facility

5.1.23 Power Factor vs Time Profile



- The power factor in the supply system is in lagging state. Minimum power factor is 0.7 and maximum PF is 0.9 , where average PF is 0.8 lagging.

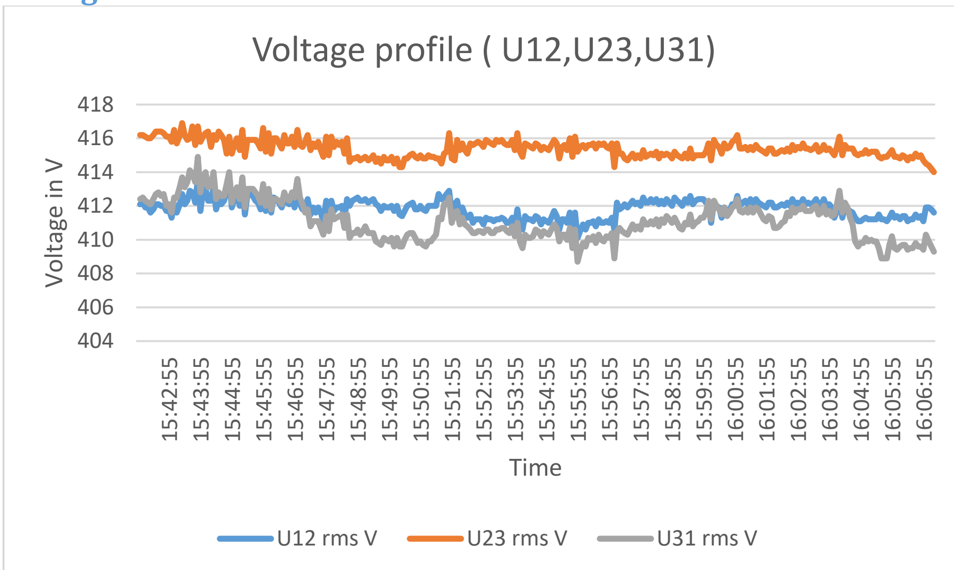
5.1.24 Frequency Profile



The minimum Frequency is 50 Hz and maximum is 50 Hz where average frequency is 50.00 Hz

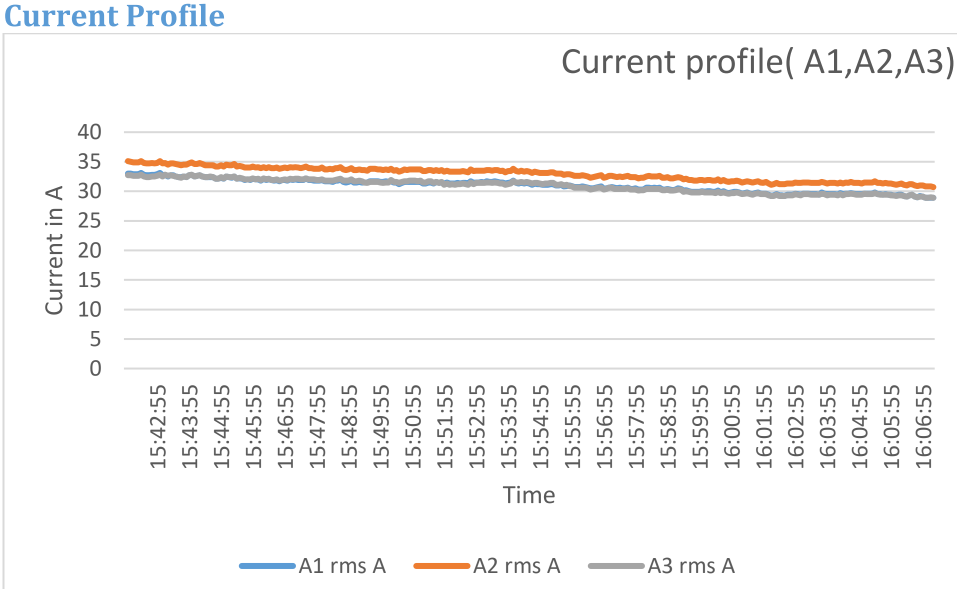
Solar Generation Power Quality

5.1.25 Voltage Profile



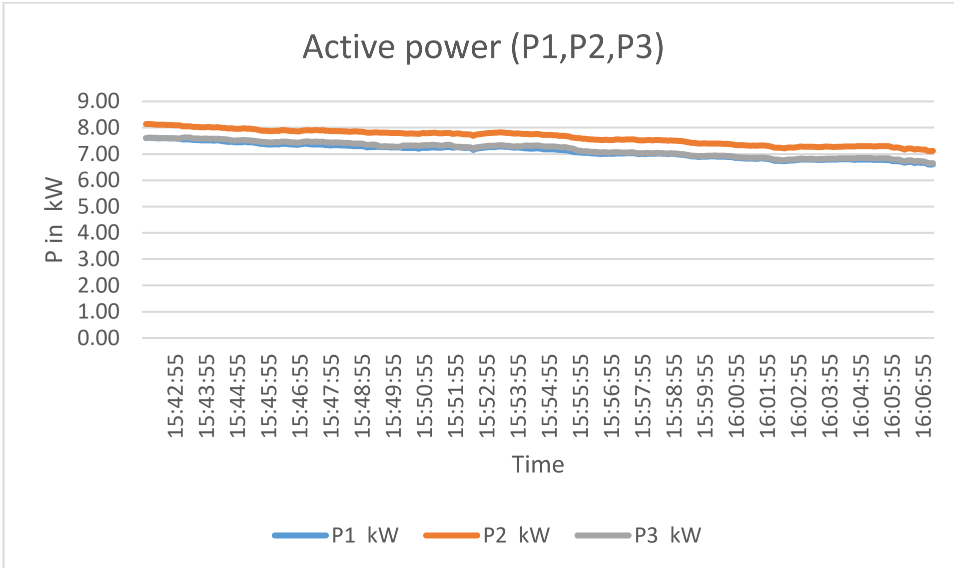
Minimum incoming Voltage recorded is 411.3 V and Maximum is 415.1 V. With average value 412.8 V. Which is in acceptable range.

5.1.26 Current Profile



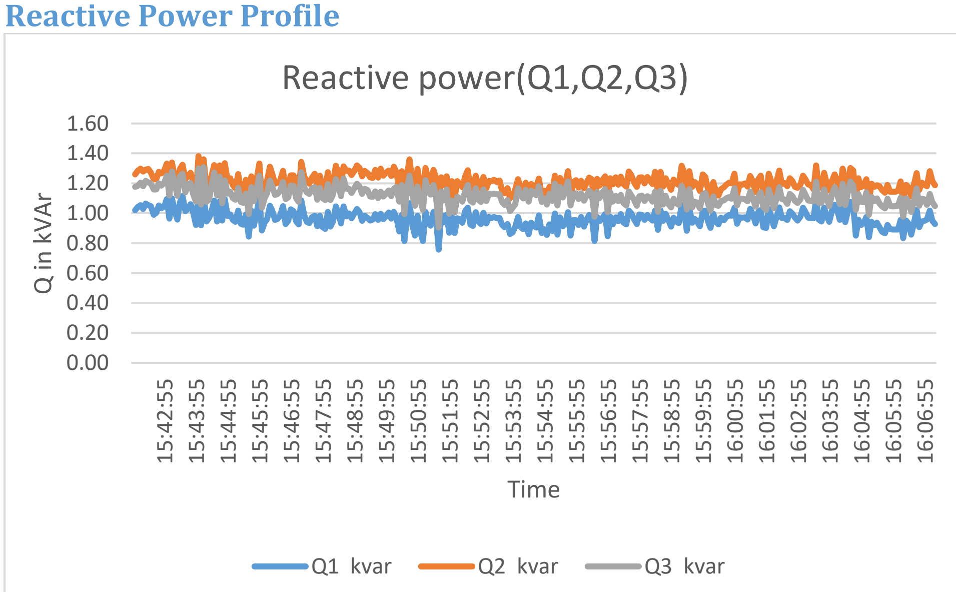
- Minimum incoming Current recorded is 29.5 A and Maximum is 33.7 A. With average value 31.6 A. Variation in current is depends on switching on and off of different electrical loads. However the load is distributed on each phase equally.

5.1.27 Actual Power Profile



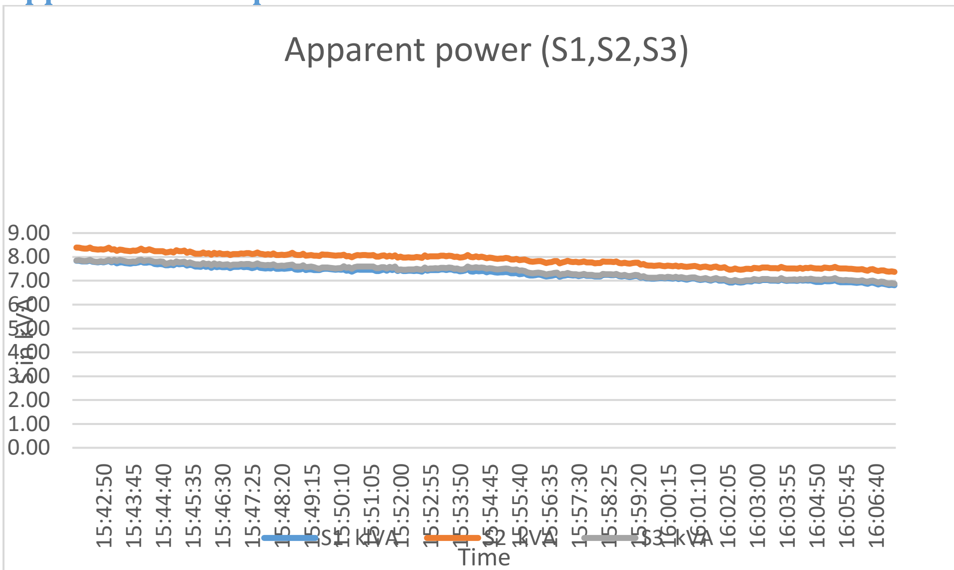
- Minimum incoming Active Power recorded 20.4 kW and Maximum is 23.4 kW. With average value 21.9 kW. Variation in Power is depends on switching on and off of different electrical components.

5.1.28 Reactive Power Profile



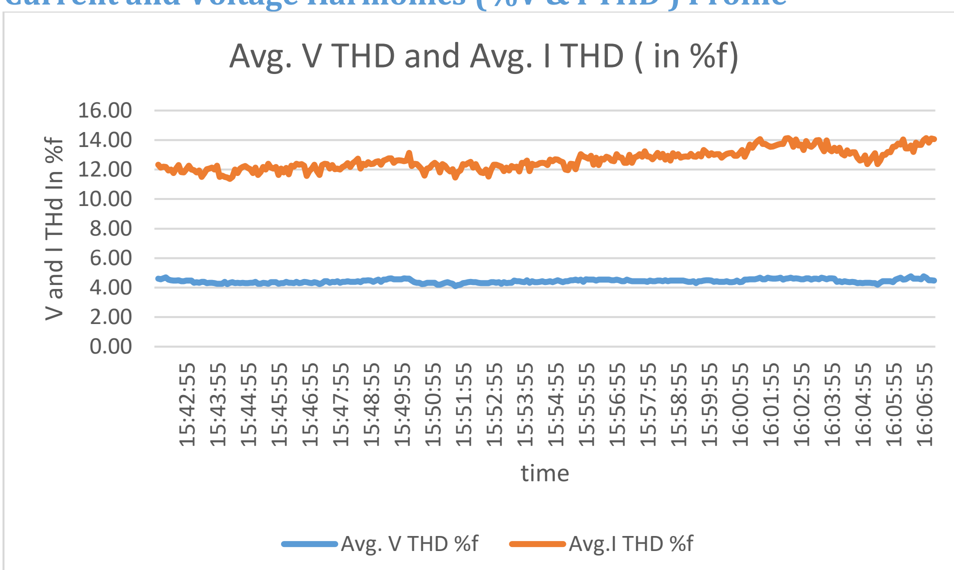
- Minimum incoming Reactive Power recorded 2.7 kVAR and Maximum is 3.8.kVAR.. With average value 3.3 kVAR. It is depends on switching's of load.

5.1.29 Apparent Power profile



Minimum incoming Apparent Power recorded 21.1 KVA and Maximum is 24.1 kVA. With average value 22.6 kVA. It is depends on switching's of load

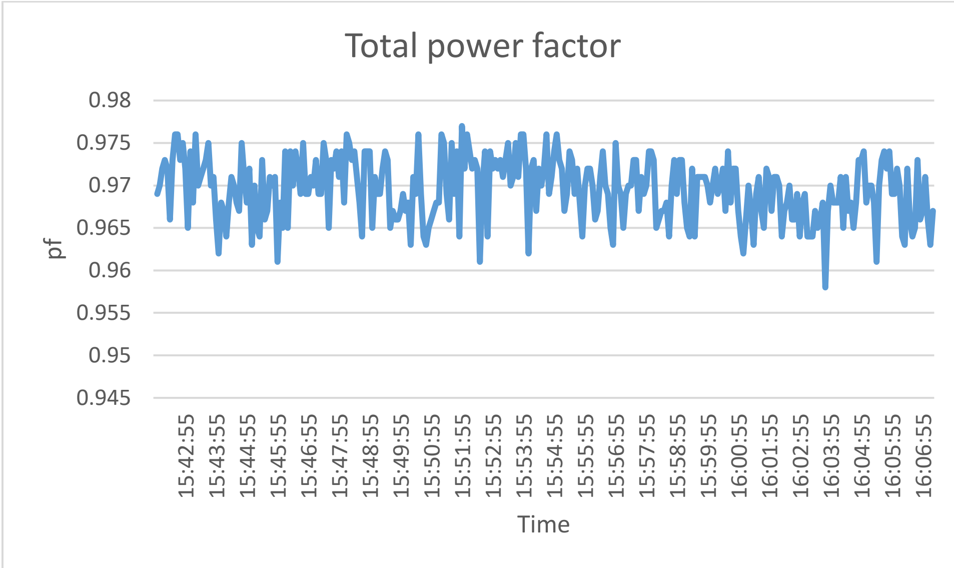
5.1.30 Current and Voltage Harmonics (%V & I THD) Profile



- The maximum voltage harmonic THD are found 4.8 % which is within the IEEE Voltage harmonics permissible limit, i.e. 5%.
- Whereas the maximum current harmonics THD is 14.1 % which is higher than IEEE Current harmonics permissible limit, i.e 8%.

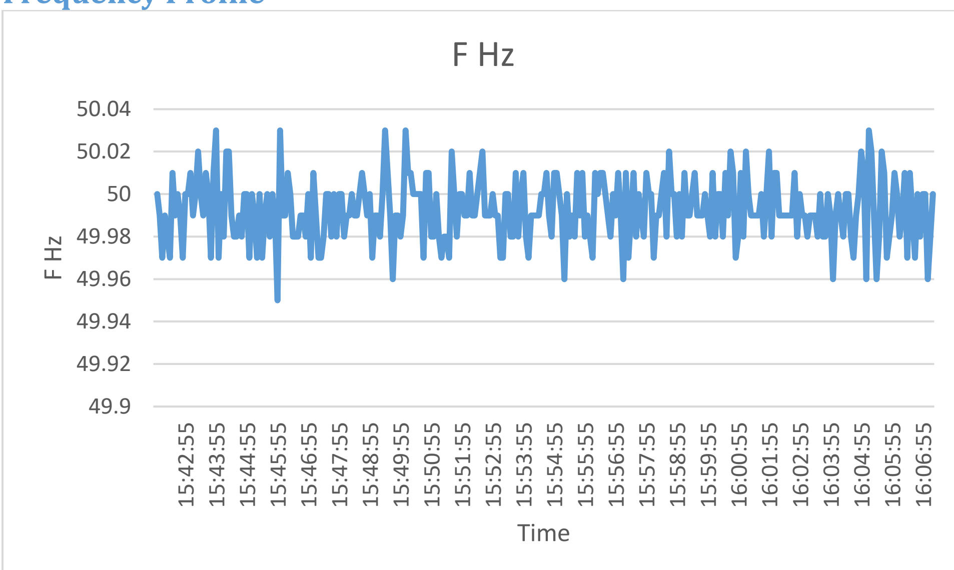
In order to limit this harmonics within permissible limit, the Harmonics Filter should be installed in facility

5.1.31 Power Factor vs Time Profile



- The power factor in the supply system is in lagging state. Minimum power factor is 1.0 and maximum PF is 1.0 , where average PF is 1.0 unity.

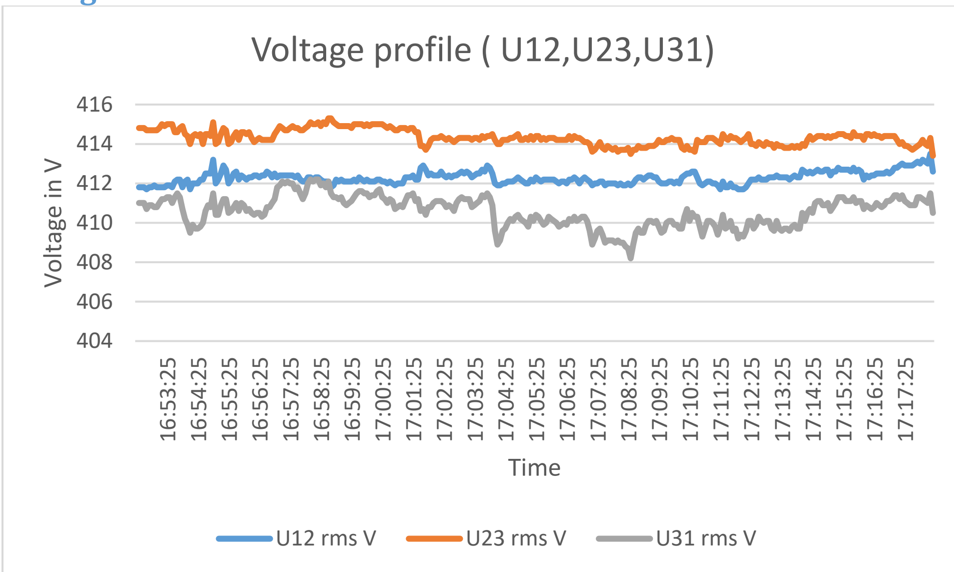
5.1.32 Frequency Profile



The minimum Frequency is 50.0 Hz and maximum is 50.0 Hz where average frequency is 50.00 Hz

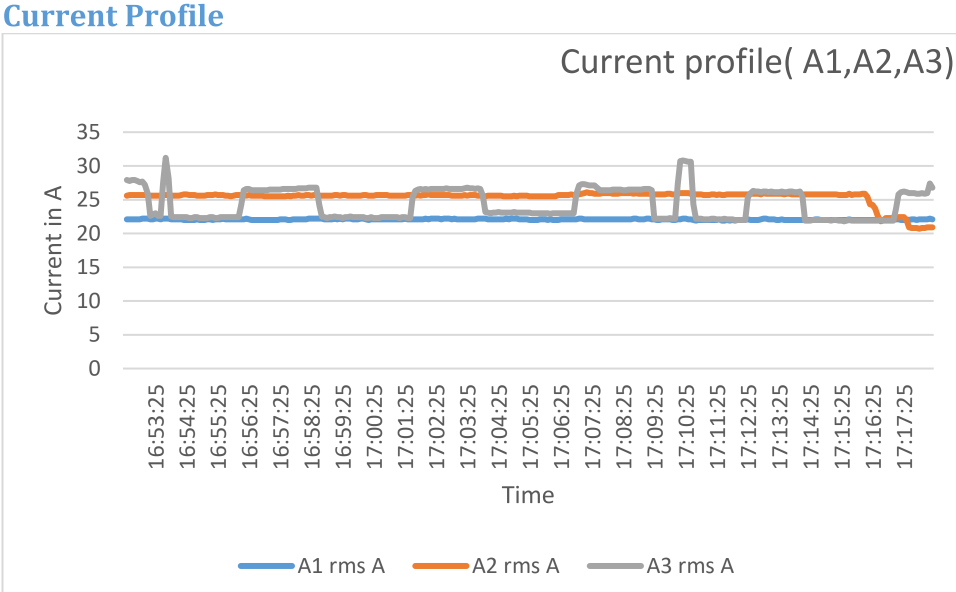
workshop Power Quality

5.1.33 Voltage Profile



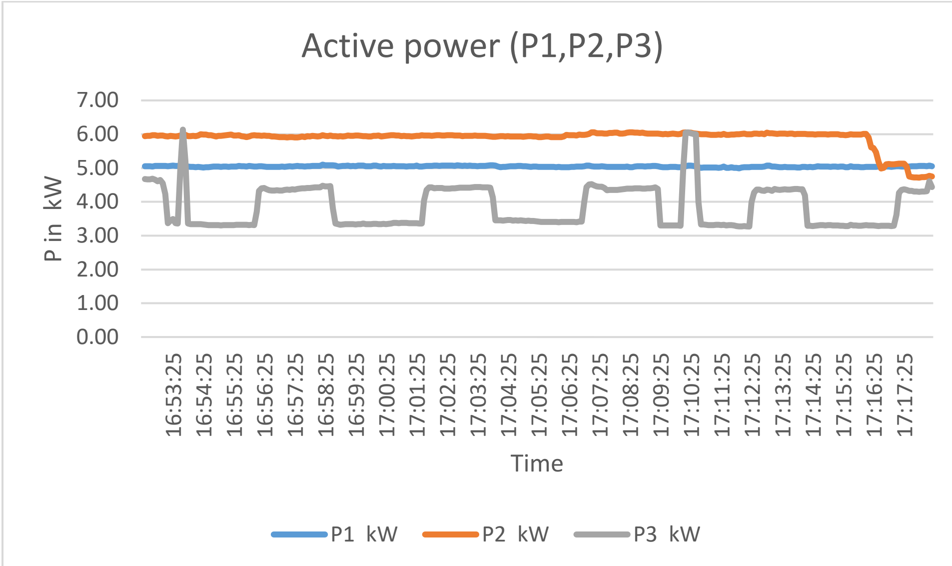
Minimum incoming Voltage recorded is 411.2 V and Maximum is 413.3 V. With average value 412.4 V. Which is in acceptable range.

5.1.34 Current Profile



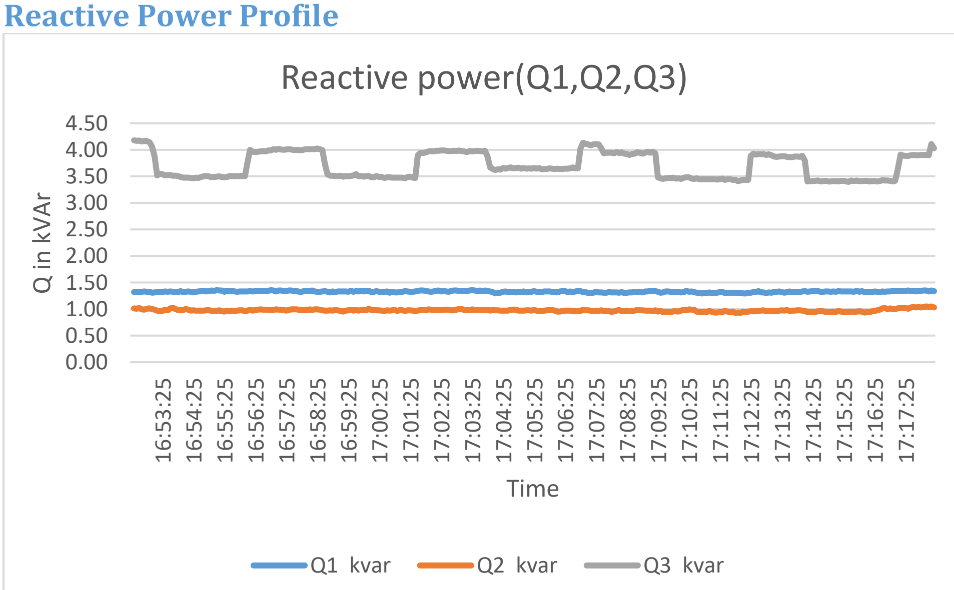
- Minimum incoming Current recorded is 21.9 A and Maximum is 26.4 A. With average value 24.0 A. Variation in current is depends on switching on and off of different electrical loads. However the load is distributed on each phase equally.

5.1.35 Actual Power Profile



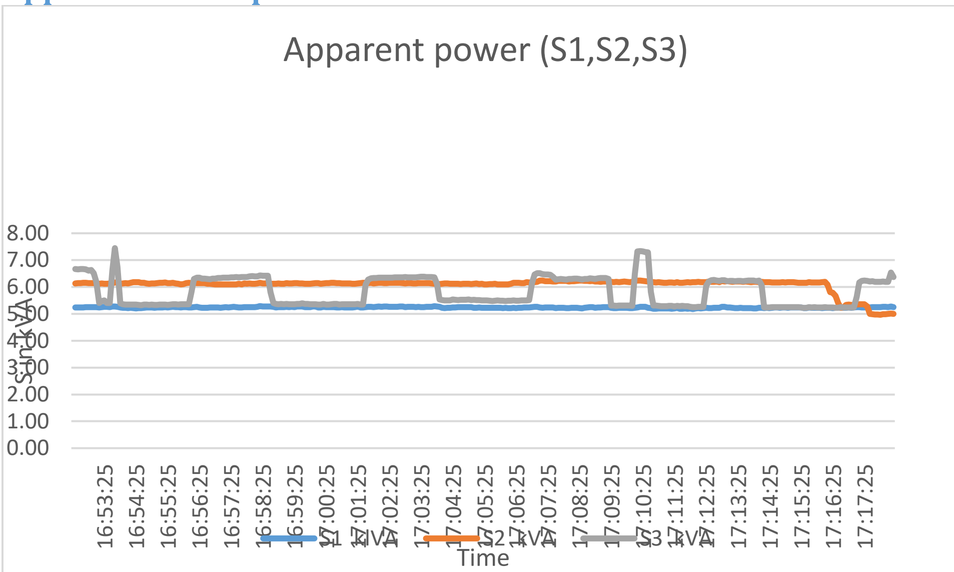
- Minimum incoming Active Power recorded 13.3 kW and Maximum is 17.2 kW. With average value 14.8 kW. Variation in Power is depends on switching on and off of different electrical components.

5.1.36 Reactive Power Profile



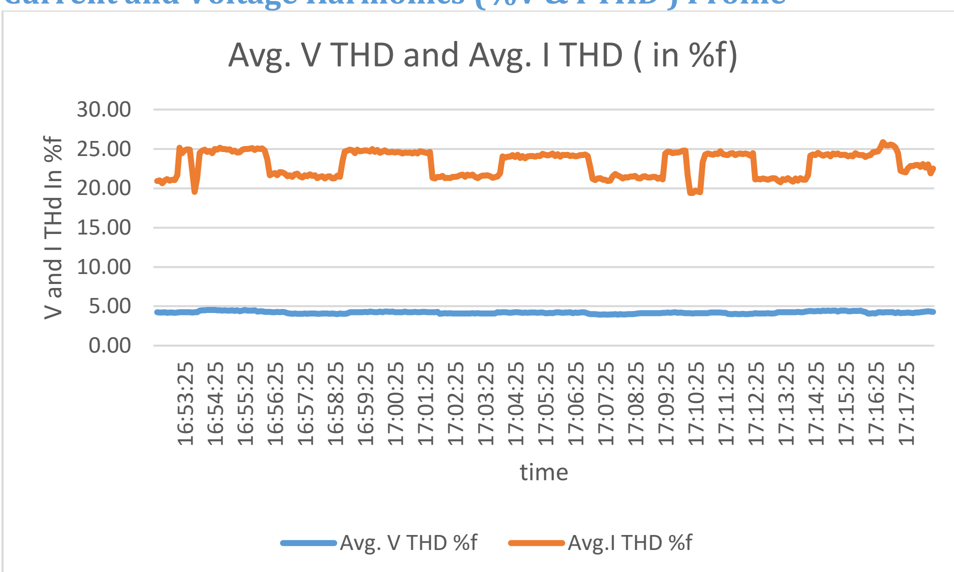
- Minimum incoming Reactive Power recorded 5.7 kVAR and Maximum is 6.5.kVAR.. With average value 6.0 kVAR. It is depends on switching's of load.

5.1.37 Apparent Power profile



Minimum incoming Apparent Power recorded 15.7 KVA and Maximum is 18.9 kVA. With average value 17.1 kVA. It is depends on switching's of load

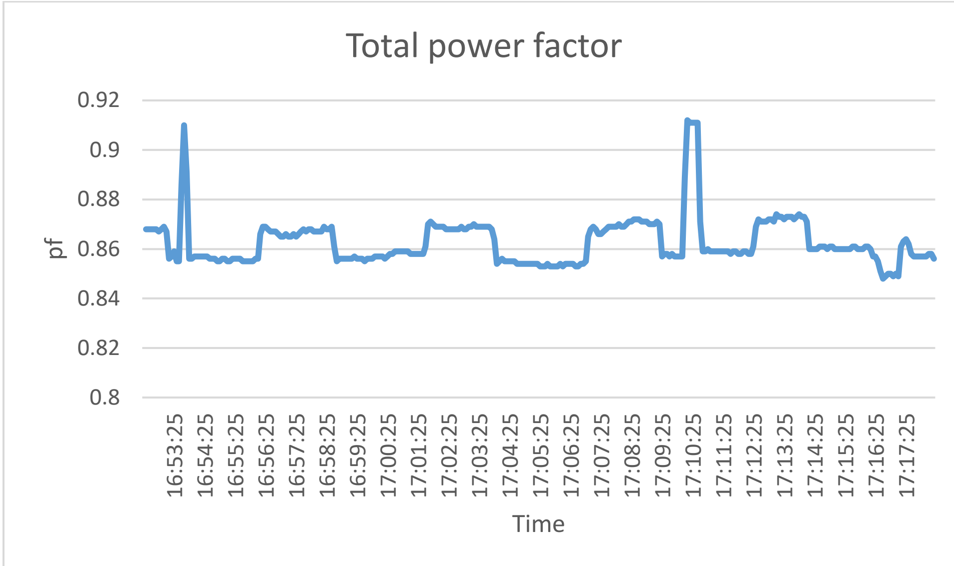
5.1.38 Current and Voltage Harmonics (%V & I THD) Profile



- The maximum voltage harmonic THD are found 4.5 % which is within the IEEE Voltage harmonics permissible limit, i.e. 5%.
- Whereas the maximum current harmonics THD is 25.9 % which is very higher than IEEE Current harmonics permissible limit, i.e 8%.

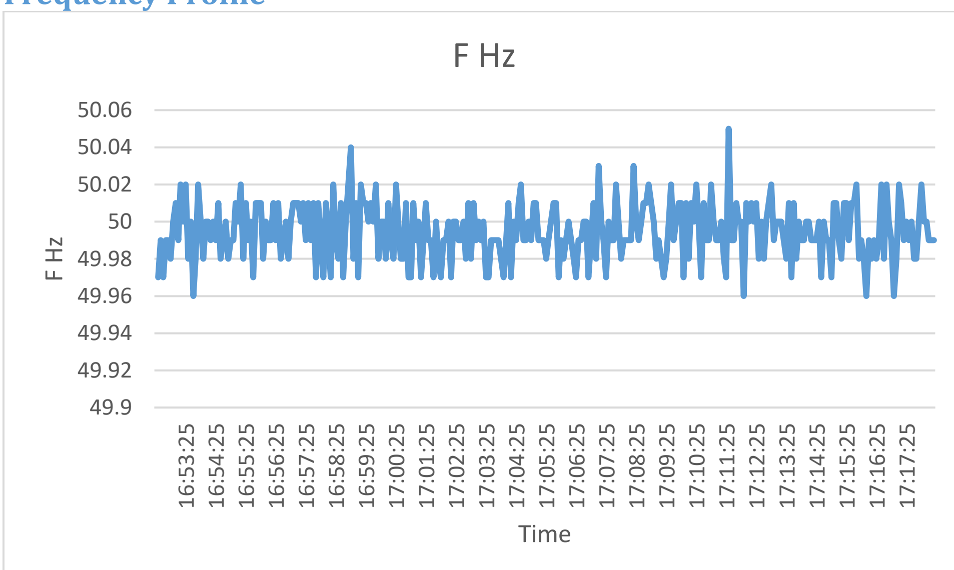
In order to limit this harmonics within permissible limit, the Harmonics Filter should be installed in facility

5.1.39 Power Factor vs Time Profile



- The power factor in the supply system is in lagging state. Minimum power factor is 0.8and maximum PF is 0.9 , where average PF is 0.9lagging.

5.1.40 Frequency Profile



The minimum Frequency is 50.0 Hz and maximum is 50.1 Hz where average frequency is 50.00 Hz

ANNEXURE-01 BEST PRACTICE CHECKLIST

The following are key energy best practices within common systems in industrial facilities. Spreadsheets to estimate the possible energy savings for some of these common system best practices can be found on the enclosed CD-ROM. For more information on these best practices, free technical support to estimate the best practice energy savings for your systems and possible financial incentives call the Focus on Energy - Industrial Program at 800-762-7077.

System	Best Practices	System	Best Practices
Compressed Air		Area Comfort Heating	
	Reduce system pressure		Reduce waste heat
	Repair leaks		De-stratify heated air in plant
	Single vs. two stage		Control heating to desired temperature
	Variable inlet volume		Use infrared heating
	Variable speed control		Optimize CFM air exhausted
	Energy efficient motor		Automatic temperature control
Lighting			Minimize heat to storage areas
	Light meter used to verify levels	Comfort Cooling	
	T-8 or pulse start MH lighting are considered		Install removable insulation
	Occupancy sensors		Minimize unnecessary ventilation
	Lights off during process shutdown		Minimize moisture released
	Task lighting is maximized		Higher efficiency AC
	Night lighting is turned off		Optimize room air temperature
	LED lamps in exit signs	Dehumidification	
Motors			Reduce humidity load
	Premium efficiency motor vs. repair		Accurately controlling humidity
	Cogged belts vs. V-belts		Optimize ventilation
	Premium efficiency motors specified		Desiccant dehumidification
Pumps			Minimize reheat energy
	Trim impeller to meet maximum Load		
	Use VSD instead of throttled control		
	Use VSD instead of bypass control		

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ANNEXURE -02 GENERAL TIPS FOR ENERGY CONSUMPTION

General Tips for Energy Conservation in Different Utilities Systems

Electricity

- Schedule your operations to maintain a high load factor
- Minimize maximum demand by tripping loads through a demand controller
- Use standby electric generation equipment for on-peak high load periods.
- Correct power factor to at least 0.99 under rated load conditions.
- Set transformer taps to optimum settings.
- Shut off unnecessary computers, printers, and copiers at night.

Motors

- Properly size to the load for optimum efficiency.
- (High efficiency motors offer of 4 - 5% higher efficiency than standard motors)
- Check alignment.
- Provide proper ventilation
- (For every 10°C increase in motor operating temperature over recommended peak, the motor life is estimated to be halved)
- Check for under-voltage and over-voltage conditions.
- Balance the three-phase power supply.
- (An Imbalanced voltage can reduce 3 - 5% in motor input power)
- Demand efficiency restoration after motor rewinding.

Drives

- Use variable-speed drives for large variable loads.
- Use high-efficiency gear sets.
- Use precision alignment.
- Check belt tension regularly.
- Eliminate variable-pitch pulleys.
- Use flat belts as alternatives to v-belts.
- Use synthetic lubricants for large gearboxes.
- Eliminate eddy current couplings.
- Shut them off when not needed.

Fans

- Use smooth, well-rounded air inlet cones for fan air intakes.
- Avoid poor flow distribution at the fan inlet.
- Minimize fan inlet and outlet obstructions.
- Clean screens, filters, and fan blades regularly.
- Use aerofoil-shaped fan blades.
- Minimize fan speed.
- Use low-slip or flat belts.
- Check belt tension regularly.
- Eliminate variable pitch pulleys.

- Use variable speed drives for large variable fan loads.
- Use energy-efficient motors for continuous or near-continuous operation
- Eliminate leaks in ductwork.
- Minimize bends in ductwork
- Turn fans off when not needed.

Pumps

- Operate pumping near best efficiency point.
- Modify pumping to minimize throttling.
- Adept to wide load variation with variable speed drives or sequenced control of smaller units.
- Stop running both pumps -- add an auto-start for an on-line spare or add a booster pump in the problem area.
- Use booster pumps for small loads requiring higher pressures.
- Increase fluid temperature differentials to reduce pumping rates.
- Repair seals and packing to minimize water waste.
- Balance the system to minimize flows and reduce pump power requirements.
- Use siphon effect to advantage: don't waste pumping head with a free-fall (gravity) return.

HVAC (Heating / Ventilation / Air Conditioning)

- Tune up the HVAC control system.
- Consider installing a building automation system (BAS) or energy management system (EMS) or restoring an out-of-service one.
- Balance the system to minimize flows and reduce blower/fan/pump power requirements.
- Eliminate or reduce reheat whenever possible.
- Use appropriate HVAC thermostat setback.
- Use building thermal lag to minimize HVAC equipment operating time.
- In winter during unoccupied periods, allow temperatures to fall as low as possible without freezing water lines or damaging stored materials.
- In summer during unoccupied periods, allow temperatures to rise as high as possible without damaging stored materials.
- Improve control and utilization of outside air.
- Use air-to-air heat exchangers to reduce energy requirements for heating and cooling of outside air.
- Reduce HVAC system operating hours (e.g. -- night, weekend).
- Optimize ventilation.
- Ventilate only when necessary. To allow some areas to be shut down when unoccupied, install dedicated HVAC systems on continuous loads (e.g. -- computer rooms).
- Provide dedicated outside air supply to kitchens, cleaning rooms, combustion equipment, etc. to avoid excessive exhausting of conditioned air.
- Use evaporative cooling in dry climates.
- Clean HVAC unit coils periodically and comb mashed fins.
- Upgrade filter banks to reduce pressure drop and thus lower fan power requirements.

- Check HVAC filters on a schedule (at least monthly) and clean/change if appropriate.
- Check pneumatic controls air compressors for proper operation, cycling, and maintenance.
- Isolate air-conditioned loading dock areas and cool storage areas using high-speed doors or clear PVC strip curtains.
- Install ceiling fans to minimize thermal stratification in high-bay areas.
- Relocate air diffusers to optimum heights in areas with high ceilings.
- Consider reducing ceiling heights.
- Eliminate obstructions in front of radiators, baseboard heaters, etc.
- Check reflectors on infrared heaters for cleanliness and proper beam direction.
- Use professionally designed industrial ventilation hoods for dust and vapour control.
- Use local infrared heat for personnel rather than heating the entire area.
- Use spot cooling and heating (e.g. -- use ceiling fans for personnel rather than cooling the entire area).
- Purchase only high-efficiency models for HVAC units.
- Put HVAC window units on timer control.
- Don't oversize cooling units. (Oversized units will "short cycle" which results in poor humidity control.)
- Install multi-fuelling capability and run with the cheapest fuel available at the time.
- Consider dedicated make-up air for exhaust hoods. (Why exhaust the air conditioning or heat if you don't need to?)
- Minimize HVAC fan speeds.
- Consider desiccant drying of outside air to reduce cooling requirements in humid climates.
- Seal leaky HVAC ductwork.
- Seal all leaks around coils.
- Repair loose or damaged flexible connections (including those under air handling units).
- Eliminate simultaneous heating and cooling during seasonal transition periods.
- Zone HVAC air and water systems to minimize energy use.
- Inspect, clean, lubricate, and adjust damper blades and linkages.
- Establish an HVAC efficiency-maintenance program. Start with an energy audit and follow-up, then make an HVAC efficiency-maintenance program a part of your continuous energy management program.

Lighting

- Reduce excessive illumination levels to standard levels using switching; delamping, etc. (Know the electrical effects before doing delamping.)
- Aggressively control lighting with clock timers, delay timers, photocells, and/or occupancy sensors.
- Install efficient alternatives to incandescent lighting, mercury vapour lighting, etc. Efficiency (lumens/watt) of various technologies range from best to worst approximately as follows: low pressure sodium, high-pressure sodium, metal halide, fluorescent, mercury vapour, incandescent.
- Select ballasts and lamps carefully with high power factor and long-term efficiency in mind.

- Upgrade obsolete fluorescent systems to Compact fluorescents and electronic ballasts
- Consider lowering the fixtures to enable using less of them.
- Consider day lighting, skylights, etc.
- Consider painting the walls a lighter colour and using less lighting fixtures or lower wattages.
- Use task lighting and reduce background illumination.
- Re-evaluate exterior lighting strategy, type, and control. Control it aggressively.
- Change exit signs from incandescent to LED.

DG sets

- Optimize loading
- Use waste heat to generate steam/hot water /power absorption chillers or preheat process or utility feeds.
- Use jacket and head cooling water for process needs
- Clean air filters regularly
- Insulate exhaust pipes to reduce DG set room temperatures
- Use cheaper heavy fuel oil for capacities more than 1MW

Buildings

- Seal exterior cracks/openings/gaps with caulk, gasketing, weather stripping, etc.
- Consider new thermal doors, thermal windows, roofing insulation, etc.
- Install windbreaks near exterior doors.
- Replace single-pane glass with insulating glass.
- Consider covering some window and skylight areas with insulated wall panels inside the building.
- If visibility is not required but light is required, consider replacing exterior windows with insulated glass block.
- Consider tinted glass, reflective glass, coatings, awnings, overhangs, draperies, blinds, and shades for sunlit exterior windows.
- Use landscaping to advantage.
- Add vestibules or revolving doors to primary exterior personnel doors.
- Consider automatic doors, air curtains, strip doors, etc. at high-traffic passages between conditioned and non-conditioned spaces. Use self-closing doors if possible.
- Use intermediate doors in stairways and vertical passages to minimize building stack effect.
- Use dock seals at shipping and receiving doors.
- Bring cleaning personnel in during the working day or as soon after as possible to minimize lighting and HVAC costs.

Water & Wastewater

- Recycle water, particularly for uses with less-critical quality requirements.
- Recycle water, especially if sewer costs are based on water consumption.
- Balance closed systems to minimize flows and reduce pump power requirements.
- Eliminate once-through cooling with water.
- Use the least expensive type of water that will satisfy the requirement.

- Fix water leaks.
- Test for underground water leaks. (It's easy to do over a holiday shutdown.)
- Check water overflow pipes for proper operating level.
- Automate blow down to minimize it.
- Provide proper tools for wash down -- especially self-closing nozzles.
- Reduce flows at water sampling stations.
- Eliminate continuous overflow at water tanks.
- Promptly repair leaking toilets and faucets.
- Use water restrictors on faucets, showers, etc.
- Use the lowest possible hot water temperature.
- Do not use a heating system hot water boiler to provide service hot water during the cooling season -- install a smaller, more-efficient system for the cooling season service hot water.
- If water must be heated electrically, consider accumulation in a large insulated storage tank to minimize heating at on-peak electric rates.
- Use multiple, distributed, small water heaters to minimize thermal losses in large piping systems.
- Use freeze protection valves rather than manual bleeding of lines.
- Consider leased and mobile water treatment systems, especially for deionized water.
- Seal sumps to prevent seepage inward from necessitating extra sump pump operation.
- Install pre-treatment to reduce TOC and BOD surcharges.
- Verify the water meter readings. (You'd be amazed how long a meter reading can be estimated after the meter breaks or the meter pit fills with water!)
- Verify the sewer flows if the sewer bills are based on them

Miscellaneous

- Meter any unmetered utilities. Know what normal efficient use is. Track down causes of deviations.
- Shut down spare, idling, or unneeded equipment.
- Make sure that all of the utilities to redundant areas are turned off -- including utilities like compressed air and cooling water.
- Install automatic control to efficiently coordinate multiple air compressors, chillers, cooling tower cells, boilers, etc.
- Renegotiate utilities contracts to reflect current loads and variations.
- Consider buying utilities from neighbours, particularly to handle peaks.
- Leased space often has low-bid inefficient equipment. Consider upgrades if your lease will continue for several more years.
- Adjust fluid temperatures within acceptable limits to minimize undesirable heat transfer in long pipelines.
- Minimize use of flow bypasses and minimize bypass flow rates.
- Provide restriction orifices in purges (nitrogen, steam, etc.).
- Eliminate unnecessary flow measurement orifices.
- Consider alternatives to high-pressure drops across valves.
- Turn off winter heat tracing that is on in summer.

ANNEXURE -03 ELECTRICITY BILL COPY

Ver 1.22.02

1 of 1

MAHAVITARAN
Maharashtra State Electricity Distribution Co. Ltd.

Maharashtra State Electricity Distribution Co. Ltd.

BILL OF SUPPLY FOR THE MONTH OF JUN 2020 202006154099114

GSTIN:27AAECM2933K1ZB Website: www.mahadiscom.in HSN CODE:27160000

VASAI CIRCLE 540 VASAI O&M DN 434 B VASAI RD WEST S/DN 697 1

Consumer No. : 001849021636 M/S VIDYAV
Consumer Name : M/S VIDYAVARDHINI COLLEGE OF ENGG & TECH
Address : VASAI ROAD NAVGHAR TAL VASAI
Village : VASAU Pin Code : 401202

BILL DATE	13-07-2020	23,880.00
DUE DATE	27-07-2020	
IF PAID UPTO	20-07-2020	22,330.00
IF PAID AFTER	27-07-2020	26,230.00

Last Receipt No./Date : 0000044832 / 16-06-2020
Last Month Payment : 3,27,880.00
Scale/Sector : Small Scale

Email ID : ***t_inbox@vcet.edu.in
Activity : COLLEGE & UNVRSITIES
Mobile No.: 98******16 Meter No. : 055 - X0364386
Seasonal : Load Shed Ind INDUST
Sanctioned Load (KW) : 1,000 Connected Load (KW) : 1,000.00
Urban/Rural Flag : U Express Feeder Flag : No
Contract Demand (KVA) : 525 55% of Con. Demand(KVA) : 288.75
Feeder Voltage (KV) : 22 LIS Indicator :
Tariff : 170 HT-VIII B old trf HT-VIII B

Date of Connection :	10-06-1998	Category :	PUBL. SERVICES OTH	GSTIN :	
Supply at:	HT	Elec. Duty :	06 PART B	PAN :	AAATV2687C
Prev. Highest (Mth) :	SEP	Prev. Highest Bill Demand (KVA) :	234		
Security Deposit Held Rs. :	4,47,000.00	Addl. S.D. Demanded Rs.	0.00		
Bank Guarantee Rs. :	0.00	S.D. Arrears Rs. :	0.00		

BILLING HISTORY

Bill Month	Units	Bill Demand(KVA)	Bill Amount
MAY-20	1,585	289	1,65,298
APR-20	1,527	289	1,64,503
MAR-20	14,235	263	3,19,110
FEB-20	21,531	263	4,20,351
JAN-20	21,264	263	4,16,515
DEC-19	15,495	263	3,36,125
NOV-19	18,285	263	3,67,363
OCT-19	27,711	263	4,69,905
SEP-19	24,222	263	5,08,261
AUG-19	26,136	263	4,35,109
JUL-19	30,006	263	4,08,403
JUN-19	18,036	263	3,49,835

CUSTOMER CARE Toll Free No. 1912, 1800-233-3435, 1800-102-3435

IGRC: 2/3 DEEPSHREE BULDG,NAVGHAR (EAST) VASAI RAOD, Phone - 0250-2393373
In case of non-redressal of grievance here, consumer may make his representation to below forum
CGRF: BEHIND "TEJASHREE",JAHANGIR MEHERWANJI RAOD,KALYAN(W), Phone - 0251-2210707

For making **Energy Bill** payment through RTGS/NEFT mode, use following details

- Beneficiary Name: MSEDCL
- Beneficiary Account Number: **MSEDHT01001849021636**
- IFS Code: **SBIN0008965 (fifth,sixth and seventh character is zero)**
- Name of Bank: SBI Bank
- Name of Branch: IFB, BKC Branch-MSEDCL

Disclaimer: Please use above bank details only for payment against consumer number mentioned in beneficiary account number.

- **Tariff Revised w.e.f. 01.04.2020. Tariff Order is available at Mahavitaran Portal.**
- **Physical Bills are not served. You can view and pay bill online at portal https://wss.mahadiscom.in/wss/wss**
- **Consumer can pay bill through portal using various online modes.**
- **As per Income Tax provision vide section 269 ST cash receipt of Rs. 2.00 lakhs and above will not be accepted by MSEDCL against any type of payment.**

Important Message

- Consumers can pay online using Net Banking, Credit/Debit cards at https://wss.mahadiscom.in/wss/wss after registration.
- Submit / update your E-mail id and mobile number to Circle office for receiving prompt alerts through SMS.
- Submit / update your PAN and GSTIN to circle office with copies of PAN and GSTIN for verification.
- Special desk is operational for HT Consumers, please contact : htconsumer@mahadiscom.in for any clarification / query or grievance.
- This Electricity Bill should not be used for the address proof and as a proof of propery ownership.
- For any payment to MSEDCL , ENSURE & INSIST for computerized receipt with unique system generated receipt number. Do not accept hand written receipt. Pay online to avoid any inconvenience.

ANNEXURE -04 INSTRUMENTS LIST

Sr. No.	Model No.	Instrument Sr. No.	Instrument Name
1	LM31	2548/140618	Krykard LM 31-Power Analyser
2	G15	G15-03	ACRON-Ultrasonic Flow Meter
3	BHUFM1000	81700411	BASE-Ultrasonic Flow Meter
4	17.05.GOB	2092	Globlin 1-Power Analyser
5	3510PHW	140610933	MECO- Power Analyser
6	3510PHW	151100113	MECO- Power Analyser
7	AM-4201		49521

ENERGY IS LIFE
BEE
CONSERVE IT

ऊर्जा दक्षता ब्यूरो
(भारत सरकार, विद्युत मंत्रालय)
BUREAU OF ENERGY EFFICIENCY
(Government of India, Ministry of Power)

10/02/Accred./BEE/17/749-59 **04 May, 2017**

Shri Sachin Deshpande
A.R.S. Energy Auditors
A1/101, Pramodoni Palace Chs,
Near Air India Colony, Virar (E),
Maharashtra- 401305

Sub: Application for accreditation as accredited energy auditors- reg.

Sir,

The undersigned is to refer to your application for the accreditation of Energy Auditors and the subsequent Oral interview you had before the Accreditation Advisory Committee at BEE office, New Delhi.

We are pleased to inform that the Accreditation Advisory Committee has recommended your name for the accreditation as Accredited Energy Auditor .The recommendation of Accredited Energy Advisory Committee will be put up to Management Advisory Committee of BEE for approval in its next meeting. After approval, BEE will include your name in the list of Accredited Energy Auditor, maintained by BEE on its website (www.beeindia.nic.in).

Yours faithfully,

Rajini

(Rajini Thomson)
Coordinator (Exam)

स्वहित एवं राष्ट्रहित में ऊर्जा बचाएँ Save Energy for Benefit of Self and Nation

ANNEXURE -06 Power data logging

250 KVA DG set ;

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	12:15:40	410.3	76.1	50.01	39.11	31.59	54.02	0.724	4.87	39.57
13-06-2022	12:15:45	410.4	75.4	49.98	38.61	31.48	53.56	0.72	4.80	39.63
13-06-2022	12:15:50	410.7	75.7	50	39.00	31.39	53.86	0.724	4.83	39.13
13-06-2022	12:15:55	410.4	78.0	49.98	40.57	31.82	55.38	0.732	4.97	38.87
13-06-2022	12:16:00	410.4	77.5	49.97	40.79	31.40	55.06	0.74	4.80	37.67
13-06-2022	12:16:05	410.5	79.4	49.98	42.38	31.62	56.43	0.75	4.83	35.77
13-06-2022	12:16:10	410.2	81.8	49.98	44.63	31.46	58.07	0.768	4.80	36.67
13-06-2022	12:16:15	410.2	84.8	49.95	46.59	32.59	60.24	0.773	4.73	34.37
13-06-2022	12:16:20	410.7	90.4	50	50.24	35.27	64.24	0.782	4.67	30.60
13-06-2022	12:16:25	410.4	91.9	49.97	51.35	35.44	65.28	0.786	4.67	29.80
13-06-2022	12:16:30	410.3	91.3	49.99	51.03	35.23	64.87	0.786	4.67	29.83
13-06-2022	12:16:35	410.3	91.7	49.99	51.24	35.30	65.09	0.787	4.77	29.83
13-06-2022	12:16:40	410.3	92.2	49.99	51.69	35.38	65.47	0.789	4.63	30.20
13-06-2022	12:16:45	410.2	92.8	50	51.80	35.66	65.88	0.786	4.83	30.43
13-06-2022	12:16:50	410.2	85.5	50	45.54	35.09	60.70	0.749	4.60	33.40
13-06-2022	12:16:55	410.9	76.6	50.05	36.99	35.03	54.50	0.678	4.70	37.07
13-06-2022	12:17:00	411.6	71.2	50	32.09	33.94	50.77	0.631	4.70	40.20
13-06-2022	12:17:05	411.2	59.0	50.06	23.06	28.26	42.03	0.546	4.93	45.67
13-06-2022	12:17:10	411.8	56.4	49.98	21.79	26.58	40.27	0.541	4.87	66.83
13-06-2022	12:17:15	410.2	56.8	50.01	22.07	26.84	40.35	0.546	4.90	53.23
13-06-2022	12:17:20	411.7	57.6	49.97	23.77	26.30	41.07	0.578	4.90	59.03
13-06-2022	12:17:25	410.4	61.3	50	26.32	27.73	43.55	0.604	4.83	54.77
13-06-2022	12:17:30	411.1	62.6	50.04	26.57	29.23	44.60	0.595	5.00	44.73
13-06-2022	12:17:35	411.7	62.6	49.98	26.54	29.15	44.63	0.595	4.87	52.47
13-06-2022	12:17:40	410.4	62.9	50.01	27.05	29.21	44.72	0.605	5.00	44.37
13-06-2022	12:17:45	411.0	64.2	49.99	28.43	29.28	45.68	0.622	4.77	52.10
13-06-2022	12:17:50	410.9	70.2	49.95	34.13	29.98	49.92	0.683	4.87	44.23
13-06-2022	12:17:55	410.7	71.4	49.96	35.99	29.68	50.78	0.709	4.83	43.23
13-06-2022	12:18:00	411.0	69.7	50.01	34.71	29.36	49.60	0.699	4.93	42.63
13-06-2022	12:18:05	410.8	67.5	49.97	32.53	29.09	47.99	0.677	4.83	47.03
13-06-2022	12:18:10	411.4	65.8	50	30.83	28.96	46.86	0.657	4.90	42.90
13-06-2022	12:18:15	410.8	63.7	50.02	28.09	29.21	45.33	0.619	5.03	43.53
13-06-2022	12:18:20	410.8	64.1	50	28.16	29.60	45.60	0.617	4.83	50.70
13-06-2022	12:18:25	411.3	66.1	49.99	30.34	29.69	47.12	0.643	4.77	46.97
13-06-2022	12:18:30	410.5	66.9	50.03	30.68	30.06	47.52	0.645	4.90	43.17
13-06-2022	12:18:35	411.3	65.2	50.01	29.48	29.44	46.44	0.634	4.73	50.87
13-06-2022	12:18:40	411.1	63.4	50.01	27.19	29.62	45.15	0.602	4.80	43.63
13-06-2022	12:18:45	410.6	63.3	50	26.77	29.51	44.97	0.595	4.90	51.50
13-06-2022	12:18:50	411.4	63.5	49.96	27.03	29.42	45.19	0.598	4.83	55.27
13-06-2022	12:18:55	410.6	64.0	50.03	27.51	29.76	45.51	0.604	4.90	45.00
13-06-2022	12:19:00	410.5	64.5	49.99	27.93	29.72	45.80	0.61	4.77	53.67

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	12:19:05	411.3	63.5	49.98	27.71	29.14	45.23	0.612	4.73	50.17
13-06-2022	12:19:10	410.7	63.3	50.03	26.93	29.80	45.05	0.597	4.83	45.33
13-06-2022	12:19:15	411.3	63.3	49.98	27.60	28.98	45.07	0.612	4.77	52.53
13-06-2022	12:19:20	410.5	65.8	49.98	28.87	30.00	46.74	0.617	4.93	43.37
13-06-2022	12:19:25	410.5	64.2	50	27.95	29.60	45.62	0.612	4.97	47.67
13-06-2022	12:19:30	410.7	64.5	50	28.27	29.57	45.84	0.616	4.73	52.63
13-06-2022	12:19:35	410.9	63.7	50	27.87	29.25	45.32	0.615	4.73	53.27
13-06-2022	12:19:40	411.1	63.2	50.01	27.63	28.99	45.00	0.614	4.90	45.23
13-06-2022	12:19:45	410.3	63.4	50.01	26.91	29.70	45.06	0.597	4.97	47.80
13-06-2022	12:19:50	410.8	62.3	50	26.21	29.24	44.34	0.591	4.73	57.43
13-06-2022	12:19:55	411.2	62.7	49.98	26.82	29.19	44.65	0.6	4.87	47.07
13-06-2022	12:20:00	410.1	65.2	50	27.86	30.52	46.26	0.602	4.97	43.83
13-06-2022	12:20:05	410.9	62.8	49.96	26.56	29.50	44.73	0.593	4.73	55.57
13-06-2022	12:20:10	411.1	62.9	50	27.12	29.19	44.80	0.605	4.83	45.00
13-06-2022	12:20:15	410.5	63.5	50.01	27.05	29.92	45.18	0.598	4.93	45.87
13-06-2022	12:20:20	411.1	63.2	49.97	26.87	29.74	44.97	0.597	4.70	55.40
13-06-2022	12:20:25	411.1	63.5	49.98	27.46	29.49	45.25	0.606	4.77	55.20
13-06-2022	12:20:30	411.4	62.5	50.01	26.25	29.23	44.54	0.589	5.03	47.00
13-06-2022	12:20:35	410.3	63.0	50.01	26.11	29.79	44.76	0.583	5.03	47.07
13-06-2022	12:20:40	411.0	63.0	49.98	27.32	28.91	44.84	0.609	4.73	56.23
13-06-2022	12:20:45	410.9	63.4	49.98	27.55	29.02	45.11	0.61	4.80	48.60
13-06-2022	12:20:50	410.5	64.6	49.99	28.33	29.49	45.92	0.616	4.90	42.87
13-06-2022	12:20:55	410.4	64.3	50.01	28.25	29.32	45.70	0.618	4.97	42.70
13-06-2022	12:21:00	410.2	63.5	49.98	27.26	29.35	45.09	0.604	4.90	49.30
13-06-2022	12:21:05	411.0	63.2	49.99	27.67	28.79	44.98	0.615	4.77	55.87
13-06-2022	12:21:10	410.7	62.2	50.01	26.41	28.90	44.22	0.597	4.93	48.07
13-06-2022	12:21:15	410.8	62.9	49.96	26.84	29.23	44.75	0.599	4.80	54.87
13-06-2022	12:21:20	410.9	62.9	49.98	27.42	29.08	44.73	0.613	4.90	49.13
13-06-2022	12:21:25	411.3	62.1	49.98	26.47	28.94	44.20	0.598	4.80	51.67
13-06-2022	12:21:30	410.8	61.8	50	26.09	28.97	43.99	0.593	4.87	45.37
13-06-2022	12:21:35	410.9	62.3	50.05	26.63	29.16	44.37	0.6	5.00	43.30
13-06-2022	12:21:40	411.0	61.8	49.98	25.83	29.19	43.98	0.587	4.80	53.67
13-06-2022	12:21:45	410.9	62.3	50.01	26.39	29.16	44.30	0.595	4.90	45.30
13-06-2022	12:21:50	411.2	65.2	49.97	29.35	29.46	46.40	0.632	4.80	49.27
13-06-2022	12:21:55	411.2	65.5	50.01	29.67	29.67	46.65	0.636	4.80	44.07
13-06-2022	12:22:00	410.9	66.0	50.02	30.23	29.47	46.95	0.644	4.80	49.10
13-06-2022	12:22:05	411.5	63.9	49.99	28.48	28.99	45.54	0.624	4.73	52.10
13-06-2022	12:22:10	410.5	63.5	50	27.57	29.13	45.11	0.611	4.90	43.93
13-06-2022	12:22:15	410.5	63.0	50	27.24	29.08	44.79	0.608	4.93	45.07
13-06-2022	12:22:20	410.8	62.3	49.99	26.47	28.98	44.29	0.597	4.77	54.17
13-06-2022	12:22:25	411.2	61.8	49.97	26.49	28.61	44.03	0.601	4.80	51.57
13-06-2022	12:22:30	410.7	63.0	50.03	27.15	29.20	44.77	0.606	4.93	43.97
13-06-2022	12:22:35	410.9	61.6	49.98	25.85	28.99	43.87	0.589	4.80	56.90
13-06-2022	12:22:40	411.4	61.8	49.97	26.41	28.68	44.04	0.599	4.80	55.33
13-06-2022	12:22:45	410.9	62.3	50.02	26.64	29.05	44.35	0.6	4.93	44.27

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	12:22:50	411.0	61.9	49.98	26.10	28.99	44.09	0.592	4.80	54.77
13-06-2022	12:22:55	410.9	62.9	50	27.03	29.13	44.71	0.604	4.80	46.03
13-06-2022	12:23:00	410.2	64.3	49.99	27.88	29.70	45.67	0.61	4.97	46.47
13-06-2022	12:23:05	410.7	63.2	49.98	27.23	29.21	44.97	0.605	4.77	56.17
13-06-2022	12:23:10	411.1	63.3	50	27.74	28.97	45.02	0.616	4.83	47.20
13-06-2022	12:23:15	410.3	63.2	49.98	27.18	29.26	44.94	0.604	4.83	50.43
13-06-2022	12:23:20	411.1	62.9	49.98	27.57	28.80	44.80	0.615	4.87	46.10
13-06-2022	12:23:25	410.4	64.7	50.02	28.55	29.74	46.00	0.62	4.93	44.47
13-06-2022	12:23:30	411.7	60.4	49.98	26.09	26.85	43.06	0.603	4.80	57.27
13-06-2022	12:23:35	409.6	53.3	50.02	21.59	22.21	37.82	0.57	5.17	59.97
13-06-2022	12:23:40	411.1	53.9	50.01	22.14	22.81	38.37	0.577	4.97	67.83
13-06-2022	12:23:45	409.3	53.2	50	20.97	22.66	37.68	0.556	5.20	59.37
13-06-2022	12:23:50	410.7	53.1	50	21.43	22.74	37.78	0.567	5.10	75.00
13-06-2022	12:23:55	410.4	52.7	50	21.68	22.29	37.46	0.578	5.13	67.43
13-06-2022	12:24:00	409.7	52.2	50	20.49	22.47	37.01	0.554	5.13	67.47
13-06-2022	12:24:05	410.9	52.2	50	20.74	22.13	37.17	0.557	4.97	83.57
13-06-2022	12:24:10	410.4	52.5	49.99	20.93	22.18	37.27	0.561	5.17	76.97
13-06-2022	12:24:15	410.1	52.4	50.01	21.00	22.70	37.27	0.563	5.17	63.97
13-06-2022	12:24:20	410.2	55.1	49.99	22.99	23.10	39.12	0.587	4.93	79.53
13-06-2022	12:24:25	409.1	55.6	50.02	23.03	23.44	39.39	0.584	5.10	58.63
13-06-2022	12:24:30	409.9	55.6	49.98	23.35	23.19	39.44	0.592	4.90	78.20
13-06-2022	12:24:35	410.6	55.6	50	23.63	23.12	39.52	0.597	4.97	71.97
13-06-2022	12:24:40	409.2	55.3	50.03	22.53	23.44	39.13	0.576	5.07	59.60
13-06-2022	12:24:45	409.9	55.9	50	23.29	23.54	39.65	0.587	4.87	75.13
13-06-2022	12:24:50	410.4	56.7	49.98	24.07	23.60	40.23	0.598	4.97	67.37
13-06-2022	12:24:55	409.8	55.7	50.02	22.88	23.78	39.53	0.579	5.00	68.77
13-06-2022	12:25:00	409.5	56.2	49.99	23.96	23.22	39.84	0.601	5.13	61.77
13-06-2022	12:25:05	410.2	55.7	50	23.02	23.53	39.52	0.582	4.90	73.37
13-06-2022	12:25:10	409.3	55.5	49.98	23.13	23.06	39.30	0.588	5.20	59.53
13-06-2022	12:25:15	409.6	56.6	49.97	24.03	23.48	40.10	0.599	4.87	71.53
13-06-2022	12:25:20	409.6	56.7	50	24.29	23.39	40.20	0.604	5.10	58.23
13-06-2022	12:25:25	410.4	56.2	50	23.76	23.35	39.93	0.595	4.90	74.33
13-06-2022	12:25:30	409.3	56.4	50	24.11	23.37	39.96	0.603	5.13	55.13
13-06-2022	12:25:35	410.4	56.1	50	23.72	23.41	39.82	0.595	4.87	71.00
13-06-2022	12:25:40	409.2	55.9	50	23.33	23.59	39.60	0.589	5.13	61.13
13-06-2022	12:25:45	410.2	56.4	50	24.45	23.02	40.02	0.61	4.97	62.57
13-06-2022	12:25:50	409.4	57.5	50.03	24.17	24.31	40.70	0.593	5.10	61.17
13-06-2022	12:25:55	409.8	56.1	49.94	23.48	23.44	39.74	0.59	4.90	78.00
13-06-2022	12:26:00	410.2	68.9	50.04	31.23	31.26	48.89	0.639	4.80	49.33
13-06-2022	12:26:05	410.5	65.9	49.99	29.59	29.95	46.84	0.631	4.80	44.63
13-06-2022	12:26:10	409.9	67.9	49.99	30.88	30.62	48.17	0.641	4.87	46.00
13-06-2022	12:26:15	410.5	66.8	50.03	30.48	30.28	47.46	0.642	4.90	45.50
13-06-2022	12:26:20	410.3	66.9	50	30.23	30.25	47.51	0.636	4.87	49.30
13-06-2022	12:26:25	410.0	67.6	50.01	30.85	30.29	47.93	0.643	4.93	42.27
13-06-2022	12:26:30	410.1	66.9	50.01	30.38	30.02	47.48	0.64	4.70	51.33

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	12:26:35	410.7	61.4	50.01	27.04	26.74	43.62	0.619	4.93	52.60
13-06-2022	12:26:40	409.7	61.4	50.01	26.90	26.62	43.49	0.618	5.17	48.53
13-06-2022	12:26:45	409.7	61.9	49.99	27.06	27.03	43.89	0.616	5.00	55.00
13-06-2022	12:26:50	410.2	60.2	50	26.07	26.21	42.75	0.609	4.90	64.57
13-06-2022	12:26:55	410.4	59.8	49.99	26.03	25.99	42.48	0.612	4.90	61.67
13-06-2022	12:27:00	410.4	59.6	50.01	25.56	26.21	42.32	0.604	5.00	52.33
13-06-2022	12:27:05	410.0	60.5	49.98	25.89	26.80	42.91	0.603	5.10	48.37
13-06-2022	12:27:10	409.9	61.7	50.01	27.00	26.95	43.74	0.617	5.00	55.30
13-06-2022	12:27:15	410.2	59.8	50.01	25.67	26.34	42.49	0.604	4.83	63.03
13-06-2022	12:27:20	410.5	59.7	49.97	26.01	25.88	42.42	0.613	4.83	63.57
13-06-2022	12:27:25	410.4	60.0	50	26.26	26.04	42.65	0.615	4.97	53.17
13-06-2022	12:27:30	409.8	60.3	50	25.82	26.53	42.76	0.604	5.13	49.33
13-06-2022	12:27:35	409.8	60.7	49.97	26.45	26.33	43.03	0.614	4.87	63.43
13-06-2022	12:27:40	410.4	60.6	50	26.79	25.90	43.01	0.623	4.90	59.50
13-06-2022	12:27:45	410.0	60.6	49.99	26.49	26.09	42.94	0.616	4.97	52.00
13-06-2022	12:27:50	410.0	61.0	50	27.00	26.21	43.28	0.623	5.10	48.30
13-06-2022	12:27:55	410.0	60.6	49.99	26.64	26.12	43.01	0.619	5.10	48.40
13-06-2022	12:28:00	409.8	60.9	50.01	26.49	26.42	43.15	0.614	5.10	49.83
13-06-2022	12:28:05	409.9	61.5	49.98	27.21	26.49	43.59	0.624	4.93	58.13
13-06-2022	12:28:10	410.4	60.8	49.99	26.77	26.15	43.13	0.62	4.87	62.03
13-06-2022	12:28:15	410.3	61.3	50	27.04	26.60	43.50	0.621	4.97	56.07
13-06-2022	12:28:20	410.5	60.7	50	26.79	26.42	43.15	0.62	5.07	47.83
13-06-2022	12:28:25	409.9	60.6	49.99	26.23	26.69	43.01	0.61	4.97	55.83
13-06-2022	12:28:30	410.5	60.5	49.99	26.72	26.13	42.99	0.621	4.90	63.63
13-06-2022	12:28:35	410.3	73.7	49.96	34.59	33.63	52.38	0.66	4.73	39.23
13-06-2022	12:28:40	410.3	73.3	50	34.25	33.72	52.07	0.658	4.70	42.00
13-06-2022	12:28:45	410.4	73.9	49.97	34.92	33.76	52.52	0.665	4.73	38.67
13-06-2022	12:28:50	410.5	74.3	49.99	35.24	33.86	52.79	0.667	4.77	38.37
13-06-2022	12:28:55	410.6	74.1	50	35.68	33.47	52.71	0.676	4.70	39.53
13-06-2022	12:29:00	410.3	75.5	50	36.76	33.83	53.67	0.685	4.73	37.43
13-06-2022	12:29:05	410.5	74.3	50.02	35.25	33.94	52.78	0.668	4.70	38.63
13-06-2022	12:29:10	410.4	73.9	49.98	35.02	33.75	52.51	0.666	4.67	40.93
13-06-2022	12:29:15	410.3	74.4	50.03	35.39	33.99	52.90	0.669	4.73	39.43
13-06-2022	12:29:20	410.7	73.2	49.99	34.64	33.47	52.06	0.665	4.67	40.63
13-06-2022	12:29:25	410.5	73.6	49.99	34.77	33.85	52.32	0.664	4.73	40.37
13-06-2022	12:29:30	410.3	73.7	49.99	34.89	33.64	52.40	0.666	4.77	39.57
13-06-2022	12:29:35	410.8	73.0	50	34.44	33.40	51.90	0.663	4.73	40.87
13-06-2022	12:29:40	410.4	73.9	49.97	34.86	34.04	52.52	0.663	4.77	39.07
13-06-2022	12:29:45	410.3	73.7	49.99	34.75	33.76	52.34	0.664	4.77	38.43
13-06-2022	12:29:50	410.5	74.2	50	35.30	33.72	52.74	0.669	4.73	41.13
13-06-2022	12:29:55	410.6	74.1	50.01	35.96	33.30	52.71	0.682	4.73	39.13
13-06-2022	12:30:00	410.2	74.0	49.99	35.23	33.66	52.55	0.67	4.67	39.57
13-06-2022	12:30:05	410.3	74.2	50.01	35.42	33.76	52.70	0.672	4.70	38.10
13-06-2022	12:30:10	410.3	74.3	49.98	35.89	33.31	52.76	0.68	4.70	38.33
13-06-2022	12:30:15	410.1	74.8	50	35.80	33.82	53.04	0.675	4.67	39.93

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	12:30:20	410.6	74.4	49.99	35.88	33.52	52.85	0.678	4.67	39.60
13-06-2022	12:30:25	410.4	74.3	50.01	35.83	33.48	52.79	0.678	4.70	38.47
13-06-2022	12:30:30	410.1	74.3	50.01	34.96	34.27	52.78	0.662	4.67	39.67
13-06-2022	12:30:35	410.6	73.6	49.97	35.28	33.45	52.29	0.674	4.67	40.17
13-06-2022	12:30:40	410.2	73.4	49.99	34.86	33.52	52.10	0.669	4.73	39.27
13-06-2022	12:30:45	410.8	72.9	49.98	34.51	33.33	51.81	0.666	4.63	39.53
13-06-2022	12:30:50	410.6	73.7	50.02	35.20	33.47	52.38	0.672	4.67	38.70
13-06-2022	12:30:55	410.2	73.1	50	34.41	33.55	51.92	0.662	4.67	40.37
13-06-2022	12:31:00	410.7	73.3	49.99	34.74	33.67	52.13	0.666	4.67	39.07
13-06-2022	12:31:05	410.6	73.4	50	35.19	33.30	52.15	0.674	4.67	38.93
13-06-2022	12:31:10	410.5	72.9	50	34.49	33.47	51.81	0.665	4.70	39.87
13-06-2022	12:31:15	410.5	73.6	49.99	35.08	33.61	52.28	0.67	4.67	39.60
13-06-2022	12:31:20	410.3	73.6	49.99	35.33	33.27	52.30	0.675	4.67	38.70
13-06-2022	12:31:25	410.2	73.7	50	35.07	33.59	52.34	0.67	4.67	40.23
13-06-2022	12:31:30	410.4	74.2	50	35.83	33.42	52.69	0.68	4.67	39.27
13-06-2022	12:31:35	410.1	74.1	50	35.68	33.35	52.58	0.678	4.73	39.87
13-06-2022	12:31:40	410.1	73.8	50.02	35.14	33.46	52.36	0.671	4.70	39.87
13-06-2022	12:31:45	410.2	73.3	49.98	35.22	32.85	52.05	0.676	4.70	40.83
13-06-2022	12:31:50	410.3	73.0	50.01	34.56	33.11	51.83	0.666	4.73	38.50
13-06-2022	12:31:55	410.7	71.8	49.97	34.04	32.38	51.00	0.667	4.67	41.77
13-06-2022	12:32:00	410.4	73.1	50.01	34.65	33.10	51.94	0.667	4.70	39.30
13-06-2022	12:32:05	410.1	73.0	49.98	34.36	33.09	51.80	0.663	4.70	41.07
13-06-2022	12:32:10	410.2	74.5	49.98	35.70	33.55	52.86	0.675	4.70	38.13
13-06-2022	12:32:15	410.5	74.0	50.01	35.78	33.24	52.56	0.68	4.73	38.73
13-06-2022	12:32:20	410.6	72.9	50	35.16	32.76	51.85	0.678	4.70	39.10
13-06-2022	12:32:25	410.4	73.9	49.99	35.61	33.15	52.52	0.678	4.67	39.97
13-06-2022	12:32:30	410.4	73.5	49.98	35.55	32.79	52.24	0.68	4.63	40.20
13-06-2022	12:32:35	410.0	73.4	50	34.67	33.41	52.11	0.665	4.73	38.70
13-06-2022	12:32:40	410.6	73.6	50	35.52	33.02	52.31	0.679	4.70	39.17
13-06-2022	12:32:45	410.2	72.6	49.99	34.16	33.27	51.53	0.663	4.67	39.80
13-06-2022	12:32:50	410.8	72.8	50	34.37	33.25	51.73	0.664	4.70	40.07
13-06-2022	12:32:55	410.9	72.3	50	34.29	32.86	51.43	0.666	4.63	40.93
13-06-2022	12:33:00	410.7	70.3	50.01	32.25	32.81	50.02	0.645	4.77	39.83
13-06-2022	12:33:05	411.4	69.2	49.98	32.03	31.89	49.29	0.649	4.60	44.00
13-06-2022	12:33:10	410.5	70.8	49.99	32.76	32.67	50.34	0.651	4.73	40.90
13-06-2022	12:33:15	411.3	69.6	49.99	32.40	31.90	49.58	0.653	4.70	41.00
13-06-2022	12:33:20	410.8	70.2	50.01	32.85	32.25	49.96	0.657	4.80	40.37
13-06-2022	12:33:25	410.7	61.6	50.04	27.02	27.42	43.76	0.615	4.83	57.00
13-06-2022	12:33:30	410.8	57.7	49.99	24.81	25.12	41.04	0.604	4.87	57.13
13-06-2022	12:33:35	411.0	57.6	49.99	24.61	25.44	40.99	0.6	4.87	57.73
13-06-2022	12:33:40	410.1	57.5	50.01	24.33	25.58	40.87	0.595	4.87	55.67
13-06-2022	12:33:45	410.6	56.9	49.99	24.13	25.19	40.49	0.595	5.00	53.13
13-06-2022	12:33:50	411.4	57.3	49.98	24.50	25.26	40.79	0.6	4.87	59.73
13-06-2022	12:33:55	410.1	56.8	50.02	23.46	25.52	40.33	0.582	4.97	52.47
13-06-2022	12:34:00	411.2	56.9	49.96	24.05	25.16	40.50	0.593	4.90	67.13

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	12:34:05	410.2	57.3	50.02	24.19	25.50	40.74	0.593	4.90	54.80
13-06-2022	12:34:10	411.2	56.6	49.97	23.81	25.10	40.35	0.59	4.87	66.07
13-06-2022	12:34:15	410.1	57.5	50.03	24.28	25.59	40.81	0.595	5.10	48.57
13-06-2022	12:34:20	410.9	57.1	50	24.10	25.24	40.66	0.593	4.87	63.50
13-06-2022	12:34:25	410.9	57.2	49.97	24.53	24.93	40.70	0.602	4.97	55.00
13-06-2022	12:34:30	410.2	58.0	50.04	24.76	25.65	41.20	0.601	4.90	54.27
13-06-2022	12:34:35	410.8	57.1	50.01	24.42	24.96	40.61	0.601	4.93	53.93
13-06-2022	12:34:40	410.9	57.9	49.97	24.63	25.63	41.16	0.598	4.80	58.90
13-06-2022	12:34:45	410.4	58.8	50	25.75	25.71	41.77	0.616	4.97	48.90
13-06-2022	12:34:50	410.6	58.2	50	24.91	25.82	41.36	0.602	4.90	55.87
13-06-2022	12:34:55	410.6	58.8	50.01	25.86	25.50	41.77	0.619	4.90	53.90
13-06-2022	12:35:00	410.9	59.1	50	26.06	25.73	42.05	0.62	4.87	59.77
13-06-2022	12:35:05	410.9	58.1	49.98	25.41	25.43	41.35	0.614	4.90	59.40
13-06-2022	12:35:10	411.0	58.7	49.98	25.92	25.53	41.80	0.62	4.90	55.00
13-06-2022	12:35:15	410.5	59.2	50	26.21	25.67	42.09	0.623	5.03	47.23
13-06-2022	12:35:20	410.6	58.9	50	25.69	25.88	41.86	0.613	5.07	48.10
13-06-2022	12:35:25	410.6	58.9	50	25.93	25.81	41.90	0.619	5.00	52.07
13-06-2022	12:35:30	410.8	58.3	50.01	25.38	25.57	41.45	0.612	4.83	63.53
13-06-2022	12:35:35	411.1	58.3	49.95	25.52	25.45	41.47	0.615	4.90	56.43
13-06-2022	12:35:40	410.3	58.6	50.02	25.78	25.66	41.68	0.618	4.97	53.07
13-06-2022	12:35:45	411.2	57.6	50	24.92	25.29	41.00	0.608	4.77	60.13
13-06-2022	12:35:50	410.0	58.3	50.04	25.02	25.82	41.41	0.604	4.77	53.90
13-06-2022	12:35:55	410.9	58.3	49.99	25.68	25.34	41.52	0.618	4.93	53.07
13-06-2022	12:36:00	410.4	58.1	50.02	24.74	25.96	41.31	0.599	4.90	56.60
13-06-2022	12:36:05	411.2	58.0	49.97	25.57	25.13	41.32	0.618	4.83	58.50
13-06-2022	12:36:10	410.6	59.3	50	26.37	25.73	42.15	0.625	4.93	47.50
13-06-2022	12:36:15	410.3	59.5	49.99	26.33	25.86	42.27	0.623	4.90	54.13
13-06-2022	12:36:20	410.5	59.9	49.99	27.35	25.37	42.60	0.642	4.87	59.83
13-06-2022	12:36:25	410.8	58.9	50	26.10	25.50	41.88	0.623	4.80	62.40
13-06-2022	12:36:30	410.6	57.9	49.99	25.13	25.56	41.13	0.61	4.93	58.57
13-06-2022	12:36:35	410.8	58.2	50	25.41	25.53	41.38	0.614	4.90	60.97
13-06-2022	12:36:40	410.9	58.7	49.98	25.98	25.15	41.78	0.622	4.83	57.27
13-06-2022	12:36:45	410.1	58.7	50	25.53	25.42	41.69	0.612	5.07	48.50
13-06-2022	12:36:50	409.9	60.0	49.98	26.75	25.34	42.57	0.628	4.87	62.37
13-06-2022	12:36:55	409.9	60.2	50	27.15	24.78	42.69	0.636	4.87	64.47
13-06-2022	12:37:00	409.9	60.0	50	27.01	24.69	42.53	0.635	4.90	63.37
13-06-2022	12:37:05	410.0	59.6	50	26.65	24.62	42.29	0.63	5.00	52.93
13-06-2022	12:37:10	409.5	59.6	49.99	26.06	25.01	42.22	0.617	5.07	49.13
13-06-2022	12:37:15	409.8	59.2	49.97	26.08	24.79	41.93	0.622	5.00	53.73
13-06-2022	12:37:20	410.0	58.7	50.02	25.70	24.69	41.65	0.617	4.97	57.37
13-06-2022	12:37:25	409.8	58.8	50.01	25.13	25.23	41.67	0.603	5.00	55.97
13-06-2022	12:37:30	410.1	58.9	50.02	25.75	25.03	41.81	0.615	4.83	67.03
13-06-2022	12:37:35	410.1	57.4	50.01	24.27	24.71	40.74	0.595	4.83	66.43
13-06-2022	12:37:40	411.1	52.0	50.02	20.12	21.86	37.02	0.539	4.93	73.57
13-06-2022	12:37:45	410.1	45.9	50	16.06	17.47	32.63	0.492	5.23	102.57

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	12:37:50	409.3	45.9	49.98	14.96	18.12	32.54	0.459	5.20	103.97
13-06-2022	12:37:55	410.3	45.3	49.97	14.83	17.95	32.17	0.461	5.30	96.27
13-06-2022	12:38:00	409.9	45.5	50.02	14.77	18.40	32.26	0.457	5.30	89.13
13-06-2022	12:38:05	410.3	44.6	49.98	14.10	17.85	31.69	0.445	5.27	119.70
13-06-2022	12:38:10	410.2	45.0	49.98	14.34	18.16	31.92	0.449	5.33	98.23
13-06-2022	12:38:15	410.3	44.6	49.98	13.87	18.08	31.72	0.437	5.23	106.23
13-06-2022	12:38:20	410.3	44.5	49.99	13.58	18.03	31.60	0.429	5.23	101.10
13-06-2022	12:38:25	409.8	46.0	49.97	15.88	18.11	32.63	0.486	5.23	108.47
13-06-2022	12:38:30	409.6	49.0	50	20.40	18.33	34.76	0.586	5.30	85.37
13-06-2022	12:38:35	410.1	54.1	49.95	26.10	18.59	38.41	0.676	5.23	70.57
13-06-2022	12:38:40	410.3	67.6	49.95	38.77	19.55	48.04	0.806	5.27	48.57
13-06-2022	12:38:45	410.0	71.0	50	41.63	19.71	50.36	0.826	5.17	45.13
13-06-2022	12:38:50	410.1	71.8	49.99	42.25	19.77	50.95	0.829	5.17	44.50
13-06-2022	12:38:55	410.0	70.5	50	41.19	19.62	50.03	0.823	5.20	45.50
13-06-2022	12:39:00	410.6	56.1	50.1	26.96	19.44	39.82	0.668	5.20	71.73
13-06-2022	12:39:05	409.9	45.4	50.01	14.19	18.29	32.23	0.44	5.30	101.43
13-06-2022	12:39:10	410.3	44.3	49.98	13.35	17.73	31.45	0.424	5.33	121.27
13-06-2022	12:39:15	409.6	44.7	49.99	13.04	18.16	31.70	0.411	5.23	107.73
13-06-2022	12:39:20	410.1	44.8	49.98	14.10	17.79	31.80	0.443	5.37	104.07
13-06-2022	12:39:25	409.7	45.1	49.99	13.68	18.20	31.96	0.427	5.27	92.43
13-06-2022	12:39:30	410.1	45.0	49.97	13.93	17.99	31.93	0.436	5.43	86.07
13-06-2022	12:39:35	409.4	45.5	49.99	14.69	18.07	32.29	0.455	5.33	99.87
13-06-2022	12:39:40	331.6	45.6	50.02	13.12	14.54	26.71	0.515	5.33	97.37
13-06-2022	12:39:45	294.7	46.6	50.01	8.65	5.59	24.77	0.392	5.13	111.67
13-06-2022	12:39:50	409.4	47.5	50.02	9.32	1.41	33.67	0.276	5.20	111.93
13-06-2022	12:39:55	270.9	47.3	50.01	10.69	7.06	23.44	0.516	5.53	93.80
13-06-2022	12:40:00	397.3	48.0	49.97	16.97	17.57	33.36	0.508	5.23	96.77
13-06-2022	12:40:05	408.7	49.3	49.99	18.34	18.86	34.86	0.526	5.33	76.33
13-06-2022	12:40:10	409.3	48.6	49.99	18.02	18.65	34.38	0.524	5.37	81.50
13-06-2022	12:40:15	409.4	48.0	49.98	17.75	18.45	34.02	0.521	5.17	104.20
13-06-2022	12:40:20	410.1	46.0	50	15.39	18.45	32.64	0.471	5.23	97.73
13-06-2022	12:40:25	410.3	45.1	49.98	14.44	18.29	32.05	0.45	5.33	90.73
13-06-2022	12:40:30	410.3	45.7	49.99	15.14	18.54	32.43	0.467	5.23	99.67
13-06-2022	12:40:35	410.4	44.4	49.98	13.74	18.09	31.61	0.434	5.23	108.77
13-06-2022	12:40:40	410.2	44.6	49.99	13.68	18.14	31.67	0.431	5.30	108.47
13-06-2022	12:40:45	410.3	44.5	50	13.77	18.14	31.64	0.435	5.30	106.90
13-06-2022	12:40:50	410.1	44.1	50	13.11	18.16	31.30	0.419	5.27	95.07
13-06-2022	12:40:55	410.1	44.8	49.99	13.68	18.42	31.78	0.43	5.13	119.60
13-06-2022	12:41:00	410.2	44.8	49.98	13.68	18.24	31.79	0.43	5.33	88.87
13-06-2022	12:41:05	410.2	44.2	49.99	13.22	18.05	31.40	0.421	5.47	90.30
13-06-2022	12:41:10	410.3	46.7	49.98	16.74	18.05	33.20	0.502	5.37	81.70
13-06-2022	12:41:15	409.7	50.3	49.99	21.08	18.57	35.67	0.591	5.27	70.93
13-06-2022	12:41:20	410.5	51.0	49.99	21.63	18.60	36.22	0.597	5.03	97.27
13-06-2022	12:41:25	409.7	53.2	49.97	23.29	19.11	37.75	0.616	5.33	72.73
13-06-2022	12:41:30	409.9	49.1	50.02	18.24	18.76	34.80	0.523	5.33	89.03

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	12:41:35	408.1	48.9	49.99	17.55	19.06	34.49	0.507	5.03	116.57
13-06-2022	12:41:40	411.5	55.0	50	21.56	24.95	39.15	0.55	5.03	60.90
13-06-2022	12:41:45	410.0	54.0	49.99	20.54	24.59	38.32	0.536	5.03	54.73
13-06-2022	12:41:50	410.8	54.4	50.01	21.23	24.94	38.75	0.548	5.07	60.67
13-06-2022	12:41:55	410.4	54.0	50.02	20.73	24.99	38.37	0.54	4.93	68.13
13-06-2022	12:42:00	410.7	53.6	49.97	20.40	24.37	38.08	0.535	5.00	64.27
13-06-2022	12:42:05	410.3	53.7	50	20.88	24.47	38.13	0.547	5.07	62.37
13-06-2022	12:42:10	410.4	53.6	50	20.53	24.44	38.08	0.539	5.10	53.47
13-06-2022	12:42:15	410.3	53.8	50.02	20.55	24.76	38.22	0.537	5.07	57.37
13-06-2022	12:42:20	410.1	53.8	49.99	21.11	24.56	38.19	0.552	5.07	59.37
13-06-2022	12:42:25	410.9	54.1	50	20.56	24.82	38.44	0.535	4.97	54.03
13-06-2022	12:42:30	410.4	54.2	49.98	20.52	25.04	38.52	0.532	5.07	58.07
13-06-2022	12:42:35	410.8	53.0	49.98	20.12	24.19	37.69	0.534	5.00	58.03
13-06-2022	12:42:40	410.5	52.9	50	18.79	24.75	37.56	0.5	5.10	53.17
13-06-2022	12:42:45	410.1	53.3	50.03	19.32	24.77	37.88	0.509	5.07	53.00
13-06-2022	12:42:50	409.7	53.8	50.03	19.91	24.65	38.14	0.521	4.97	63.50
13-06-2022	12:42:55	411.0	52.4	49.97	18.55	24.30	37.27	0.497	4.97	73.53
13-06-2022	12:43:00	409.9	52.7	50.01	19.01	24.54	37.38	0.508	5.00	68.43
13-06-2022	12:43:05	409.7	55.2	49.95	22.15	24.85	39.16	0.564	5.00	64.20
13-06-2022	12:43:10	410.8	73.3	49.96	35.80	32.51	52.15	0.685	4.77	39.60
13-06-2022	12:43:15	410.8	88.2	49.99	49.99	33.01	62.77	0.795	4.67	31.17
13-06-2022	12:43:20	410.4	92.3	50.01	53.45	33.16	65.60	0.814	4.67	29.13
13-06-2022	12:43:25	410.4	93.6	49.97	54.56	33.23	66.54	0.82	4.70	28.80
13-06-2022	12:43:30	410.3	94.3	50	55.12	33.25	67.03	0.822	4.73	28.43
13-06-2022	12:43:35	410.2	92.7	49.97	53.61	33.26	65.84	0.814	4.70	29.10
13-06-2022	12:43:40	410.3	92.9	50.01	53.85	33.25	66.00	0.816	4.70	28.90
13-06-2022	12:43:45	410.2	87.8	50.02	49.54	32.83	62.35	0.794	4.70	31.10
13-06-2022	12:43:50	410.5	71.7	50.06	34.16	32.25	50.90	0.667	4.80	40.40
13-06-2022	12:43:55	410.7	64.8	49.98	26.82	31.76	46.06	0.582	4.83	42.50
13-06-2022	12:44:00	410.9	65.1	49.98	26.87	31.86	46.30	0.58	4.60	50.90
13-06-2022	12:44:05	410.9	64.8	49.98	26.55	31.92	46.09	0.576	4.83	42.43
13-06-2022	12:44:10	410.7	65.4	49.99	27.36	31.97	46.51	0.588	4.83	41.07
13-06-2022	12:44:15	410.6	65.5	49.97	27.24	31.93	46.56	0.585	4.67	49.10
13-06-2022	12:44:20	411.1	65.5	49.99	27.74	31.69	46.63	0.594	4.73	42.63
13-06-2022	12:44:25	410.6	65.8	50.02	28.10	31.89	46.76	0.601	4.80	44.07
13-06-2022	12:44:30	410.4	66.0	49.97	28.00	31.71	46.90	0.596	4.70	49.67
13-06-2022	12:44:35	410.3	66.9	49.98	29.03	31.67	47.52	0.611	4.67	49.23
13-06-2022	12:44:40	410.6	68.3	49.98	30.40	31.95	48.52	0.626	4.73	41.23
13-06-2022	12:44:45	409.9	68.7	49.99	30.01	32.59	48.72	0.615	4.70	43.07
13-06-2022	12:44:50	410.5	68.7	49.96	30.74	32.07	48.80	0.629	4.63	48.27
13-06-2022	12:44:55	410.9	67.8	49.98	29.97	32.05	48.21	0.621	4.73	40.33
13-06-2022	12:45:00	410.0	68.1	50	29.58	32.46	48.35	0.612	4.77	43.73
13-06-2022	12:45:05	411.0	68.2	49.98	30.64	31.86	48.53	0.631	4.63	42.63
13-06-2022	12:45:10	409.9	68.7	49.99	30.29	32.34	48.73	0.621	4.83	40.00
13-06-2022	12:45:15	410.2	68.6	50	30.49	32.11	48.72	0.625	4.67	45.57

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	12:45:20	410.7	68.9	50.01	30.85	32.26	48.95	0.63	4.70	40.23
13-06-2022	12:45:25	410.3	67.1	50.01	28.90	32.06	47.68	0.606	4.63	46.80
13-06-2022	12:45:30	411.1	67.5	49.98	29.87	31.90	48.04	0.621	4.63	41.30
13-06-2022	12:45:35	410.4	68.1	50.03	30.06	32.30	48.40	0.621	4.77	39.33
13-06-2022	12:45:40	410.4	67.4	50.01	29.33	32.16	47.91	0.612	4.57	47.83
13-06-2022	12:45:45	411.1	67.7	49.98	30.11	31.85	48.14	0.625	4.67	43.80
13-06-2022	12:45:50	410.4	68.3	49.98	29.93	32.65	48.55	0.616	4.77	37.93
13-06-2022	12:45:55	410.6	67.5	49.98	29.30	32.32	48.01	0.61	4.63	46.30
13-06-2022	12:46:00	410.6	68.7	49.99	30.79	32.17	48.81	0.63	4.77	40.03
13-06-2022	12:46:05	410.2	68.5	50	30.39	32.13	48.67	0.624	4.63	45.67
13-06-2022	12:46:10	410.5	78.7	49.93	40.96	32.63	55.93	0.73	4.73	36.90
13-06-2022	12:46:15	410.4	93.0	49.99	54.73	31.49	66.04	0.828	4.73	29.60
13-06-2022	12:46:20	409.9	95.0	49.98	56.48	31.35	67.39	0.838	4.83	29.17
13-06-2022	12:46:25	409.6	97.3	49.98	57.38	33.42	69.00	0.831	4.63	27.83
13-06-2022	12:46:30	409.8	97.7	50.01	57.77	33.36	69.29	0.834	4.70	27.43
13-06-2022	12:46:35	409.7	97.2	50	57.28	33.45	68.95	0.83	4.67	27.70
13-06-2022	12:46:40	409.7	96.3	49.97	56.61	33.29	68.33	0.828	4.63	28.10
13-06-2022	12:46:45	409.7	83.8	50.07	45.53	32.72	59.45	0.762	4.73	33.40
13-06-2022	12:46:50	409.7	68.6	49.98	31.55	30.53	48.59	0.649	4.63	49.53
13-06-2022	12:46:55	410.4	73.3	49.96	36.41	31.46	52.05	0.699	4.73	41.87
13-06-2022	12:47:00	409.9	84.0	49.95	45.76	32.76	59.55	0.767	4.73	32.90
13-06-2022	12:47:05	409.9	79.3	50.04	42.01	31.61	56.21	0.744	4.73	35.77
13-06-2022	12:47:10	410.2	65.1	50.06	26.29	32.08	46.20	0.568	4.77	42.83
13-06-2022	12:47:15	410.9	64.3	49.96	26.46	31.27	45.76	0.578	4.53	52.30
13-06-2022	12:47:20	410.7	71.9	49.99	34.68	32.12	51.11	0.677	4.77	39.10
13-06-2022	12:47:25	410.8	73.2	50.02	36.34	31.91	52.03	0.698	4.73	39.33
13-06-2022	12:47:30	410.5	67.6	50.01	29.93	31.78	48.02	0.622	4.77	40.60
13-06-2022	12:47:35	410.7	72.2	49.95	34.98	32.17	51.34	0.68	4.80	40.10
13-06-2022	12:47:40	410.8	81.2	49.93	43.64	32.76	57.79	0.754	4.70	35.23
13-06-2022	12:47:45	410.6	87.1	49.99	48.94	32.94	61.89	0.79	4.73	31.63
13-06-2022	12:47:50	410.5	91.0	50.01	52.17	33.17	64.72	0.806	4.80	30.27
13-06-2022	12:47:55	410.3	92.8	49.98	53.41	33.46	65.94	0.809	4.87	30.53
13-06-2022	12:48:00	410.3	92.8	49.98	53.35	33.42	65.88	0.81	4.90	30.40
13-06-2022	12:48:05	410.4	88.6	50.04	49.69	33.30	62.92	0.789	4.90	31.83
13-06-2022	12:48:10	410.6	72.3	50.04	34.29	32.43	51.43	0.664	4.87	42.13
13-06-2022	12:48:15	410.7	69.4	50	30.87	32.66	49.35	0.625	5.00	41.10
13-06-2022	12:48:20	410.9	68.6	50	30.44	32.13	48.78	0.624	4.80	47.50
13-06-2022	12:48:25	410.9	67.9	50.01	29.54	32.27	48.31	0.611	4.90	41.97
13-06-2022	12:48:30	410.5	67.1	50.02	27.98	32.50	47.66	0.587	5.07	41.53
13-06-2022	12:48:35	410.6	66.1	50.02	26.87	32.44	47.00	0.571	4.90	50.97
13-06-2022	12:48:40	411.2	65.6	49.95	26.83	32.01	46.72	0.574	4.83	53.03
13-06-2022	12:48:45	410.9	66.3	50.01	27.66	32.14	47.19	0.586	5.00	42.27
13-06-2022	12:48:50	410.4	66.4	50.03	27.26	32.50	47.20	0.577	5.07	42.47
13-06-2022	12:48:55	410.8	66.3	49.98	27.34	32.23	47.15	0.58	4.73	52.63
13-06-2022	12:49:00	411.0	67.1	49.99	28.50	32.20	47.74	0.597	4.87	51.23

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	12:49:05	410.8	66.4	50	27.69	32.12	47.25	0.586	4.97	44.23
13-06-2022	12:49:10	410.6	66.7	49.99	27.95	32.26	47.44	0.589	5.03	40.80
13-06-2022	12:49:15	410.8	58.2	50.02	22.20	26.98	41.40	0.533	5.10	60.20
13-06-2022	12:49:20	410.4	54.9	50	20.27	25.06	38.99	0.52	5.17	75.60
13-06-2022	12:49:25	410.3	55.1	50	20.54	25.16	39.11	0.525	5.20	75.07
13-06-2022	12:49:30	409.6	56.2	50	21.37	25.19	39.83	0.537	5.17	58.53
13-06-2022	12:49:35	409.4	56.8	50.01	21.53	25.71	40.26	0.534	5.20	57.17
13-06-2022	12:49:40	410.5	56.9	49.97	22.31	25.29	40.44	0.551	5.07	69.07
13-06-2022	12:49:45	408.7	58.1	50.01	22.84	26.07	41.07	0.555	5.13	59.40
13-06-2022	12:49:50	409.4	58.8	49.99	24.18	25.88	41.70	0.58	5.10	71.73
13-06-2022	12:49:55	409.1	60.0	49.98	25.96	25.28	42.50	0.61	4.93	68.63
13-06-2022	12:50:00	410.1	58.8	50.01	24.65	25.48	41.74	0.59	5.03	68.57
13-06-2022	12:50:05	408.9	57.8	50.01	23.71	25.23	40.89	0.579	5.13	60.80
13-06-2022	12:50:10	410.0	57.1	49.97	22.72	25.47	40.51	0.561	5.17	55.63
13-06-2022	12:50:15	410.4	57.2	49.98	21.82	26.30	40.62	0.537	5.03	69.70
13-06-2022	12:50:20	409.7	56.5	50	22.31	25.22	40.09	0.556	5.23	56.63
13-06-2022	12:50:25	410.8	54.7	49.99	20.31	24.43	38.91	0.518	5.27	66.80
13-06-2022	12:50:30	409.1	47.1	49.99	14.12	18.92	33.31	0.424	5.47	111.37
13-06-2022	12:50:35	409.0	47.8	49.98	16.09	18.18	33.84	0.475	5.57	97.40
13-06-2022	12:50:40	408.1	47.4	49.98	15.60	18.27	33.48	0.465	5.40	116.27
13-06-2022	12:50:45	408.2	47.5	50	15.68	18.36	33.54	0.467	5.60	106.17
13-06-2022	12:50:50	407.8	49.0	50.01	17.21	18.69	34.61	0.497	5.43	96.13
13-06-2022	12:50:55	408.6	47.7	49.99	15.84	18.27	33.74	0.469	5.40	129.97
13-06-2022	12:51:00	409.1	47.5	50	15.18	18.47	33.64	0.451	5.43	107.67
13-06-2022	12:51:05	409.6	47.7	49.97	15.36	18.51	33.83	0.454	5.47	92.40
13-06-2022	12:51:10	408.9	47.6	50.03	14.83	18.79	33.70	0.44	5.30	138.00
13-06-2022	12:51:15	409.2	47.5	49.98	15.03	18.87	33.70	0.446	5.57	95.37
13-06-2022	12:51:20	409.3	47.7	49.99	15.34	18.56	33.78	0.454	5.47	107.17
13-06-2022	12:51:25	409.2	47.8	49.99	15.53	18.33	33.84	0.458	5.47	113.33
13-06-2022	12:51:30	409.0	48.7	49.97	16.67	18.37	34.49	0.483	5.50	115.63
13-06-2022	12:51:35	408.5	49.2	50.02	16.61	18.76	34.73	0.478	5.43	112.10
13-06-2022	12:51:40	408.9	48.8	50	16.30	18.67	34.51	0.472	5.43	102.03
13-06-2022	12:51:45	408.9	48.6	49.99	16.62	18.65	34.37	0.483	5.50	103.17
13-06-2022	12:51:50	408.9	48.3	50	15.78	18.85	34.20	0.461	5.47	113.87
13-06-2022	12:51:55	409.1	48.1	50	15.67	18.61	34.03	0.46	5.40	101.90
13-06-2022	12:52:00	409.4	48.1	49.99	16.12	18.57	34.08	0.473	5.47	104.90
13-06-2022	12:52:05	409.1	47.8	49.99	15.37	18.65	33.85	0.454	5.47	101.77
13-06-2022	12:52:10	409.2	47.4	50	15.05	18.78	33.57	0.448	5.47	115.23
13-06-2022	12:52:15	409.5	46.7	50	14.75	18.14	33.13	0.445	5.47	107.63
13-06-2022	12:52:20	409.6	45.9	49.99	13.29	17.94	32.56	0.408	5.50	104.13
13-06-2022	12:52:25	409.8	45.4	49.96	13.17	17.84	32.24	0.408	5.33	139.40
13-06-2022	12:52:30	409.4	46.5	49.99	13.49	18.40	32.98	0.409	5.50	130.87
13-06-2022	12:52:35	409.2	46.7	49.99	13.65	18.65	33.11	0.412	5.63	123.63
13-06-2022	12:52:40	409.7	46.1	49.98	13.85	18.10	32.68	0.423	5.50	122.50
13-06-2022	12:52:45	409.3	45.8	50.02	13.43	18.01	32.43	0.414	5.57	118.77

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	12:52:50	409.0	47.4	49.97	14.42	18.53	33.59	0.428	5.63	105.63
13-06-2022	12:52:55	409.6	46.8	49.99	14.70	18.00	33.20	0.442	5.50	106.50
13-06-2022	12:53:00	409.5	45.9	49.98	13.68	17.84	32.54	0.42	5.40	116.30
13-06-2022	12:53:05	409.4	45.7	49.99	13.33	18.16	32.42	0.411	5.50	115.03
13-06-2022	12:53:10	409.9	45.3	50.01	13.35	17.90	32.19	0.414	5.53	112.87
13-06-2022	12:53:15	409.8	44.5	50.01	12.24	17.68	31.58	0.387	5.50	115.87
13-06-2022	12:53:20	409.7	45.2	49.98	12.75	18.22	32.04	0.397	5.53	108.87
13-06-2022	12:53:25	409.8	45.2	50.02	12.83	18.17	32.08	0.4	5.50	109.97
13-06-2022	12:53:30	409.8	45.0	49.98	12.71	18.04	31.92	0.398	5.50	124.60
13-06-2022	12:53:35	410.3	45.6	49.97	14.00	17.98	32.40	0.432	5.43	107.37
13-06-2022	12:53:40	409.9	45.5	49.99	14.19	18.18	32.32	0.438	5.57	115.23
13-06-2022	12:53:45	410.1	46.1	49.99	14.32	18.23	32.71	0.437	5.50	93.43
13-06-2022	12:53:50	409.8	45.9	50	14.39	18.12	32.56	0.442	5.57	103.87
13-06-2022	12:53:55	410.1	45.8	50.01	14.33	17.81	32.56	0.44	5.53	117.17
13-06-2022	12:54:00	409.9	45.4	50	13.13	18.00	32.25	0.407	5.53	108.10
13-06-2022	12:54:05	409.2	46.0	50	13.22	18.51	32.59	0.405	5.60	114.63
13-06-2022	12:54:10	409.5	45.8	50	13.22	18.05	32.48	0.406	5.50	109.17
13-06-2022	12:54:15	409.8	45.9	49.98	13.18	17.98	32.54	0.405	5.53	107.60
13-06-2022	12:54:20	409.3	46.2	50.01	13.29	18.60	32.74	0.405	5.50	125.97
13-06-2022	12:54:25	409.5	45.9	49.99	13.32	18.10	32.56	0.409	5.50	112.33
13-06-2022	12:54:30	409.4	46.2	49.99	13.92	17.95	32.74	0.425	5.50	140.30
13-06-2022	12:54:35	409.4	47.1	49.99	14.80	17.75	33.36	0.443	5.63	95.90
13-06-2022	12:54:40	409.1	47.1	50.02	14.91	18.00	33.33	0.447	5.50	111.10
13-06-2022	12:54:45	409.1	46.8	50	14.28	18.16	33.11	0.431	5.57	115.10
13-06-2022	12:54:50	409.2	46.8	49.99	14.32	17.89	33.16	0.432	5.53	125.90
13-06-2022	12:54:55	409.2	46.9	49.98	14.54	17.64	33.17	0.438	5.53	112.27
13-06-2022	12:55:00	408.6	47.0	50	14.35	17.97	33.21	0.432	5.50	111.87
13-06-2022	12:55:05	409.1	46.6	49.98	14.17	17.58	32.98	0.429	5.53	116.80
13-06-2022	12:55:10	409.3	46.3	50	13.52	17.82	32.78	0.412	5.50	121.60
13-06-2022	12:55:15	409.3	46.7	49.96	13.91	18.22	33.10	0.42	5.50	103.43
13-06-2022	12:55:20	409.3	47.2	49.97	14.47	18.96	33.42	0.433	5.30	134.60
13-06-2022	12:55:25	409.5	46.8	49.99	14.48	18.32	33.14	0.436	5.43	119.03
13-06-2022	12:55:30	409.3	46.9	50	14.17	18.60	33.21	0.426	5.37	117.23
13-06-2022	12:55:35	409.1	46.6	50	13.22	18.44	32.98	0.401	5.60	108.37
13-06-2022	12:55:40	409.1	46.6	49.98	13.07	18.66	33.01	0.396	5.47	130.27
13-06-2022	12:55:45	409.4	46.0	50	13.05	18.24	32.63	0.4	5.57	131.47
13-06-2022	12:55:50	409.3	46.7	49.99	13.00	18.56	33.05	0.393	5.53	134.20
13-06-2022	12:55:55	409.5	46.6	49.99	12.94	18.55	33.02	0.392	5.57	117.57
13-06-2022	12:56:00	409.3	47.1	49.99	13.52	18.80	33.40	0.405	5.50	118.57
13-06-2022	12:56:05	409.3	46.8	49.98	13.39	18.65	33.20	0.403	5.57	119.40
13-06-2022	12:56:10	409.5	47.0	49.98	13.51	18.55	33.31	0.405	5.50	124.07
13-06-2022	12:56:15	409.1	47.3	49.98	13.69	18.61	33.49	0.408	5.50	124.23
13-06-2022	12:56:20	409.4	47.1	49.97	13.50	18.48	33.36	0.404	5.43	126.47
13-06-2022	12:56:25	408.5	49.0	50	16.80	18.73	34.68	0.483	5.43	112.93
13-06-2022	12:56:30	409.5	61.4	49.98	28.47	24.11	43.48	0.65	5.10	66.07

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	12:56:35	410.0	66.7	49.98	33.12	26.41	47.33	0.699	5.23	49.20
13-06-2022	12:56:40	410.1	61.5	50.02	27.04	26.62	43.67	0.617	5.17	58.60
13-06-2022	12:56:45	410.7	56.7	49.98	21.33	25.94	40.30	0.529	5.17	74.10
13-06-2022	12:56:50	409.3	57.6	50	21.95	26.22	40.83	0.537	5.20	56.63
13-06-2022	12:56:55	409.8	57.8	49.97	22.18	26.18	41.03	0.54	5.10	78.03
13-06-2022	12:57:00	409.9	57.9	49.96	22.92	25.72	41.10	0.557	5.20	67.47
13-06-2022	12:57:05	410.3	58.1	49.98	23.08	25.99	41.25	0.559	5.03	66.53
13-06-2022	12:57:10	409.4	58.4	50.04	23.43	26.09	41.43	0.565	5.17	60.03
13-06-2022	12:57:15	410.1	60.7	49.97	24.28	27.63	43.04	0.561	5.00	64.60
13-06-2022	12:57:20	410.2	67.5	50	28.17	32.46	47.89	0.588	4.97	44.70
13-06-2022	12:57:25	410.6	66.8	49.95	27.67	32.35	47.46	0.582	4.80	52.00
13-06-2022	12:57:30	411.0	66.3	49.98	27.52	32.12	47.16	0.583	4.93	45.00
13-06-2022	12:57:35	410.4	66.5	50	27.20	32.46	47.24	0.575	5.07	41.53
13-06-2022	12:57:40	410.7	65.3	50	25.96	32.28	46.42	0.559	4.87	47.43
13-06-2022	12:57:45	410.8	68.2	49.99	29.86	32.16	48.51	0.614	4.87	46.63
13-06-2022	12:57:50	410.5	82.0	49.95	43.56	33.12	58.27	0.746	4.90	36.27
13-06-2022	12:57:55	410.4	86.2	50	47.54	33.29	61.26	0.776	4.90	33.30
13-06-2022	12:58:00	410.0	79.7	50.03	41.10	33.01	56.56	0.725	4.97	38.57
13-06-2022	12:58:05	410.0	70.5	50.01	31.45	32.70	50.06	0.627	5.07	44.10
13-06-2022	12:58:10	410.1	67.8	50.02	28.77	32.25	48.14	0.597	5.00	42.67
13-06-2022	12:58:15	410.2	68.4	49.96	29.33	32.25	48.57	0.603	4.90	46.33
13-06-2022	12:58:20	410.1	76.8	49.97	37.84	33.41	54.50	0.694	4.97	39.73
13-06-2022	12:58:25	410.3	76.4	49.97	38.13	33.15	54.29	0.702	4.90	39.07
13-06-2022	12:58:30	410.6	82.6	49.97	44.00	33.50	58.70	0.749	4.87	35.10
13-06-2022	12:58:35	410.1	91.5	49.97	51.49	34.24	64.97	0.792	4.90	31.83
13-06-2022	12:58:40	410.3	96.2	50	55.64	34.53	68.33	0.814	4.87	29.00
13-06-2022	12:58:45	410.2	97.8	49.98	57.23	34.25	69.44	0.824	4.83	28.23
13-06-2022	12:58:50	410.1	99.8	50.01	58.88	34.40	70.90	0.83	4.77	27.97
13-06-2022	12:58:55	409.9	101.8	49.98	60.33	34.58	72.27	0.834	4.83	27.67
13-06-2022	12:59:00	410.1	101.4	49.98	60.25	34.40	72.00	0.836	4.80	27.13
13-06-2022	12:59:05	410.2	101.3	49.99	60.26	34.37	71.98	0.837	4.80	27.00
13-06-2022	12:59:10	409.9	102.2	49.98	60.54	34.71	72.52	0.834	4.90	27.53
13-06-2022	12:59:15	410.1	100.5	50.03	59.48	34.31	71.33	0.833	4.80	27.60
13-06-2022	12:59:20	410.2	98.1	50.02	57.58	34.11	69.65	0.826	4.77	28.43
13-06-2022	12:59:25	410.2	96.5	50	56.10	34.30	68.58	0.818	4.83	29.13
13-06-2022	12:59:30	410.2	93.4	50	53.41	34.14	66.34	0.805	4.87	30.37
13-06-2022	12:59:35	410.4	83.6	50.05	44.78	33.74	59.44	0.751	4.83	34.00
13-06-2022	12:59:40	410.7	70.9	50.03	32.23	32.98	50.42	0.638	4.97	40.63
13-06-2022	12:59:45	410.3	69.6	50.01	29.92	33.34	49.42	0.605	4.80	45.10
13-06-2022	12:59:50	411.3	68.8	49.99	30.12	32.72	49.02	0.614	4.77	44.87
13-06-2022	12:59:55	410.3	69.2	50.01	29.82	33.14	49.15	0.606	4.97	41.10
13-06-2022	13:00:00	410.6	69.8	49.98	30.42	33.18	49.60	0.613	4.80	48.63
13-06-2022	13:00:05	411.2	69.3	49.97	30.54	32.94	49.34	0.619	4.83	42.90
13-06-2022	13:00:10	410.3	70.9	50	31.41	33.73	50.37	0.623	4.93	38.57
13-06-2022	13:00:15	410.5	73.0	49.98	33.57	33.59	51.83	0.647	4.80	43.77

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	13:00:20	410.0	72.7	50	33.45	33.63	51.64	0.647	4.87	39.17
13-06-2022	13:00:25	410.9	72.0	49.97	33.33	33.08	51.19	0.651	4.80	41.40
13-06-2022	13:00:30	410.0	73.5	49.99	33.70	33.93	52.14	0.646	4.87	42.43
13-06-2022	13:00:35	410.6	72.5	50.02	33.31	33.51	51.51	0.646	4.90	39.03
13-06-2022	13:00:40	411.0	71.2	50.01	32.41	33.30	50.68	0.639	4.73	43.33
13-06-2022	13:00:45	410.6	72.5	49.99	33.25	33.72	51.52	0.645	4.83	40.37
13-06-2022	13:00:50	410.7	74.0	50.01	34.75	34.00	52.63	0.66	4.87	40.67
13-06-2022	13:00:55	410.9	73.7	50	35.50	33.44	52.43	0.677	4.77	39.13
13-06-2022	13:01:00	411.2	73.7	49.98	35.62	33.44	52.52	0.678	4.80	38.03
13-06-2022	13:01:05	410.9	72.9	49.98	34.50	33.32	51.85	0.665	4.70	40.07
13-06-2022	13:01:10	410.6	72.3	50.05	33.26	33.75	51.43	0.646	4.77	39.50
13-06-2022	13:01:15	410.9	71.8	49.99	33.13	33.41	51.08	0.648	4.77	39.30
13-06-2022	13:01:20	411.3	71.5	49.96	33.22	33.07	50.93	0.652	4.70	40.83
13-06-2022	13:01:25	410.5	72.0	49.99	33.00	33.65	51.19	0.644	4.80	40.63
13-06-2022	13:01:30	411.0	72.0	50.01	32.96	33.66	51.24	0.643	4.83	39.77
13-06-2022	13:01:35	410.6	71.6	50.01	32.28	33.83	50.90	0.634	4.83	40.43
13-06-2022	13:01:40	411.1	70.3	49.99	31.58	33.16	50.07	0.631	4.73	43.50
13-06-2022	13:01:45	410.9	70.1	49.98	31.11	33.58	49.92	0.623	4.80	39.60
13-06-2022	13:01:50	411.4	77.0	49.93	38.57	33.71	54.89	0.701	4.80	38.23
13-06-2022	13:01:55	410.7	88.5	50.03	48.92	34.57	62.94	0.776	4.80	31.23
13-06-2022	13:02:00	410.9	79.6	50.03	41.38	33.57	56.64	0.729	4.80	34.87
13-06-2022	13:02:05	410.9	71.4	50	32.48	33.72	50.78	0.639	4.87	41.13
13-06-2022	13:02:10	411.2	69.4	49.97	30.32	33.48	49.41	0.613	4.77	42.50
13-06-2022	13:02:15	410.9	69.3	50	30.12	33.64	49.33	0.61	4.87	38.53
13-06-2022	13:02:20	411.0	69.4	50	29.98	33.62	49.36	0.607	4.70	45.10
13-06-2022	13:02:25	411.2	69.3	49.98	30.50	33.42	49.37	0.617	4.83	44.37
13-06-2022	13:02:30	410.8	73.1	49.95	34.49	33.44	51.97	0.663	4.73	39.43
13-06-2022	13:02:35	411.0	83.0	49.95	44.17	33.84	59.07	0.746	4.77	34.50
13-06-2022	13:02:40	410.3	85.1	50.04	45.85	34.16	60.44	0.757	4.77	33.53
13-06-2022	13:02:45	410.4	74.2	49.97	35.48	33.46	52.73	0.673	4.87	40.57
13-06-2022	13:02:50	410.5	80.2	49.96	41.21	33.99	56.99	0.722	4.83	36.13
13-06-2022	13:02:55	410.4	94.5	49.95	54.14	34.53	67.20	0.805	4.80	30.53
13-06-2022	13:03:00	409.9	84.0	50	48.37	28.04	59.59	0.811	5.03	36.73
13-06-2022	13:03:05	409.5	79.0	50.04	44.38	27.16	56.02	0.791	5.10	39.37
13-06-2022	13:03:10	409.4	63.6	50.05	29.21	26.20	45.07	0.643	5.17	51.90
13-06-2022	13:03:15	410.0	56.5	49.98	20.61	25.68	40.11	0.513	5.10	75.87
13-06-2022	13:03:20	409.3	55.7	49.99	20.96	25.13	39.52	0.53	5.23	59.87
13-06-2022	13:03:25	410.1	65.1	49.93	31.79	25.79	46.20	0.683	5.17	52.43
13-06-2022	13:03:30	409.7	79.7	49.98	45.49	26.61	56.55	0.804	5.10	39.23
13-06-2022	13:03:35	409.6	83.0	49.99	48.27	26.77	58.85	0.82	5.13	36.97
13-06-2022	13:03:40	409.5	83.7	50	48.82	26.84	59.33	0.822	5.10	36.83
13-06-2022	13:03:45	409.4	84.8	50	49.69	26.77	60.04	0.827	5.07	36.40
13-06-2022	13:03:50	409.2	85.4	49.98	50.25	26.68	60.46	0.831	5.07	36.10
13-06-2022	13:03:55	409.2	86.0	50.01	50.63	26.86	60.87	0.831	5.10	35.63
13-06-2022	13:04:00	409.3	85.7	50	50.45	26.88	60.72	0.831	5.07	35.73

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	13:04:05	409.2	82.4	50.01	47.62	26.70	58.32	0.816	5.10	37.23
13-06-2022	13:04:10	409.4	73.7	50.03	39.94	26.40	52.24	0.763	5.17	43.13
13-06-2022	13:04:15	409.4	62.1	50.02	28.26	25.83	44.01	0.64	5.17	57.63
13-06-2022	13:04:20	410.3	56.4	49.98	21.43	25.31	40.04	0.535	5.17	63.53
13-06-2022	13:04:25	409.9	50.0	50.01	15.85	21.78	35.51	0.441	5.50	79.53
13-06-2022	13:04:30	409.5	45.6	49.97	12.37	17.98	32.35	0.382	5.50	120.77
13-06-2022	13:04:35	409.1	46.0	50	12.48	18.23	32.59	0.382	5.57	105.43
13-06-2022	13:04:40	409.3	45.3	49.99	12.45	18.21	32.07	0.388	5.60	120.10
13-06-2022	13:04:45	409.5	45.6	50	12.62	18.42	32.35	0.39	5.60	96.27
13-06-2022	13:04:50	409.9	45.0	50.01	12.05	18.10	31.96	0.377	5.60	111.80
13-06-2022	13:04:55	409.5	45.4	50.01	11.89	18.43	32.18	0.369	5.60	106.17
13-06-2022	13:05:00	409.4	45.0	50.01	11.88	18.07	31.91	0.372	5.53	107.50
13-06-2022	13:05:05	409.5	45.3	50.01	12.09	18.32	32.11	0.376	5.50	123.77
13-06-2022	13:05:10	409.5	44.8	50	11.65	18.28	31.79	0.366	5.43	124.60
13-06-2022	13:05:15	409.8	44.6	49.99	11.79	17.91	31.66	0.372	5.50	123.93
13-06-2022	13:05:20	409.9	44.4	49.97	12.01	18.01	31.48	0.381	5.60	106.30
13-06-2022	13:05:25	409.7	44.9	49.99	12.13	18.51	31.90	0.38	5.47	114.10
13-06-2022	13:05:30	409.9	44.8	50	12.75	18.10	31.77	0.401	5.53	118.40
13-06-2022	13:05:35	409.5	45.4	49.99	12.60	17.94	32.20	0.391	5.53	108.73
13-06-2022	13:05:40	409.2	45.2	49.99	12.01	18.14	32.01	0.375	5.50	119.83
13-06-2022	13:05:45	409.8	44.5	50	11.78	17.95	31.60	0.372	5.47	111.47
13-06-2022	13:05:50	409.6	46.0	49.97	14.57	17.75	32.60	0.446	5.53	106.47
13-06-2022	13:05:55	409.5	45.4	49.99	12.59	18.06	32.16	0.391	5.50	113.87
13-06-2022	13:06:00	409.0	45.8	49.98	12.18	18.34	32.43	0.375	5.50	124.60
13-06-2022	13:06:05	409.6	46.0	49.99	13.33	18.00	32.65	0.408	5.47	128.80
13-06-2022	13:06:10	408.6	48.0	50.01	16.98	18.33	33.99	0.497	5.37	110.77
13-06-2022	13:06:15	409.9	58.2	49.98	29.25	19.17	41.28	0.706	5.43	66.07
13-06-2022	13:06:20	409.8	60.4	50.02	31.51	19.27	42.86	0.733	5.40	61.10
13-06-2022	13:06:25	410.5	48.7	49.98	18.46	18.49	34.63	0.53	5.43	94.93
13-06-2022	13:06:30	409.6	45.7	49.99	13.57	18.34	32.42	0.418	5.47	107.97
13-06-2022	13:06:35	409.4	45.4	50.01	12.66	18.28	32.17	0.393	5.53	97.83
13-06-2022	13:06:40	409.4	45.2	50.01	12.06	18.04	32.02	0.376	5.47	120.17
13-06-2022	13:06:45	408.9	46.2	50.01	13.26	18.27	32.69	0.405	5.53	118.07
13-06-2022	13:06:50	409.5	45.9	49.98	13.04	18.15	32.54	0.4	5.53	100.77
13-06-2022	13:06:55	409.1	46.4	49.96	13.47	18.11	32.85	0.41	5.43	115.97
13-06-2022	13:07:00	409.2	46.3	50	13.42	18.14	32.80	0.409	5.47	111.97
13-06-2022	13:07:05	409.1	46.1	50	13.25	18.08	32.63	0.406	5.50	125.47
13-06-2022	13:07:10	409.1	46.0	50	13.23	18.18	32.62	0.405	5.53	111.47
13-06-2022	13:07:15	409.1	46.0	49.99	13.09	18.19	32.55	0.402	5.50	115.33
13-06-2022	13:07:20	409.4	45.6	50	13.18	17.76	32.31	0.408	5.57	112.17
13-06-2022	13:07:25	409.4	45.4	49.99	13.25	17.87	32.17	0.412	5.50	117.80
13-06-2022	13:07:30	409.2	45.7	49.99	13.14	18.23	32.40	0.405	5.53	111.00
13-06-2022	13:07:35	409.6	45.3	49.98	13.15	17.94	32.12	0.409	5.60	102.67
13-06-2022	13:07:40	409.1	45.6	50.01	13.16	18.22	32.33	0.407	5.60	115.63
13-06-2022	13:07:45	409.1	45.5	50	13.02	17.92	32.22	0.404	5.53	114.17

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	13:07:50	409.7	45.3	49.97	13.17	17.77	32.13	0.41	5.53	111.67
13-06-2022	13:07:55	409.3	46.2	49.99	13.83	18.17	32.75	0.422	5.47	103.40
13-06-2022	13:08:00	409.4	46.0	49.99	13.98	18.13	32.60	0.428	5.57	103.37
13-06-2022	13:08:05	409.3	46.4	49.98	14.43	17.96	32.84	0.439	5.57	94.97
13-06-2022	13:08:10	408.8	47.5	49.99	15.29	18.09	33.56	0.455	5.47	123.13
13-06-2022	13:08:15	409.0	47.4	49.99	15.41	18.04	33.57	0.459	5.53	104.27
13-06-2022	13:08:20	408.9	47.3	49.98	15.28	18.29	33.51	0.456	5.60	96.03
13-06-2022	13:08:25	408.9	47.4	49.99	15.33	18.05	33.56	0.457	5.40	115.87
13-06-2022	13:08:30	409.2	47.3	49.99	15.17	18.06	33.47	0.453	5.43	107.30
13-06-2022	13:08:35	408.8	46.9	50.01	14.85	18.06	33.20	0.447	5.57	106.73
13-06-2022	13:08:40	409.1	47.6	49.97	15.79	18.16	33.69	0.468	5.53	110.50
13-06-2022	13:08:45	409.1	47.1	49.99	15.10	18.02	33.34	0.452	5.47	121.93
13-06-2022	13:08:50	409.1	46.6	49.98	13.76	18.00	32.95	0.417	5.50	108.53
13-06-2022	13:08:55	409.7	45.8	49.97	13.77	17.56	32.49	0.423	5.50	116.83
13-06-2022	13:09:00	409.2	46.5	49.99	13.77	18.08	32.91	0.418	5.50	118.27
13-06-2022	13:09:05	408.6	49.7	50	15.97	20.18	35.19	0.45	5.37	114.97
13-06-2022	13:09:10	409.9	55.4	49.98	20.97	25.06	39.28	0.534	5.20	66.77
13-06-2022	13:09:15	410.0	55.0	49.98	20.90	24.80	39.06	0.535	5.17	70.40
13-06-2022	13:09:20	409.8	55.5	50	20.87	25.27	39.39	0.53	5.27	64.43
13-06-2022	13:09:25	409.6	55.3	49.99	20.97	24.74	39.18	0.535	5.27	59.67
13-06-2022	13:09:30	410.2	55.3	49.99	21.01	25.04	39.26	0.535	5.23	61.13
13-06-2022	13:09:35	409.3	55.5	50	21.12	24.89	39.29	0.537	5.20	67.07
13-06-2022	13:09:40	409.9	55.8	49.99	21.46	24.92	39.59	0.541	5.30	58.73
13-06-2022	13:09:45	410.2	56.3	50.01	21.31	25.41	39.99	0.533	5.07	71.87
13-06-2022	13:09:50	409.8	55.5	49.98	21.40	24.70	39.34	0.543	5.17	67.17
13-06-2022	13:09:55	409.9	55.9	50	21.38	24.99	39.64	0.539	5.20	67.93
13-06-2022	13:10:00	409.3	55.7	50.04	21.19	24.97	39.49	0.536	5.23	55.53
13-06-2022	13:10:05	409.9	55.1	50.01	20.76	24.99	39.11	0.53	5.23	63.10
13-06-2022	13:10:10	410.2	55.3	49.97	20.76	25.09	39.29	0.528	5.20	61.63
13-06-2022	13:10:15	409.8	55.0	50.01	20.53	24.85	39.04	0.525	5.27	57.37
13-06-2022	13:10:20	410.1	55.1	50	20.79	24.69	39.09	0.532	5.23	59.23
13-06-2022	13:10:25	409.6	55.9	49.99	21.38	24.88	39.60	0.54	5.23	57.63
13-06-2022	13:10:30	408.6	57.5	50.02	22.55	25.38	40.65	0.554	5.07	57.80
13-06-2022	13:10:35	410.3	57.3	49.98	22.66	24.99	40.68	0.557	5.07	73.07
13-06-2022	13:10:40	408.7	57.6	50.03	22.48	25.33	40.70	0.552	5.17	56.63
13-06-2022	13:10:45	410.0	57.4	49.99	22.60	25.06	40.71	0.555	5.00	77.40
13-06-2022	13:10:50	409.1	57.1	49.98	22.08	24.94	40.39	0.546	5.23	59.00
13-06-2022	13:10:55	409.2	56.7	49.99	21.83	25.04	40.16	0.543	5.20	61.70
13-06-2022	13:11:00	409.7	57.2	50.01	22.19	25.18	40.51	0.547	5.10	73.13
13-06-2022	13:11:05	409.6	57.7	49.98	23.52	24.79	40.88	0.575	5.10	60.23
13-06-2022	13:11:10	409.8	57.8	49.98	23.17	25.41	41.02	0.564	5.07	67.93
13-06-2022	13:11:15	409.8	56.6	49.98	22.76	24.46	40.17	0.566	5.20	64.07
13-06-2022	13:11:20	409.6	57.4	50.02	22.51	25.58	40.71	0.552	5.10	63.27
13-06-2022	13:11:25	410.1	57.0	49.95	22.87	24.76	40.48	0.565	5.13	70.60
13-06-2022	13:11:30	409.2	57.4	50.01	23.01	25.18	40.67	0.565	5.23	52.70

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	13:11:35	410.5	57.4	49.98	23.10	25.17	40.80	0.566	5.00	70.00
13-06-2022	13:11:40	409.1	56.8	50.03	22.21	25.12	40.21	0.552	5.17	55.57
13-06-2022	13:11:45	410.1	55.7	49.99	21.50	24.82	39.55	0.543	5.07	75.03
13-06-2022	13:11:50	410.6	55.1	49.99	20.90	24.99	39.16	0.533	5.07	71.13
13-06-2022	13:11:55	410.2	54.8	49.98	20.84	24.99	38.93	0.535	5.20	71.30
13-06-2022	13:12:00	409.3	60.6	50	23.93	28.50	42.89	0.555	5.10	56.77
13-06-2022	13:12:05	411.0	66.3	49.97	27.77	32.06	47.15	0.589	4.90	47.53
13-06-2022	13:12:10	410.1	68.5	49.98	29.75	32.44	48.65	0.611	5.00	41.30
13-06-2022	13:12:15	410.6	68.6	49.99	30.09	32.20	48.74	0.617	4.83	49.87
13-06-2022	13:12:20	410.8	67.8	49.98	29.99	31.69	48.24	0.621	4.87	46.47
13-06-2022	13:12:25	410.2	69.7	50.01	30.64	32.85	49.44	0.619	4.93	42.03
13-06-2022	13:12:30	410.7	69.0	49.97	30.83	32.09	49.03	0.628	4.80	49.07
13-06-2022	13:12:35	410.9	69.2	50.01	31.03	32.23	49.21	0.63	4.90	42.17
13-06-2022	13:12:40	409.9	70.1	49.99	31.29	32.58	49.75	0.629	4.87	43.13
13-06-2022	13:12:45	410.6	69.0	49.98	30.44	32.05	49.01	0.621	4.83	45.00
13-06-2022	13:12:50	409.7	69.4	50.01	30.03	32.62	49.20	0.61	4.97	45.00
13-06-2022	13:12:55	410.3	69.1	49.96	30.49	31.91	49.08	0.621	4.80	50.43
13-06-2022	13:13:00	410.1	69.0	50	30.31	32.01	48.96	0.619	4.87	41.43
13-06-2022	13:13:05	409.5	69.5	50.01	30.21	32.47	49.21	0.613	4.97	42.53
13-06-2022	13:13:10	410.2	68.9	49.98	29.95	32.24	48.86	0.613	4.77	51.07
13-06-2022	13:13:15	410.7	68.1	49.99	29.51	32.06	48.38	0.609	4.83	45.40
13-06-2022	13:13:20	410.0	68.2	49.99	29.27	32.37	48.40	0.604	4.97	40.93
13-06-2022	13:13:25	409.9	68.2	49.99	29.07	32.39	48.35	0.601	4.90	46.17
13-06-2022	13:13:30	410.5	67.7	49.97	29.02	32.00	48.09	0.603	4.77	49.60
13-06-2022	13:13:35	410.3	67.4	49.99	28.66	32.30	47.87	0.598	4.97	44.43
13-06-2022	13:13:40	410.3	67.0	50.01	28.50	32.04	47.60	0.598	4.87	50.37
13-06-2022	13:13:45	410.4	67.4	49.98	28.37	32.44	47.88	0.592	4.83	51.17
13-06-2022	13:13:50	410.8	66.5	49.98	27.86	32.08	47.26	0.589	4.83	49.47
13-06-2022	13:13:55	410.8	66.3	50	27.61	32.14	47.14	0.585	4.80	45.27
13-06-2022	13:14:00	410.6	66.4	50	27.33	32.60	47.23	0.578	4.90	40.83
13-06-2022	13:14:05	410.5	66.5	50	27.44	32.50	47.27	0.58	4.80	47.93
13-06-2022	13:14:10	411.1	66.2	49.98	27.64	32.12	47.14	0.586	4.80	50.50
13-06-2022	13:14:15	410.8	66.6	49.99	27.66	32.43	47.35	0.584	4.93	42.97
13-06-2022	13:14:20	410.4	66.7	50.01	27.44	32.67	47.39	0.579	4.93	45.07
13-06-2022	13:14:25	410.9	66.1	50	27.36	32.06	46.99	0.582	4.80	52.00
13-06-2022	13:14:30	410.6	66.3	50.01	27.49	32.23	47.15	0.583	4.87	49.30
13-06-2022	13:14:35	410.8	66.3	50	27.79	31.98	47.20	0.588	4.87	45.10
13-06-2022	13:14:40	410.1	68.0	49.99	28.96	32.29	48.27	0.6	5.00	40.47
13-06-2022	13:14:45	409.8	67.8	50	28.83	32.15	48.10	0.599	4.93	45.20
13-06-2022	13:14:50	410.3	67.0	49.97	28.00	32.27	47.64	0.587	4.80	52.90
13-06-2022	13:14:55	410.7	66.3	49.99	27.45	32.07	47.15	0.582	4.77	52.63
13-06-2022	13:15:00	410.6	67.5	49.98	29.21	31.99	48.01	0.608	4.90	43.73
13-06-2022	13:15:05	410.3	76.9	49.95	38.54	33.09	54.66	0.704	4.90	38.77
13-06-2022	13:15:10	410.4	66.8	50.06	32.25	27.37	47.43	0.674	5.00	52.33
13-06-2022	13:15:15	410.1	58.3	49.98	24.22	25.33	41.34	0.585	5.13	66.53

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	13:15:20	409.7	62.4	49.97	28.82	25.85	44.26	0.65	5.03	53.40
13-06-2022	13:15:25	410.5	58.1	50	23.85	25.46	41.29	0.576	5.00	69.87
13-06-2022	13:15:30	409.8	54.6	50	19.73	24.65	38.74	0.509	5.20	76.17
13-06-2022	13:15:35	409.7	54.9	50.01	19.98	25.17	38.93	0.513	5.20	65.77
13-06-2022	13:15:40	409.8	54.9	50	19.93	25.13	38.92	0.512	5.20	65.87
13-06-2022	13:15:45	409.6	54.5	50	19.44	24.98	38.59	0.503	5.20	69.43
13-06-2022	13:15:50	410.1	54.7	50	19.91	24.98	38.84	0.512	5.20	68.17
13-06-2022	13:15:55	409.7	54.3	49.97	19.60	24.85	38.50	0.509	5.23	60.17
13-06-2022	13:16:00	410.0	54.3	50.02	19.28	25.27	38.55	0.5	5.23	65.37
13-06-2022	13:16:05	410.2	53.8	49.97	19.06	24.99	38.22	0.498	5.23	62.50
13-06-2022	13:16:10	410.1	54.1	49.99	18.75	25.13	38.37	0.488	5.27	54.03
13-06-2022	13:16:15	409.5	57.0	49.99	22.43	25.88	40.38	0.554	5.13	62.40
13-06-2022	13:16:20	410.5	56.8	49.99	23.03	25.23	40.33	0.57	5.23	63.90
13-06-2022	13:16:25	410.5	61.6	49.99	28.18	26.07	43.76	0.643	5.10	51.73
13-06-2022	13:16:30	410.3	61.1	50.01	27.62	25.87	43.43	0.634	5.23	49.93
13-06-2022	13:16:35	410.9	56.4	50	22.19	25.76	40.10	0.552	5.17	61.87
13-06-2022	13:16:40	410.2	54.2	49.99	19.41	24.99	38.50	0.504	5.20	59.37
13-06-2022	13:16:45	409.8	54.4	50	18.97	25.21	38.62	0.491	5.23	59.20
13-06-2022	13:16:50	409.3	54.4	50.01	19.29	25.13	38.52	0.5	5.20	70.63
13-06-2022	13:16:55	410.1	54.4	49.97	19.45	24.92	38.61	0.503	5.13	75.20
13-06-2022	13:17:00	409.8	54.3	50	19.31	24.94	38.50	0.501	5.13	78.00
13-06-2022	13:17:05	409.5	54.3	50.03	19.31	24.79	38.47	0.502	5.23	62.90
13-06-2022	13:17:10	410.0	54.4	49.98	19.40	24.82	38.57	0.502	5.13	66.37
13-06-2022	13:17:15	409.7	54.5	50	19.28	24.98	38.61	0.499	5.23	58.47
13-06-2022	13:17:20	410.3	54.2	49.99	18.98	25.13	38.50	0.493	5.27	59.80
13-06-2022	13:17:25	409.6	54.1	49.99	18.71	25.38	38.37	0.487	5.23	74.67
13-06-2022	13:17:30	410.3	53.6	49.99	18.92	25.01	38.11	0.496	5.17	77.57
13-06-2022	13:17:35	409.9	54.2	49.99	19.33	25.29	38.46	0.502	5.23	74.20
13-06-2022	13:17:40	409.6	54.8	49.99	19.95	25.19	38.85	0.513	5.20	65.23
13-06-2022	13:17:45	410.3	54.9	49.99	19.86	25.38	39.02	0.509	5.23	62.00
13-06-2022	13:17:50	410.1	54.0	50	19.85	24.74	38.34	0.517	5.27	72.50
13-06-2022	13:17:55	409.9	54.7	50.02	19.72	25.57	38.81	0.508	5.27	66.60
13-06-2022	13:18:00	409.9	54.5	49.99	19.48	25.11	38.65	0.504	5.03	82.17
13-06-2022	13:18:05	409.9	54.3	50	19.73	24.96	38.54	0.512	5.23	65.47
13-06-2022	13:18:10	409.5	54.7	50	19.55	25.22	38.76	0.504	5.10	68.80
13-06-2022	13:18:15	410.5	54.3	50	19.44	24.99	38.60	0.503	5.13	63.63
13-06-2022	13:18:20	410.3	53.9	49.99	19.02	25.39	38.26	0.497	5.20	65.97
13-06-2022	13:18:25	410.4	53.7	49.99	19.11	25.10	38.20	0.5	5.23	70.50
13-06-2022	13:18:30	410.4	53.6	49.98	19.11	24.83	38.08	0.501	5.17	70.93
13-06-2022	13:18:35	410.1	54.0	50.01	18.95	25.25	38.35	0.494	5.30	59.90
13-06-2022	13:18:40	409.9	54.1	50.02	19.14	25.26	38.37	0.498	5.13	79.83
13-06-2022	13:18:45	410.3	53.7	50	19.23	24.75	38.12	0.504	5.20	67.70
13-06-2022	13:18:50	409.9	54.1	49.99	19.37	25.04	38.43	0.504	5.13	71.33
13-06-2022	13:18:55	410.0	55.0	50	19.72	25.73	39.05	0.504	5.30	67.67
13-06-2022	13:19:00	410.5	53.8	49.98	19.21	25.34	38.27	0.502	5.20	69.80

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	13:19:05	410.4	53.8	49.99	19.39	25.00	38.25	0.507	5.23	61.60
13-06-2022	13:19:10	409.2	55.8	50.01	20.64	25.31	39.54	0.522	5.37	62.97
13-06-2022	13:19:15	409.9	55.4	50.02	20.34	25.56	39.27	0.518	5.23	67.47
13-06-2022	13:19:20	409.9	54.6	49.99	20.52	24.85	38.78	0.529	5.30	68.40
13-06-2022	13:19:25	410.0	57.5	49.99	23.11	25.86	40.84	0.565	5.10	56.43
13-06-2022	13:19:30	410.8	56.5	50	22.92	25.13	40.15	0.571	5.13	65.33
13-06-2022	13:19:35	410.1	55.9	50.01	21.79	25.32	39.67	0.549	5.20	64.77
13-06-2022	13:19:40	410.3	54.6	50.01	19.93	25.17	38.81	0.513	5.13	75.53
13-06-2022	13:19:45	410.1	54.6	50	19.87	25.26	38.78	0.512	5.10	69.73
13-06-2022	13:19:50	410.6	54.1	49.98	19.81	25.29	38.48	0.514	5.23	63.17
13-06-2022	13:19:55	409.7	54.8	50	20.25	25.40	38.86	0.521	5.17	70.97
13-06-2022	13:20:00	410.3	55.5	50	20.74	25.58	39.46	0.525	4.97	73.50
13-06-2022	13:20:05	410.4	55.3	49.98	20.75	25.23	39.29	0.528	5.13	75.57
13-06-2022	13:20:10	410.1	55.2	50.01	20.64	25.35	39.21	0.526	4.97	78.80
13-06-2022	13:20:15	409.5	55.1	49.99	20.71	25.32	39.09	0.53	5.17	70.03
13-06-2022	13:20:20	410.6	55.6	50.01	20.79	25.55	39.53	0.525	4.97	77.37
13-06-2022	13:20:25	410.1	54.9	49.97	20.90	24.89	38.99	0.536	5.13	68.77
13-06-2022	13:20:30	409.5	55.7	50	21.45	25.38	39.47	0.543	5.17	66.00
13-06-2022	13:20:35	410.8	53.8	50.01	19.86	23.44	38.26	0.515	5.23	72.07
13-06-2022	13:20:40	409.2	47.3	49.97	15.54	18.35	33.51	0.463	5.40	101.77
13-06-2022	13:20:45	408.7	50.7	50.01	20.06	18.82	35.89	0.558	5.57	78.67
13-06-2022	13:20:50	409.2	52.3	50	21.77	19.37	37.08	0.586	5.57	85.27
13-06-2022	13:20:55	409.9	47.0	49.99	15.41	18.31	33.31	0.46	5.53	109.03
13-06-2022	13:21:00	409.5	45.0	49.99	11.91	18.26	31.93	0.373	5.57	94.17
13-06-2022	13:21:05	409.7	44.8	49.99	12.08	17.96	31.81	0.379	5.50	130.53
13-06-2022	13:21:10	409.4	45.0	50.01	12.12	18.28	31.89	0.38	5.53	114.17
13-06-2022	13:21:15	409.6	45.3	49.99	12.66	18.23	32.12	0.394	5.60	100.67
13-06-2022	13:21:20	408.9	45.8	49.99	12.57	18.28	32.44	0.387	5.53	109.97
13-06-2022	13:21:25	409.2	56.2	49.98	20.89	25.15	39.83	0.524	5.00	77.90
13-06-2022	13:21:30	409.6	56.0	49.97	21.42	25.11	39.68	0.539	5.23	66.27
13-06-2022	13:21:35	409.9	56.3	49.99	21.88	25.38	39.93	0.547	5.17	65.97
13-06-2022	13:21:40	410.1	55.7	49.99	20.99	25.52	39.52	0.531	5.17	69.87
13-06-2022	13:21:45	410.1	54.4	49.99	20.28	24.77	38.63	0.525	5.23	58.70
13-06-2022	13:21:50	410.3	54.9	50	20.15	25.65	38.97	0.517	5.23	62.37
13-06-2022	13:21:55	410.3	54.2	50.01	19.76	25.42	38.50	0.513	5.20	65.00
13-06-2022	13:22:00	410.1	54.5	50.01	19.73	25.50	38.68	0.51	5.17	68.47
13-06-2022	13:22:05	410.4	54.1	49.99	19.83	25.01	38.47	0.515	5.17	66.43
13-06-2022	13:22:10	410.6	54.4	50	20.27	25.36	38.68	0.524	5.23	63.77
13-06-2022	13:22:15	410.1	55.0	50	20.57	25.55	39.07	0.526	5.20	66.10
13-06-2022	13:22:20	409.6	54.8	49.98	20.82	25.00	38.86	0.535	5.27	60.87
13-06-2022	13:22:25	410.4	55.5	49.96	20.96	25.51	39.47	0.53	5.17	62.53
13-06-2022	13:22:30	410.0	55.7	50	21.09	25.62	39.50	0.534	5.17	66.57
13-06-2022	13:22:35	410.2	55.4	49.98	21.03	25.46	39.36	0.534	5.27	66.47
13-06-2022	13:22:40	410.1	55.2	49.97	20.73	25.38	39.20	0.529	5.10	65.90
13-06-2022	13:22:45	410.3	55.7	50	21.23	25.33	39.53	0.537	5.17	67.40

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	13:22:50	409.7	55.7	50.01	21.08	25.72	39.49	0.534	5.20	61.17
13-06-2022	13:22:55	410.0	55.4	49.99	20.63	25.67	39.31	0.525	5.20	69.37
13-06-2022	13:23:00	410.3	56.1	49.96	21.21	25.37	39.80	0.532	5.07	76.07
13-06-2022	13:23:05	410.1	55.6	50.01	21.16	25.26	39.46	0.536	5.23	71.07
13-06-2022	13:23:10	409.4	55.5	49.99	21.18	24.96	39.31	0.538	5.20	62.90
13-06-2022	13:23:15	411.0	54.8	49.98	20.48	25.23	39.02	0.525	5.13	64.97
13-06-2022	13:23:20	410.1	54.4	49.99	19.97	25.45	38.67	0.516	5.27	63.47
13-06-2022	13:23:25	410.2	54.5	50.01	19.95	25.59	38.74	0.515	5.23	64.83
13-06-2022	13:23:30	410.0	54.4	49.98	20.36	24.85	38.59	0.527	5.17	66.53
13-06-2022	13:23:35	410.0	54.5	50	20.36	25.01	38.67	0.526	5.17	73.13
13-06-2022	13:23:40	410.5	54.5	49.98	20.21	25.31	38.72	0.522	5.20	64.83
13-06-2022	13:23:45	410.3	54.4	49.98	20.20	25.13	38.61	0.523	5.27	66.27
13-06-2022	13:23:50	409.5	55.3	50	20.69	25.13	39.19	0.527	5.20	57.47
13-06-2022	13:23:55	410.1	54.8	49.99	20.64	24.85	38.87	0.531	5.23	57.83
13-06-2022	13:24:00	410.2	55.0	50.01	20.73	25.16	39.07	0.53	5.23	61.63
13-06-2022	13:24:05	410.2	55.2	49.99	20.83	25.06	39.20	0.531	5.13	73.07
13-06-2022	13:24:10	409.6	55.6	49.98	21.09	25.07	39.44	0.534	5.10	57.47
13-06-2022	13:24:15	410.2	55.5	50.01	21.05	25.07	39.41	0.534	5.10	61.30
13-06-2022	13:24:20	409.7	55.6	50.01	21.66	24.78	39.43	0.549	5.23	57.20
13-06-2022	13:24:25	410.5	56.3	49.96	21.82	25.29	39.95	0.546	4.90	70.27
13-06-2022	13:24:30	409.5	57.0	50	22.66	25.11	40.38	0.561	5.20	55.93
13-06-2022	13:24:35	409.9	56.2	49.98	21.70	25.18	39.82	0.545	5.13	63.20
13-06-2022	13:24:40	410.1	55.4	49.98	21.36	25.03	39.32	0.543	5.23	65.40
13-06-2022	13:24:45	409.7	55.7	50.02	21.45	25.18	39.49	0.543	5.20	62.30
13-06-2022	13:24:50	410.0	56.4	50	22.12	25.04	39.97	0.553	5.07	72.43
13-06-2022	13:24:55	410.1	56.4	49.98	22.21	25.06	40.02	0.555	5.17	66.43
13-06-2022	13:25:00	409.5	56.6	50.01	22.13	25.28	40.12	0.551	5.20	57.10
13-06-2022	13:25:05	410.6	56.0	49.97	21.72	25.08	39.82	0.545	5.07	73.83
13-06-2022	13:25:10	409.7	55.7	49.99	21.59	25.26	39.54	0.546	5.23	64.07
13-06-2022	13:25:15	410.6	55.2	50.01	20.88	25.28	39.21	0.532	5.07	74.63
13-06-2022	13:25:20	410.5	54.6	49.99	20.61	25.01	38.81	0.531	5.17	59.00
13-06-2022	13:25:25	410.0	55.0	50	20.80	25.19	39.07	0.532	5.30	63.37
13-06-2022	13:25:30	410.2	54.7	50.01	20.66	25.12	38.82	0.532	5.23	64.80
13-06-2022	13:25:35	409.8	55.3	50	20.76	25.46	39.25	0.528	5.13	60.07
13-06-2022	13:25:40	410.6	54.9	50	20.96	25.09	39.05	0.537	5.20	69.77
13-06-2022	13:25:45	410.1	55.4	49.98	21.16	25.07	39.35	0.537	5.20	72.23
13-06-2022	13:25:50	409.4	56.2	49.99	21.61	25.40	39.82	0.542	5.13	56.13
13-06-2022	13:25:55	410.1	55.6	49.99	21.54	24.94	39.47	0.545	5.13	73.27
13-06-2022	13:26:00	410.1	55.7	50.01	21.48	25.08	39.53	0.543	5.10	68.43
13-06-2022	13:26:05	410.2	55.3	49.98	21.22	24.81	39.30	0.54	5.17	65.97
13-06-2022	13:26:10	410.3	55.2	50	20.91	25.45	39.24	0.533	5.20	65.83
13-06-2022	13:26:15	409.9	54.5	50	20.40	25.24	38.68	0.527	5.20	65.20
13-06-2022	13:26:20	410.7	55.0	50	20.76	25.27	39.05	0.531	5.13	69.87
13-06-2022	13:26:25	410.0	54.5	50.03	20.61	24.76	38.72	0.532	5.23	57.87
13-06-2022	13:26:30	409.9	54.4	49.99	20.11	24.94	38.58	0.521	5.10	64.37

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	13:26:35	410.5	54.7	49.99	20.18	25.32	38.85	0.519	4.97	68.00
13-06-2022	13:26:40	410.5	54.0	49.99	20.15	24.98	38.40	0.524	5.20	66.93
13-06-2022	13:26:45	410.6	54.6	49.99	20.23	25.18	38.81	0.521	4.97	75.23
13-06-2022	13:26:50	409.9	54.7	50.01	20.61	25.06	38.83	0.53	5.20	57.63
13-06-2022	13:26:55	409.8	54.8	49.99	20.80	25.16	38.92	0.534	5.23	63.73
13-06-2022	13:27:00	410.1	55.1	50	21.06	25.04	39.09	0.538	5.17	62.87
13-06-2022	13:27:05	410.6	55.0	49.99	21.35	24.96	39.13	0.545	5.23	59.53
13-06-2022	13:27:10	410.2	55.8	50	21.33	25.48	39.61	0.538	5.10	57.70
13-06-2022	13:27:15	409.9	55.8	49.99	21.86	24.97	39.60	0.552	5.13	64.90
13-06-2022	13:27:20	410.5	55.5	49.98	20.90	25.22	39.41	0.53	5.00	68.60
13-06-2022	13:27:25	410.3	54.4	50	20.40	24.65	38.61	0.528	5.23	62.57
13-06-2022	13:27:30	409.7	45.8	50.04	12.91	18.67	32.49	0.395	5.47	119.03
13-06-2022	13:27:35	409.9	43.8	49.97	12.12	17.39	31.11	0.389	5.60	112.63
13-06-2022	13:27:40	409.7	44.2	49.99	11.95	17.85	31.32	0.381	5.53	111.07
13-06-2022	13:27:45	409.3	44.7	49.99	11.66	18.08	31.70	0.367	5.50	113.70
13-06-2022	13:27:50	409.3	45.3	50.01	12.91	17.80	32.11	0.402	5.40	130.17
13-06-2022	13:27:55	409.8	45.0	49.98	12.61	17.68	31.91	0.395	5.50	114.00
13-06-2022	13:28:00	409.5	45.0	49.98	12.78	17.76	31.93	0.4	5.60	105.03
13-06-2022	13:28:05	409.3	45.2	49.98	12.73	17.97	32.04	0.397	5.50	115.50
13-06-2022	13:28:10	409.3	44.9	50.01	12.62	17.91	31.81	0.396	5.53	112.80
13-06-2022	13:28:15	409.7	44.8	50.01	11.97	17.85	31.79	0.376	5.43	115.87
13-06-2022	13:28:20	409.1	45.1	50.02	12.27	17.93	31.96	0.384	5.43	122.07
13-06-2022	13:28:25	409.3	45.3	50.01	13.25	17.61	32.12	0.412	5.43	114.60
13-06-2022	13:28:30	409.9	44.4	49.98	11.97	17.58	31.49	0.38	5.57	113.47
13-06-2022	13:28:35	409.6	44.4	50.02	11.98	18.02	31.51	0.38	5.53	108.20
13-06-2022	13:28:40	409.6	44.3	50.03	12.10	17.92	31.43	0.385	5.50	114.60
13-06-2022	13:28:45	409.9	44.1	49.98	12.05	17.65	31.34	0.384	5.53	117.53
13-06-2022	13:28:50	409.9	44.2	49.99	11.90	17.88	31.36	0.379	5.63	95.93
13-06-2022	13:28:55	409.5	44.5	49.98	12.07	17.75	31.52	0.383	5.57	119.40
13-06-2022	13:29:00	409.8	44.6	50	12.13	18.23	31.64	0.383	5.53	113.33
13-06-2022	13:29:05	409.7	51.4	49.98	17.27	22.84	36.45	0.47	5.27	84.07
13-06-2022	13:29:10	410.0	54.0	49.99	19.85	24.89	38.33	0.517	5.27	62.30
13-06-2022	13:29:15	409.4	55.1	50	20.48	25.15	39.07	0.524	5.17	60.70
13-06-2022	13:29:20	410.5	55.9	50	21.58	24.98	39.66	0.544	5.00	73.90
13-06-2022	13:29:25	410.1	54.4	49.98	20.70	24.58	38.60	0.536	5.23	65.43
13-06-2022	13:29:30	409.9	54.7	50	20.80	24.42	38.78	0.536	5.23	60.57
13-06-2022	13:29:35	409.4	55.2	49.99	21.19	24.75	39.11	0.541	5.20	64.17
13-06-2022	13:29:40	410.3	56.1	50.01	22.03	24.81	39.84	0.553	5.27	58.90
13-06-2022	13:29:45	409.7	54.6	49.97	20.69	24.83	38.70	0.534	5.17	68.17
13-06-2022	13:29:50	410.8	54.6	49.99	20.63	24.90	38.82	0.531	5.20	60.20

DP 1 Building A:

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	13:39:10	410.0	33.9	50.01	20.81	8.85	24.14	0.862	5.10	34.37
13-06-2022	13:39:15	410.0	33.5	50.02	20.52	8.78	23.85	0.86	5.53	34.30
13-06-2022	13:39:20	409.6	35.9	49.99	21.75	9.40	25.48	0.853	5.67	36.33
13-06-2022	13:39:25	408.8	34.6	50.01	21.28	8.77	24.53	0.867	5.40	34.37
13-06-2022	13:39:30	409.3	34.7	49.98	21.42	8.83	24.62	0.87	5.40	33.63
13-06-2022	13:39:35	409.5	34.1	49.99	20.96	8.67	24.17	0.867	5.53	34.27
13-06-2022	13:39:40	408.7	33.7	50.01	20.65	8.56	23.85	0.865	5.47	34.53
13-06-2022	13:39:45	408.9	34.0	49.99	20.84	8.72	24.08	0.865	5.43	33.83
13-06-2022	13:39:50	408.9	34.6	50.01	21.35	8.79	24.53	0.87	5.50	32.70
13-06-2022	13:39:55	409.2	35.0	50	21.68	8.80	24.82	0.873	5.53	32.33
13-06-2022	13:40:00	409.2	34.4	50	21.20	8.79	24.41	0.868	5.43	33.00
13-06-2022	13:40:05	409.4	34.3	49.98	21.11	8.85	24.35	0.867	5.57	33.23
13-06-2022	13:40:10	409.2	33.8	50.01	20.76	8.72	24.01	0.864	5.43	34.33
13-06-2022	13:40:15	409.5	34.3	50.01	21.14	8.79	24.35	0.868	5.47	33.60
13-06-2022	13:40:20	409.6	33.8	49.99	20.75	8.76	24.01	0.864	5.53	33.40
13-06-2022	13:40:25	409.4	34.4	50	21.25	8.80	24.43	0.869	5.53	33.17
13-06-2022	13:40:30	409.3	34.4	49.99	21.13	8.82	24.37	0.867	5.50	33.60
13-06-2022	13:40:35	409.1	34.0	50.01	20.85	8.74	24.10	0.864	5.43	34.07
13-06-2022	13:40:40	409.0	34.2	49.99	21.03	8.79	24.25	0.867	5.57	34.17
13-06-2022	13:40:45	408.9	34.4	49.98	21.22	8.77	24.41	0.869	5.50	33.43
13-06-2022	13:40:50	409.1	34.3	49.97	21.09	8.84	24.35	0.866	5.53	33.40
13-06-2022	13:40:55	408.7	37.6	49.99	22.28	9.43	26.63	0.839	5.47	32.47
13-06-2022	13:41:00	407.8	37.1	49.99	22.93	9.37	26.19	0.875	5.40	32.23
13-06-2022	13:41:05	408.2	37.8	50	23.53	9.48	26.75	0.88	5.43	31.80
13-06-2022	13:41:10	407.9	37.9	50	23.52	9.53	26.74	0.879	5.40	31.50
13-06-2022	13:41:15	407.7	37.8	50.01	23.40	9.51	26.65	0.878	5.43	31.33
13-06-2022	13:41:20	408.2	37.8	50	23.42	9.58	26.68	0.877	5.43	31.37
13-06-2022	13:41:25	407.8	37.6	50.01	23.30	9.48	26.54	0.877	5.47	31.50
13-06-2022	13:41:30	407.9	37.5	49.98	23.15	9.50	26.46	0.874	5.43	32.83
13-06-2022	13:41:35	408.3	37.8	50.01	23.50	9.56	26.74	0.879	5.47	31.27
13-06-2022	13:41:40	408.0	37.7	49.99	23.35	9.62	26.64	0.876	5.33	31.33
13-06-2022	13:41:45	408.2	37.3	50.02	23.08	9.52	26.37	0.875	5.33	32.07
13-06-2022	13:41:50	408.6	37.6	49.99	23.28	9.63	26.61	0.875	5.47	31.93
13-06-2022	13:41:55	408.1	37.8	50.01	23.51	9.56	26.76	0.878	5.40	31.47
13-06-2022	13:42:00	408.7	37.5	49.99	23.27	9.62	26.57	0.876	5.47	31.07
13-06-2022	13:42:05	408.9	36.9	49.98	22.73	9.60	26.10	0.87	5.43	32.30
13-06-2022	13:42:10	408.7	37.3	50.01	23.12	9.60	26.44	0.874	5.47	32.03
13-06-2022	13:42:15	408.9	37.1	49.98	22.96	9.56	26.28	0.874	5.50	32.10
13-06-2022	13:42:20	408.6	37.2	50	23.02	9.57	26.33	0.874	5.47	31.47
13-06-2022	13:42:25	408.6	37.2	50	23.01	9.56	26.31	0.874	5.47	31.47

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	13:42:30	408.4	36.8	50	22.73	9.48	26.06	0.872	5.50	32.20
13-06-2022	13:42:35	408.4	37.5	50	23.24	9.55	26.51	0.876	5.37	31.80
13-06-2022	13:42:40	408.1	37.2	50.02	23.02	9.48	26.29	0.875	5.43	31.97
13-06-2022	13:42:45	408.2	36.8	50	22.70	9.42	26.00	0.873	5.43	32.60
13-06-2022	13:42:50	408.6	37.3	50	23.09	9.59	26.41	0.874	5.43	32.00
13-06-2022	13:42:55	408.3	37.3	49.97	23.15	9.53	26.42	0.876	5.47	31.30
13-06-2022	13:43:00	408.6	37.6	50.01	23.35	9.59	26.63	0.877	5.40	31.70
13-06-2022	13:43:05	408.4	37.5	49.99	23.28	9.56	26.54	0.877	5.43	31.57
13-06-2022	13:43:10	408.3	37.2	50.01	22.99	9.45	26.27	0.875	5.43	32.23
13-06-2022	13:43:15	408.7	37.8	49.97	23.49	9.60	26.75	0.878	5.47	31.83
13-06-2022	13:43:20	408.2	37.6	49.99	23.31	9.54	26.56	0.877	5.43	31.60
13-06-2022	13:43:25	408.4	37.2	49.97	23.01	9.48	26.29	0.875	5.43	31.60
13-06-2022	13:43:30	408.5	37.8	50	23.50	9.57	26.75	0.878	5.43	31.50
13-06-2022	13:43:35	408.6	37.6	49.98	23.33	9.61	26.60	0.877	5.40	31.77
13-06-2022	13:43:40	408.4	37.5	50.01	23.28	9.52	26.52	0.878	5.40	31.37
13-06-2022	13:43:45	408.6	37.5	49.97	23.31	9.58	26.57	0.877	5.37	31.07
13-06-2022	13:43:50	408.8	37.2	50.01	23.05	9.55	26.34	0.875	5.47	31.93
13-06-2022	13:43:55	408.9	37.2	49.97	23.08	9.59	26.38	0.874	5.47	32.10
13-06-2022	13:44:00	408.4	36.9	50	22.79	9.44	26.09	0.873	5.40	32.37
13-06-2022	13:44:05	408.3	37.2	50	23.00	9.48	26.28	0.875	5.40	31.90
13-06-2022	13:44:10	408.6	37.4	49.99	23.26	9.55	26.51	0.877	5.47	31.07
13-06-2022	13:44:15	408.1	38.5	49.99	23.62	9.96	27.24	0.867	5.40	33.50
13-06-2022	13:44:20	408.2	37.8	50.01	23.30	9.68	26.72	0.871	5.43	32.30
13-06-2022	13:44:25	408.5	37.1	49.99	23.01	9.50	26.28	0.875	5.50	31.57
13-06-2022	13:44:30	408.6	37.2	49.97	23.02	9.53	26.30	0.875	5.50	31.87
13-06-2022	13:44:35	408.5	37.3	50.01	23.09	9.52	26.39	0.875	5.47	32.30
13-06-2022	13:44:40	408.6	37.2	50	23.03	9.55	26.31	0.875	5.43	31.47
13-06-2022	13:44:45	407.6	37.1	49.97	22.95	9.43	26.20	0.876	5.37	31.47
13-06-2022	13:44:50	409.5	37.3	50.01	23.10	9.66	26.48	0.872	5.07	32.37
13-06-2022	13:44:55	409.3	37.3	50.01	23.07	9.60	26.45	0.872	5.10	32.77
13-06-2022	13:45:00	408.9	37.1	50.02	22.94	9.57	26.30	0.871	5.07	32.27
13-06-2022	13:45:05	409.3	37.4	49.98	23.14	9.64	26.50	0.873	5.07	32.37
13-06-2022	13:45:10	409.3	37.6	49.98	23.33	9.64	26.68	0.874	4.97	32.43
13-06-2022	13:45:15	409.2	37.5	50	23.22	9.67	26.60	0.873	5.13	32.07
13-06-2022	13:45:20	408.7	37.4	49.99	23.13	9.58	26.47	0.873	5.10	32.07
13-06-2022	13:45:25	409.1	37.4	49.98	23.18	9.56	26.52	0.873	4.90	33.00
13-06-2022	13:45:30	410.1	37.7	49.99	23.40	9.73	26.80	0.873	4.77	32.60
13-06-2022	13:45:35	409.3	37.8	49.98	23.45	9.68	26.82	0.874	4.80	32.17
13-06-2022	13:45:40	409.7	37.6	50.01	23.32	9.70	26.70	0.873	4.90	32.50
13-06-2022	13:45:45	409.5	37.6	49.99	23.29	9.66	26.66	0.873	4.80	32.77
13-06-2022	13:45:50	409.2	37.9	49.99	23.51	9.69	26.87	0.874	4.80	32.30
13-06-2022	13:45:55	409.7	38.1	49.99	23.64	9.72	27.01	0.875	4.90	32.03
13-06-2022	13:46:00	409.7	38.1	50	23.65	9.71	27.01	0.875	4.90	32.37
13-06-2022	13:46:05	409.8	37.5	49.98	23.17	9.70	26.59	0.871	4.93	32.90
13-06-2022	13:46:10	409.9	37.6	49.99	23.29	9.71	26.70	0.872	4.87	32.53

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	13:46:15	409.4	37.3	50	23.07	9.64	26.48	0.871	4.87	32.67
13-06-2022	13:46:20	410.0	37.4	49.97	23.15	9.77	26.60	0.87	4.77	33.37
13-06-2022	13:46:25	409.8	37.4	49.97	23.15	9.76	26.58	0.871	4.83	32.93
13-06-2022	13:46:30	409.4	37.4	50.04	23.12	9.61	26.51	0.872	4.87	32.37
13-06-2022	13:46:35	409.7	37.4	50.01	23.14	9.66	26.55	0.871	4.77	32.93
13-06-2022	13:46:40	409.7	37.4	50	23.11	9.67	26.54	0.871	4.77	33.20
13-06-2022	13:46:45	410.1	37.0	50	22.84	9.72	26.30	0.868	4.77	32.83
13-06-2022	13:46:50	409.5	37.0	50.01	22.82	9.64	26.27	0.868	4.83	33.07
13-06-2022	13:46:55	409.8	37.0	49.98	22.83	9.70	26.29	0.868	4.80	33.27
13-06-2022	13:47:00	410.3	37.1	49.98	22.85	9.74	26.33	0.867	4.73	33.07
13-06-2022	13:47:05	409.6	37.0	50	22.82	9.65	26.27	0.868	4.80	33.07
13-06-2022	13:47:10	409.6	36.9	49.99	22.80	9.60	26.21	0.869	4.77	32.73
13-06-2022	13:47:15	409.7	36.9	49.99	22.80	9.64	26.22	0.869	4.87	32.83
13-06-2022	13:47:20	409.6	37.2	50	23.01	9.60	26.39	0.871	4.77	33.13
13-06-2022	13:47:25	409.9	37.2	50.01	23.00	9.63	26.39	0.871	4.80	33.07
13-06-2022	13:47:30	409.3	37.2	50.01	23.00	9.59	26.39	0.871	4.90	32.67
13-06-2022	13:47:35	409.3	37.2	49.98	22.96	9.59	26.36	0.871	4.83	33.07
13-06-2022	13:47:40	410.0	37.2	49.96	22.98	9.67	26.38	0.871	4.70	32.80
13-06-2022	13:47:45	409.1	37.1	50	22.92	9.56	26.29	0.871	4.83	32.63
13-06-2022	13:47:50	409.8	37.1	49.98	22.92	9.62	26.33	0.87	4.70	33.30
13-06-2022	13:47:55	409.7	37.1	50	22.95	9.65	26.35	0.871	4.90	32.83
13-06-2022	13:48:00	409.4	37.5	49.98	23.21	9.64	26.58	0.873	4.73	32.60
13-06-2022	13:48:05	410.0	37.6	49.95	23.27	9.74	26.69	0.871	4.73	32.70
13-06-2022	13:48:10	409.5	37.6	50.04	23.27	9.64	26.64	0.873	4.83	32.47
13-06-2022	13:48:15	409.9	37.6	49.97	23.27	9.70	26.67	0.872	4.73	33.10
13-06-2022	13:48:20	409.6	37.6	49.99	23.29	9.72	26.69	0.872	4.87	32.60
13-06-2022	13:48:25	409.7	37.6	49.99	23.26	9.67	26.64	0.873	4.80	32.20
13-06-2022	13:48:30	409.6	37.5	50.02	23.26	9.62	26.63	0.873	4.83	33.10
13-06-2022	13:48:35	409.9	37.6	50.01	23.29	9.70	26.68	0.873	4.80	32.83
13-06-2022	13:48:40	409.1	37.6	49.99	23.25	9.61	26.63	0.873	4.77	32.57
13-06-2022	13:48:45	409.9	37.6	49.99	23.32	9.71	26.73	0.872	4.77	32.97
13-06-2022	13:48:50	409.1	37.7	50.01	23.31	9.62	26.70	0.873	4.93	33.17
13-06-2022	13:48:55	409.5	37.6	49.97	23.30	9.64	26.67	0.873	4.73	32.53
13-06-2022	13:49:00	409.8	37.7	49.99	23.37	9.70	26.77	0.873	4.93	33.03
13-06-2022	13:49:05	409.2	38.2	50	23.68	9.66	27.04	0.875	4.87	32.73
13-06-2022	13:49:10	409.7	38.2	49.99	23.77	9.70	27.11	0.876	4.77	32.13
13-06-2022	13:49:15	409.6	38.2	50.01	23.76	9.67	27.10	0.877	4.90	32.33
13-06-2022	13:49:20	409.7	37.8	49.96	23.48	9.72	26.87	0.873	4.73	32.77
13-06-2022	13:49:25	409.7	37.9	50	23.49	9.71	26.89	0.873	4.83	32.70
13-06-2022	13:49:30	409.9	37.9	49.98	23.49	9.73	26.89	0.873	4.70	32.43
13-06-2022	13:49:35	409.5	37.9	50.02	23.48	9.67	26.85	0.874	4.83	32.60
13-06-2022	13:49:40	410.2	37.8	49.98	23.49	9.75	26.88	0.873	4.77	32.97
13-06-2022	13:49:45	409.9	37.8	49.99	23.48	9.72	26.86	0.874	4.80	32.77
13-06-2022	13:49:50	409.3	37.8	50.01	23.45	9.64	26.80	0.874	4.83	32.03
13-06-2022	13:49:55	409.8	37.9	49.98	23.53	9.69	26.90	0.874	4.77	32.97

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	13:50:00	409.7	37.9	50.01	23.55	9.61	26.89	0.875	4.87	32.27
13-06-2022	13:50:05	409.3	37.4	50	23.11	9.55	26.49	0.872	4.83	32.40
13-06-2022	13:50:10	410.0	37.3	49.98	23.06	9.65	26.45	0.871	4.77	32.67
13-06-2022	13:50:15	409.5	37.3	50.01	23.04	9.60	26.43	0.872	4.90	32.47
13-06-2022	13:50:20	409.7	37.3	49.97	23.03	9.62	26.44	0.871	4.77	32.40
13-06-2022	13:50:25	409.6	37.3	49.97	23.06	9.66	26.47	0.871	4.83	32.90
13-06-2022	13:50:30	409.7	37.2	49.97	23.00	9.58	26.37	0.872	4.80	32.23
13-06-2022	13:50:35	409.8	37.3	50	23.07	9.61	26.47	0.871	4.80	32.43
13-06-2022	13:50:40	409.7	37.2	50.02	23.04	9.61	26.43	0.872	4.90	32.70
13-06-2022	13:50:45	410.1	37.3	49.99	23.07	9.67	26.50	0.871	4.67	32.43
13-06-2022	13:50:50	409.8	37.5	50	23.24	9.69	26.64	0.872	4.93	32.23
13-06-2022	13:50:55	410.2	35.6	49.99	21.96	9.09	25.27	0.869	4.90	33.47
13-06-2022	13:51:00	410.5	34.8	50.02	21.47	8.89	24.77	0.867	4.87	34.23
13-06-2022	13:51:05	410.6	34.8	49.98	21.49	8.91	24.79	0.866	4.87	33.90
13-06-2022	13:51:10	410.7	34.8	50.02	21.47	8.91	24.73	0.868	5.13	33.50
13-06-2022	13:51:15	410.0	34.7	50	21.44	8.85	24.68	0.868	5.20	33.93
13-06-2022	13:51:20	409.7	34.3	49.97	21.12	8.75	24.37	0.866	5.20	33.93
13-06-2022	13:51:25	409.7	34.8	49.99	21.52	8.80	24.72	0.87	5.20	33.10
13-06-2022	13:51:30	409.6	34.8	49.97	21.46	8.82	24.69	0.869	5.27	33.47
13-06-2022	13:51:35	409.3	34.5	50.01	21.25	8.77	24.49	0.867	5.17	33.97
13-06-2022	13:51:40	409.7	33.6	50	20.55	8.66	23.85	0.861	5.20	34.80
13-06-2022	13:51:45	409.6	34.2	50	21.08	8.73	24.33	0.866	5.10	34.17
13-06-2022	13:51:50	410.1	33.6	50	20.67	8.73	23.94	0.863	5.37	34.17
13-06-2022	13:51:55	409.0	33.4	50	20.49	8.58	23.70	0.864	5.53	34.53
13-06-2022	13:52:00	409.2	34.2	50	21.11	8.70	24.28	0.869	5.57	33.57
13-06-2022	13:52:05	409.1	34.1	50.01	21.02	8.68	24.19	0.868	5.53	33.20
13-06-2022	13:52:10	409.0	33.8	49.97	20.74	8.66	23.95	0.866	5.47	33.60
13-06-2022	13:52:15	408.7	33.6	50.01	20.60	8.58	23.79	0.866	5.57	34.00
13-06-2022	13:52:20	409.1	34.2	49.99	21.06	8.73	24.26	0.868	5.47	33.80
13-06-2022	13:52:25	408.8	33.5	49.98	20.52	8.62	23.77	0.862	5.50	34.37
13-06-2022	13:52:30	408.9	34.0	50.02	20.95	8.66	24.13	0.868	5.53	33.37
13-06-2022	13:52:35	408.9	34.0	49.99	20.91	8.71	24.11	0.867	5.43	33.67
13-06-2022	13:52:40	409.0	33.9	49.98	20.83	8.71	24.05	0.866	5.47	33.77
13-06-2022	13:52:45	408.8	33.9	50	20.81	8.66	24.02	0.866	5.53	34.37
13-06-2022	13:52:50	408.9	34.0	49.99	20.90	8.71	24.10	0.867	5.50	33.63
13-06-2022	13:52:55	408.8	34.0	49.99	20.90	8.70	24.11	0.867	5.40	33.87
13-06-2022	13:53:00	409.2	33.9	50.01	20.78	8.69	24.03	0.865	5.47	33.87
13-06-2022	13:53:05	408.6	34.1	50	20.97	8.65	24.17	0.867	5.50	34.13
13-06-2022	13:53:10	409.2	35.5	50.02	21.83	9.01	25.20	0.866	5.63	33.63
13-06-2022	13:53:15	409.2	35.5	50	21.67	9.15	25.19	0.86	5.60	36.03
13-06-2022	13:53:20	409.6	34.0	50	20.90	8.72	24.13	0.866	5.50	33.87
13-06-2022	13:53:25	409.1	33.9	50	20.81	8.63	24.01	0.866	5.50	33.47
13-06-2022	13:53:30	409.4	34.8	50	21.56	8.77	24.73	0.871	5.50	32.97
13-06-2022	13:53:35	409.9	34.6	49.98	21.43	8.74	24.62	0.87	5.57	32.23
13-06-2022	13:53:40	409.6	35.0	49.99	21.72	8.78	24.86	0.873	5.40	32.30

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	13:53:45	409.7	34.9	50	21.64	8.74	24.77	0.873	5.53	32.63
13-06-2022	13:53:50	409.4	34.4	49.98	21.23	8.65	24.40	0.87	5.50	32.97
13-06-2022	13:53:55	409.8	34.7	49.99	21.53	8.76	24.69	0.872	5.50	32.53
13-06-2022	13:54:00	409.5	34.3	50.01	21.19	8.70	24.38	0.869	5.47	33.33
13-06-2022	13:54:05	409.7	34.3	49.96	21.24	8.70	24.42	0.87	5.60	32.83
13-06-2022	13:54:10	409.7	33.7	49.99	20.69	8.69	23.94	0.863	5.47	33.47
13-06-2022	13:54:15	409.4	34.1	50.01	21.06	8.68	24.22	0.869	5.43	33.53
13-06-2022	13:54:20	409.4	33.9	50.02	20.87	8.69	24.08	0.866	5.53	33.73
13-06-2022	13:54:25	409.3	33.1	50	20.15	8.63	23.46	0.859	5.60	36.00
13-06-2022	13:54:30	408.9	33.1	50	20.20	8.57	23.46	0.861	5.47	36.17
13-06-2022	13:54:35	409.1	33.4	50	20.42	8.64	23.68	0.862	5.50	35.53
13-06-2022	13:54:40	408.8	32.6	50.03	19.79	8.44	23.07	0.858	5.43	36.17
13-06-2022	13:54:45	409.0	33.3	50.01	20.39	8.61	23.64	0.862	5.53	35.60
13-06-2022	13:54:50	409.1	34.0	50	20.90	8.67	24.12	0.866	5.50	35.10
13-06-2022	13:54:55	409.0	35.3	49.97	21.23	9.32	25.01	0.849	5.57	38.73
13-06-2022	13:55:00	409.2	33.4	49.99	20.40	8.68	23.68	0.862	5.40	35.33
13-06-2022	13:55:05	409.3	33.4	50	20.42	8.69	23.72	0.86	5.53	36.17
13-06-2022	13:55:10	409.4	33.0	49.98	20.12	8.67	23.43	0.858	5.57	36.03
13-06-2022	13:55:15	409.4	32.5	49.99	19.76	8.57	23.08	0.856	5.47	36.10
13-06-2022	13:55:20	409.4	32.9	50	20.08	8.64	23.38	0.858	5.50	36.03
13-06-2022	13:55:25	409.4	32.6	49.98	19.82	8.58	23.12	0.857	5.50	36.30
13-06-2022	13:55:30	409.3	32.9	49.98	20.04	8.59	23.32	0.858	5.57	35.77
13-06-2022	13:55:35	409.6	32.5	49.99	19.73	8.51	23.05	0.855	5.60	36.97
13-06-2022	13:55:40	409.9	32.6	49.97	19.85	8.68	23.20	0.855	5.47	36.97
13-06-2022	13:55:45	409.5	33.5	50.01	20.53	8.69	23.78	0.863	5.47	35.47
13-06-2022	13:55:50	409.5	33.1	50	20.25	8.69	23.53	0.86	5.50	35.50
13-06-2022	13:55:55	409.3	33.7	49.99	20.62	8.69	23.87	0.864	5.50	35.77
13-06-2022	13:56:00	409.2	33.5	50	20.51	8.57	23.75	0.863	5.43	35.10
13-06-2022	13:56:05	408.2	36.9	50	22.67	9.39	26.08	0.869	5.43	34.07
13-06-2022	13:56:10	408.3	37.6	50	23.41	9.30	26.59	0.88	5.40	33.03
13-06-2022	13:56:15	408.4	37.1	49.99	23.05	9.30	26.29	0.877	5.43	33.17
13-06-2022	13:56:20	408.6	36.9	49.99	22.79	9.40	26.09	0.873	5.37	33.40
13-06-2022	13:56:25	408.5	36.9	49.99	22.78	9.40	26.10	0.872	5.47	34.20
13-06-2022	13:56:30	408.6	36.7	49.99	22.67	9.35	25.96	0.873	5.43	33.47
13-06-2022	13:56:35	408.6	36.8	50	22.71	9.41	26.03	0.872	5.40	33.47
13-06-2022	13:56:40	408.1	36.7	49.99	22.68	9.33	25.95	0.873	5.43	33.63
13-06-2022	13:56:45	408.4	36.8	49.99	22.72	9.39	26.03	0.873	5.37	33.63
13-06-2022	13:56:50	408.9	36.7	49.98	22.70	9.41	26.02	0.872	5.47	33.53
13-06-2022	13:56:55	408.3	36.4	49.99	22.41	9.39	25.76	0.869	5.37	34.07
13-06-2022	13:57:00	408.2	36.3	49.99	22.36	9.34	25.70	0.87	5.43	33.87
13-06-2022	13:57:05	408.1	36.6	50	22.54	9.32	25.88	0.871	5.30	34.40
13-06-2022	13:57:10	408.6	37.1	49.96	22.96	9.43	26.26	0.874	5.43	33.27
13-06-2022	13:57:15	408.0	37.0	50.02	22.91	9.32	26.16	0.875	5.43	33.33
13-06-2022	13:57:20	408.7	37.0	49.98	22.90	9.46	26.22	0.873	5.43	33.73
13-06-2022	13:57:25	408.1	37.1	49.99	22.93	9.39	26.20	0.875	5.33	32.73

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	13:57:30	408.5	37.2	50	23.07	9.45	26.35	0.875	5.43	32.77
13-06-2022	13:57:35	408.8	37.2	49.98	23.07	9.43	26.35	0.875	5.47	32.90
13-06-2022	13:57:40	408.4	37.3	49.99	23.12	9.47	26.40	0.875	5.37	32.63
13-06-2022	13:57:45	408.6	37.2	50	23.09	9.43	26.36	0.876	5.40	33.20
13-06-2022	13:57:50	408.9	37.2	49.96	23.07	9.47	26.36	0.875	5.40	32.77
13-06-2022	13:57:55	408.6	37.0	50	22.89	9.39	26.17	0.874	5.47	32.93
13-06-2022	13:58:00	408.5	36.8	50.01	22.79	9.35	26.06	0.874	5.37	33.50
13-06-2022	13:58:05	408.3	36.4	50.02	22.45	9.29	25.75	0.871	5.37	33.27
13-06-2022	13:58:10	408.9	36.8	49.99	22.80	9.43	26.10	0.873	5.37	32.70
13-06-2022	13:58:15	407.6	36.7	49.96	22.66	9.34	25.95	0.873	5.23	33.20
13-06-2022	13:58:20	408.9	36.6	50.02	22.57	9.36	25.91	0.871	5.10	33.23
13-06-2022	13:58:25	408.7	36.5	50.02	22.41	9.38	25.82	0.867	5.00	34.10
13-06-2022	13:58:30	409.0	36.8	50.01	22.68	9.38	26.04	0.871	4.87	34.40
13-06-2022	13:58:35	409.5	37.0	49.97	22.91	9.43	26.26	0.872	5.13	33.90
13-06-2022	13:58:40	409.0	37.3	49.99	23.09	9.41	26.42	0.873	5.07	34.03
13-06-2022	13:58:45	408.3	36.8	50	22.66	9.26	26.02	0.87	4.87	34.83
13-06-2022	13:58:50	409.9	37.5	49.99	23.17	9.50	26.56	0.872	4.80	34.13
13-06-2022	13:58:55	409.5	37.5	49.99	23.18	9.51	26.60	0.871	4.70	35.10
13-06-2022	13:59:00	409.7	37.6	49.97	23.23	9.55	26.64	0.871	4.80	34.67
13-06-2022	13:59:05	409.6	37.0	49.96	22.79	9.52	26.24	0.868	4.83	34.53
13-06-2022	13:59:10	409.7	36.9	50.01	22.77	9.46	26.19	0.869	4.87	35.30
13-06-2022	13:59:15	410.0	36.9	49.99	22.73	9.52	26.17	0.868	4.77	34.77
13-06-2022	13:59:20	409.3	36.9	50.01	22.76	9.46	26.19	0.869	4.87	35.03
13-06-2022	13:59:25	409.7	36.9	49.99	22.71	9.49	26.16	0.868	4.73	35.13
13-06-2022	13:59:30	410.0	36.8	49.99	22.70	9.49	26.14	0.868	4.80	34.57
13-06-2022	13:59:35	409.5	36.9	50	22.74	9.47	26.16	0.869	4.87	34.97
13-06-2022	13:59:40	409.8	36.8	49.99	22.72	9.51	26.16	0.868	4.77	34.67
13-06-2022	13:59:45	409.5	36.8	50.01	22.62	9.50	26.10	0.867	4.93	35.17
13-06-2022	13:59:50	409.3	36.6	50.01	22.54	9.42	25.98	0.867	4.80	34.77
13-06-2022	13:59:55	410.1	36.2	50	22.22	9.54	25.73	0.863	4.77	35.13
13-06-2022	14:00:00	409.4	36.1	49.99	22.14	9.42	25.62	0.864	4.83	35.03
13-06-2022	14:00:05	410.1	36.2	50	22.18	9.50	25.69	0.863	4.67	35.13
13-06-2022	14:00:10	410.2	36.1	49.98	22.16	9.53	25.68	0.863	4.77	35.53
13-06-2022	14:00:15	409.9	36.2	49.98	22.18	9.54	25.71	0.863	4.90	35.20
13-06-2022	14:00:20	409.2	36.1	50	22.12	9.37	25.60	0.864	4.80	35.33
13-06-2022	14:00:25	409.6	36.2	49.98	22.17	9.47	25.68	0.863	4.77	35.33
13-06-2022	14:00:30	409.4	36.2	50.02	22.19	9.44	25.68	0.864	4.80	35.33
13-06-2022	14:00:35	410.1	36.2	49.97	22.19	9.52	25.70	0.863	4.77	35.03
13-06-2022	14:00:40	409.5	36.2	50.01	22.19	9.46	25.69	0.863	4.90	35.57
13-06-2022	14:00:45	409.8	36.3	49.96	22.22	9.51	25.75	0.863	4.77	35.20
13-06-2022	14:00:50	409.6	36.3	50.01	22.21	9.46	25.71	0.864	4.80	35.23
13-06-2022	14:00:55	409.8	36.3	49.98	22.25	9.51	25.78	0.863	4.80	35.43
13-06-2022	14:01:00	409.6	36.2	49.96	22.19	9.42	25.68	0.864	4.77	35.23
13-06-2022	14:01:05	409.9	36.8	50	22.69	9.53	26.15	0.867	4.80	34.77
13-06-2022	14:01:10	409.7	36.8	49.97	22.65	9.50	26.09	0.868	4.73	34.83

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	14:01:15	409.8	36.8	49.98	22.66	9.52	26.10	0.868	4.87	34.87
13-06-2022	14:01:20	409.7	36.8	49.99	22.66	9.51	26.12	0.867	4.77	35.07
13-06-2022	14:01:25	409.8	36.8	49.99	22.66	9.55	26.13	0.867	4.80	35.40
13-06-2022	14:01:30	409.2	36.7	50	22.59	9.40	26.00	0.869	4.90	34.80
13-06-2022	14:01:35	409.6	36.7	50	22.59	9.42	26.01	0.868	4.77	35.23
13-06-2022	14:01:40	409.3	36.8	50	22.68	9.42	26.06	0.87	4.83	34.57
13-06-2022	14:01:45	409.5	37.1	50.02	22.89	9.43	26.29	0.871	4.80	34.90
13-06-2022	14:01:50	409.9	37.0	49.97	22.88	9.54	26.29	0.87	4.73	34.63
13-06-2022	14:01:55	409.3	36.9	49.98	22.78	9.39	26.15	0.871	4.73	34.47
13-06-2022	14:02:00	409.1	36.5	50	22.47	9.35	25.86	0.869	4.83	35.00
13-06-2022	14:02:05	409.8	36.1	49.99	22.20	9.35	25.59	0.867	4.73	34.53
13-06-2022	14:02:10	408.8	36.0	50	22.14	9.25	25.51	0.868	4.77	35.20
13-06-2022	14:02:15	409.7	36.0	50.01	22.13	9.35	25.54	0.866	4.73	35.17
13-06-2022	14:02:20	409.2	35.9	49.99	22.08	9.29	25.48	0.866	4.70	34.87
13-06-2022	14:02:25	409.5	36.0	49.99	22.11	9.33	25.52	0.866	4.73	35.27
13-06-2022	14:02:30	409.4	36.0	50.03	22.13	9.32	25.53	0.866	4.83	34.70
13-06-2022	14:02:35	409.3	36.0	50	22.11	9.28	25.50	0.867	4.70	35.23
13-06-2022	14:02:40	409.3	36.0	50.01	22.14	9.32	25.55	0.866	4.73	34.93
13-06-2022	14:02:45	409.2	36.0	50	22.11	9.30	25.51	0.866	4.80	35.17
13-06-2022	14:02:50	409.1	36.0	50.01	22.10	9.27	25.49	0.867	4.83	35.23
13-06-2022	14:02:55	409.3	35.6	50	21.80	9.28	25.24	0.863	4.87	35.37
13-06-2022	14:03:00	408.9	35.6	50.01	21.78	9.25	25.20	0.864	4.87	35.37
13-06-2022	14:03:05	409.1	35.6	50.03	21.80	9.23	25.23	0.863	4.80	35.43
13-06-2022	14:03:10	409.5	35.6	49.99	21.82	9.33	25.27	0.863	4.77	35.47
13-06-2022	14:03:15	408.9	35.6	50.01	21.78	9.22	25.19	0.864	4.87	35.20
13-06-2022	14:03:20	409.6	35.6	49.99	21.83	9.33	25.29	0.863	4.77	35.70
13-06-2022	14:03:25	409.0	35.7	50	21.83	9.24	25.27	0.864	4.87	35.13
13-06-2022	14:03:30	409.8	35.7	50	21.86	9.33	25.32	0.863	4.77	35.17
13-06-2022	14:03:35	409.4	35.6	50.01	21.83	9.28	25.27	0.864	4.83	35.40
13-06-2022	14:03:40	409.9	35.6	49.98	21.85	9.33	25.30	0.863	4.77	35.00
13-06-2022	14:03:45	409.7	35.6	49.97	21.84	9.34	25.30	0.863	4.77	35.30
13-06-2022	14:03:50	410.0	35.7	49.99	21.85	9.38	25.34	0.862	4.77	35.57
13-06-2022	14:03:55	409.1	35.6	50	21.79	9.25	25.22	0.864	4.80	35.00
13-06-2022	14:04:00	409.9	35.6	49.98	21.83	9.35	25.30	0.863	4.73	35.60
13-06-2022	14:04:05	409.2	35.6	50.01	21.80	9.26	25.23	0.864	4.87	34.97
13-06-2022	14:04:10	409.7	35.6	49.98	21.80	9.29	25.25	0.863	4.77	34.93
13-06-2022	14:04:15	409.6	35.6	50.02	21.84	9.32	25.28	0.863	4.83	35.47
13-06-2022	14:04:20	409.7	35.6	49.97	21.81	9.31	25.27	0.863	4.90	35.37
13-06-2022	14:04:25	409.8	35.6	50	21.84	9.30	25.30	0.863	4.77	35.27
13-06-2022	14:04:30	410.2	35.6	49.98	21.82	9.38	25.29	0.862	4.73	35.80
13-06-2022	14:04:35	410.0	35.7	50.02	21.90	9.38	25.35	0.864	4.87	34.90
13-06-2022	14:04:40	409.6	35.9	49.99	22.05	9.44	25.46	0.866	5.17	34.23
13-06-2022	14:04:45	409.1	36.3	50	22.32	9.42	25.70	0.868	5.10	33.87
13-06-2022	14:04:50	409.2	36.0	49.98	22.10	9.39	25.51	0.866	4.93	34.17
13-06-2022	14:04:55	409.3	36.5	50	22.51	9.43	25.87	0.87	5.07	33.87

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	14:05:00	409.3	36.5	49.98	22.50	9.49	25.87	0.869	5.07	33.83
13-06-2022	14:05:05	409.2	37.0	49.99	22.84	9.52	26.19	0.872	5.00	33.33
13-06-2022	14:05:10	409.5	37.0	50.03	22.84	9.56	26.22	0.871	5.00	33.47
13-06-2022	14:05:15	409.1	36.9	50.01	22.82	9.49	26.16	0.872	5.03	33.63
13-06-2022	14:05:20	409.5	36.9	49.98	22.80	9.51	26.15	0.872	4.93	33.40
13-06-2022	14:05:25	409.5	36.9	50	22.83	9.54	26.19	0.871	5.03	33.97
13-06-2022	14:05:30	409.3	37.0	49.99	22.84	9.54	26.20	0.872	4.97	33.53
13-06-2022	14:05:35	409.5	36.9	49.98	22.83	9.52	26.18	0.872	5.13	33.77
13-06-2022	14:05:40	409.5	36.8	50.02	22.81	9.46	26.13	0.872	5.10	33.13
13-06-2022	14:05:45	409.0	36.8	50.01	22.74	9.46	26.08	0.872	5.07	33.73
13-06-2022	14:05:50	409.3	36.4	50.01	22.46	9.43	25.82	0.869	5.07	33.17
13-06-2022	14:05:55	409.7	36.4	50.01	22.45	9.45	25.81	0.869	5.30	33.53
13-06-2022	14:06:00	408.6	35.4	49.99	21.72	9.20	25.03	0.867	5.43	33.37
13-06-2022	14:06:05	409.6	33.0	50	20.22	8.58	23.45	0.862	5.53	35.37
13-06-2022	14:06:10	409.3	32.6	49.99	19.85	8.53	23.10	0.859	5.50	35.53
13-06-2022	14:06:15	409.4	32.5	49.99	19.81	8.53	23.09	0.857	5.57	35.50
13-06-2022	14:06:20	409.2	33.2	49.99	20.37	8.56	23.56	0.864	5.43	34.93
13-06-2022	14:06:25	409.3	32.6	49.99	19.84	8.55	23.13	0.857	5.50	35.13
13-06-2022	14:06:30	409.2	32.7	50.02	19.93	8.51	23.19	0.859	5.53	35.27
13-06-2022	14:06:35	409.1	32.8	50	20.00	8.51	23.23	0.86	5.53	35.33
13-06-2022	14:06:40	409.1	33.3	49.98	20.39	8.58	23.60	0.863	5.53	35.00
13-06-2022	14:06:45	409.7	32.9	49.98	20.14	8.62	23.40	0.86	5.47	35.17
13-06-2022	14:06:50	409.2	32.5	49.97	19.77	8.50	23.06	0.857	5.50	35.73
13-06-2022	14:06:55	409.5	32.7	50	19.95	8.57	23.24	0.858	5.53	35.90
13-06-2022	14:07:00	409.4	32.9	49.99	20.11	8.55	23.38	0.86	5.40	35.20
13-06-2022	14:07:05	409.8	33.1	49.98	20.24	8.66	23.52	0.86	5.53	35.00
13-06-2022	14:07:10	409.1	32.7	49.99	19.94	8.56	23.22	0.858	5.37	35.87
13-06-2022	14:07:15	409.4	33.2	50.01	20.34	8.58	23.56	0.863	5.50	34.97
13-06-2022	14:07:20	409.1	32.7	49.99	19.90	8.50	23.18	0.858	5.53	35.63
13-06-2022	14:07:25	409.4	32.9	50.01	20.10	8.59	23.38	0.859	5.47	35.47
13-06-2022	14:07:30	409.3	32.7	50.01	19.92	8.52	23.18	0.859	5.47	35.33
13-06-2022	14:07:35	409.3	32.5	50	19.80	8.50	23.08	0.858	5.47	35.60
13-06-2022	14:07:40	409.5	33.2	50.01	20.38	8.57	23.58	0.864	5.53	35.23
13-06-2022	14:07:45	409.3	32.6	49.99	19.89	8.50	23.13	0.859	5.47	35.33
13-06-2022	14:07:50	409.4	32.6	49.99	19.85	8.50	23.13	0.858	5.43	35.70
13-06-2022	14:07:55	409.4	32.4	49.99	19.77	8.47	23.02	0.858	5.50	35.53
13-06-2022	14:08:00	409.6	32.7	49.99	19.96	8.52	23.21	0.859	5.53	35.53
13-06-2022	14:08:05	409.6	33.5	49.99	20.60	8.60	23.77	0.866	5.43	34.43
13-06-2022	14:08:10	409.5	32.5	49.99	19.87	8.48	23.09	0.86	5.47	35.27
13-06-2022	14:08:15	409.1	32.6	50.01	19.87	8.47	23.10	0.86	5.47	35.90
13-06-2022	14:08:20	409.9	33.2	49.99	20.41	8.57	23.60	0.864	5.50	34.80
13-06-2022	14:08:25	409.1	32.4	50	19.75	8.44	22.99	0.859	5.53	35.53
13-06-2022	14:08:30	409.3	32.7	50	19.96	8.54	23.23	0.859	5.47	35.67
13-06-2022	14:08:35	409.2	33.2	49.99	20.36	8.50	23.53	0.865	5.43	34.40
13-06-2022	14:08:40	409.1	33.0	49.97	20.21	8.56	23.43	0.862	5.43	35.00

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	14:08:45	409.1	34.0	50	20.99	8.58	24.10	0.87	5.43	33.77
13-06-2022	14:08:50	409.1	33.7	50	20.77	8.55	23.91	0.868	5.50	34.17
13-06-2022	14:08:55	408.9	33.1	50.02	20.21	8.49	23.44	0.862	5.37	35.77
13-06-2022	14:09:00	409.1	33.6	50.01	20.65	8.59	23.84	0.866	5.50	34.93
13-06-2022	14:09:05	409.3	34.2	49.95	21.13	8.67	24.28	0.87	5.43	34.17
13-06-2022	14:09:10	409.0	33.6	49.99	20.67	8.57	23.84	0.866	5.43	35.07
13-06-2022	14:09:15	409.1	34.1	49.99	21.09	8.60	24.21	0.871	5.43	33.87
13-06-2022	14:09:20	409.5	34.1	49.99	21.02	8.66	24.18	0.869	5.47	34.47
13-06-2022	14:09:25	409.2	34.1	49.98	21.06	8.67	24.24	0.868	5.50	34.27
13-06-2022	14:09:30	409.0	33.6	50	20.66	8.55	23.82	0.867	5.43	34.47
13-06-2022	14:09:35	409.5	33.4	49.97	20.52	8.56	23.73	0.865	5.53	35.13
13-06-2022	14:09:40	409.3	33.0	50.01	20.22	8.53	23.44	0.862	5.40	35.20
13-06-2022	14:09:45	409.0	33.8	49.99	20.83	8.61	23.96	0.869	5.40	34.40
13-06-2022	14:09:50	409.2	32.8	50	20.10	8.45	23.30	0.862	5.47	35.07
13-06-2022	14:09:55	409.3	33.1	49.99	20.31	8.53	23.51	0.863	5.53	35.27
13-06-2022	14:10:00	409.3	32.7	49.99	20.02	8.50	23.24	0.861	5.47	35.27
13-06-2022	14:10:05	409.1	32.8	49.99	20.01	8.53	23.25	0.86	5.30	35.17
13-06-2022	14:10:10	409.3	32.5	49.99	19.83	8.48	23.08	0.859	5.47	35.63
13-06-2022	14:10:15	409.2	32.8	50.01	20.06	8.50	23.27	0.861	5.53	35.03
13-06-2022	14:10:20	409.4	32.7	50	19.92	8.50	23.16	0.86	5.53	35.57
13-06-2022	14:10:25	409.4	33.6	49.99	20.72	8.61	23.90	0.867	5.47	34.87
13-06-2022	14:10:30	409.5	33.9	49.99	20.93	8.65	24.09	0.869	5.50	34.13
13-06-2022	14:10:35	409.4	33.0	49.97	20.22	8.54	23.43	0.862	5.50	35.10
13-06-2022	14:10:40	409.3	32.9	50	20.16	8.50	23.40	0.861	5.40	35.70
13-06-2022	14:10:45	409.5	32.9	49.99	20.15	8.51	23.38	0.861	5.47	35.00
13-06-2022	14:10:50	409.6	33.0	49.99	20.20	8.55	23.43	0.861	5.43	34.93
13-06-2022	14:10:55	409.2	33.5	50	20.55	8.59	23.75	0.865	5.40	35.23
13-06-2022	14:11:00	409.0	32.7	50.03	19.95	8.41	23.21	0.859	5.43	36.00
13-06-2022	14:11:05	409.5	33.0	49.99	20.21	8.51	23.45	0.862	5.47	35.53
13-06-2022	14:11:10	408.8	34.2	49.98	20.85	8.88	24.24	0.86	5.43	35.10
13-06-2022	14:11:15	407.8	36.2	50	22.37	9.12	25.59	0.874	5.07	33.37
13-06-2022	14:11:20	408.7	37.1	49.98	23.13	9.27	26.27	0.88	5.30	32.17
13-06-2022	14:11:25	408.8	37.3	50.01	23.22	9.35	26.39	0.879	5.23	32.03
13-06-2022	14:11:30	408.4	36.8	50.01	22.89	9.27	26.06	0.878	5.33	32.57
13-06-2022	14:11:35	408.7	36.5	49.99	22.63	9.32	25.87	0.874	5.13	33.00
13-06-2022	14:11:40	408.8	36.5	49.98	22.53	9.34	25.79	0.873	5.13	33.03
13-06-2022	14:11:45	409.2	36.3	50	22.44	9.34	25.71	0.872	5.13	33.03
13-06-2022	14:11:50	408.7	36.1	49.99	22.35	9.26	25.59	0.873	5.07	32.73
13-06-2022	14:11:55	409.5	36.2	50	22.38	9.38	25.69	0.871	5.13	33.07
13-06-2022	14:12:00	408.7	35.8	50.01	22.02	9.24	25.31	0.869	5.20	33.53
13-06-2022	14:12:05	409.2	36.2	49.98	22.41	9.34	25.69	0.872	5.13	33.00
13-06-2022	14:12:10	409.3	36.2	49.98	22.36	9.39	25.65	0.871	5.23	33.33
13-06-2022	14:12:15	409.5	36.1	49.99	22.33	9.36	25.65	0.87	5.27	33.00
13-06-2022	14:12:20	409.3	36.0	49.99	22.26	9.32	25.54	0.871	5.10	33.23
13-06-2022	14:12:25	409.4	36.2	50	22.33	9.39	25.66	0.87	5.10	33.50

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	14:12:30	409.3	36.2	50	22.33	9.39	25.65	0.87	5.20	33.20
13-06-2022	14:12:35	409.4	36.1	50	22.28	9.37	25.58	0.871	5.10	33.33
13-06-2022	14:12:40	409.5	35.9	49.98	22.11	9.37	25.44	0.869	5.07	33.33
13-06-2022	14:12:45	409.6	36.1	49.99	22.32	9.41	25.64	0.87	5.20	33.13
13-06-2022	14:12:50	409.4	36.2	50	22.34	9.41	25.65	0.871	5.20	33.30
13-06-2022	14:12:55	409.3	36.2	50	22.31	9.35	25.65	0.869	5.00	34.03

DP 2 Building B :

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	15:00:15	412.0	24.2	49.99	13.01	5.67	17.27	0.753	4.67	69.13
13-06-2022	15:00:20	412.0	24.1	49.98	12.91	5.70	17.21	0.75	4.57	70.33
13-06-2022	15:00:25	411.9	23.9	49.99	12.83	5.58	17.08	0.751	4.53	70.47
13-06-2022	15:00:30	411.7	24.2	49.99	12.94	5.73	17.26	0.749	4.63	70.67
13-06-2022	15:00:35	412.1	25.0	50.02	13.60	6.09	17.88	0.76	4.60	67.00
13-06-2022	15:00:40	412.1	24.8	49.98	13.48	5.98	17.72	0.76	4.67	67.73
13-06-2022	15:00:45	411.9	24.9	49.99	13.45	6.07	17.76	0.757	4.70	68.63
13-06-2022	15:00:50	412.0	23.9	50	12.69	5.88	17.12	0.741	4.57	69.50
13-06-2022	15:00:55	412.0	23.2	49.99	12.17	5.64	16.62	0.732	4.70	72.47
13-06-2022	15:01:00	412.1	24.2	49.98	12.78	5.97	17.28	0.739	4.73	70.27
13-06-2022	15:01:05	412.1	24.8	49.98	13.56	5.97	17.73	0.764	4.67	63.30
13-06-2022	15:01:10	412.1	24.9	49.98	13.55	6.04	17.77	0.762	4.47	63.17
13-06-2022	15:01:15	412.3	25.3	49.99	13.83	6.17	18.08	0.765	4.63	62.43
13-06-2022	15:01:20	412.3	24.7	50.01	13.54	5.94	17.69	0.765	4.63	62.93
13-06-2022	15:01:25	411.9	25.2	49.99	13.93	5.99	17.99	0.773	4.60	62.13
13-06-2022	15:01:30	411.8	25.6	50	14.18	6.15	18.29	0.775	4.53	61.17
13-06-2022	15:01:35	411.9	25.4	49.98	14.19	6.00	18.17	0.781	4.63	60.60
13-06-2022	15:01:40	412.0	25.7	49.99	14.29	6.15	18.34	0.779	4.63	59.87
13-06-2022	15:01:45	412.1	25.5	49.99	14.18	6.05	18.21	0.778	4.63	61.07
13-06-2022	15:01:50	411.9	25.4	49.99	13.97	6.14	18.13	0.77	4.70	61.30
13-06-2022	15:01:55	412.1	24.5	50	13.28	5.90	17.49	0.759	4.57	66.70
13-06-2022	15:02:00	412.3	24.4	49.99	12.95	6.04	17.44	0.743	4.57	69.23
13-06-2022	15:02:05	411.8	24.4	49.97	12.98	6.03	17.42	0.745	4.63	69.20
13-06-2022	15:02:10	412.0	24.1	50.03	12.85	5.84	17.21	0.746	4.57	69.57
13-06-2022	15:02:15	412.1	24.1	49.99	12.85	5.91	17.24	0.745	4.57	69.53
13-06-2022	15:02:20	412.2	24.1	49.98	12.83	5.95	17.25	0.743	4.67	70.43
13-06-2022	15:02:25	412.0	24.5	49.99	13.13	6.00	17.50	0.75	4.67	69.30
13-06-2022	15:02:30	412.0	24.6	50.01	13.42	5.89	17.62	0.761	4.57	68.73
13-06-2022	15:02:35	411.9	24.1	49.99	13.00	5.69	17.22	0.754	4.63	69.50
13-06-2022	15:02:40	411.9	24.5	49.97	13.31	5.89	17.53	0.759	4.63	68.50
13-06-2022	15:02:45	411.8	24.6	49.99	13.35	5.95	17.59	0.758	4.57	68.10
13-06-2022	15:02:50	411.7	24.7	49.97	13.42	5.96	17.65	0.76	4.67	68.13
13-06-2022	15:02:55	411.7	25.2	50	13.98	5.88	18.04	0.774	4.60	64.40
13-06-2022	15:03:00	411.8	26.2	49.97	14.83	5.89	18.69	0.793	4.60	62.20
13-06-2022	15:03:05	411.6	25.9	49.98	14.59	5.88	18.48	0.789	4.60	61.83
13-06-2022	15:03:10	411.7	25.4	49.99	14.14	5.83	18.11	0.78	4.63	63.93
13-06-2022	15:03:15	411.9	26.2	49.99	14.98	5.90	18.75	0.799	4.63	59.23
13-06-2022	15:03:20	411.8	26.2	49.97	14.95	5.97	18.74	0.797	4.60	58.00

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	15:03:25	411.7	26.5	49.98	15.15	6.00	18.91	0.801	4.63	57.27
13-06-2022	15:03:30	412.0	27.3	49.99	15.63	6.40	19.51	0.801	4.60	56.60
13-06-2022	15:03:35	412.2	27.3	50	15.72	6.39	19.54	0.804	4.63	55.90
13-06-2022	15:03:40	412.0	27.3	50.01	15.70	6.34	19.50	0.805	4.53	56.00
13-06-2022	15:03:45	412.1	27.2	49.99	15.59	6.38	19.45	0.801	4.60	56.23
13-06-2022	15:03:50	412.2	27.3	49.99	15.65	6.41	19.51	0.802	4.57	55.67
13-06-2022	15:03:55	412.0	26.8	49.96	15.21	6.35	19.14	0.794	4.53	56.37
13-06-2022	15:04:00	412.1	26.4	49.99	14.76	6.35	18.84	0.783	4.60	58.50
13-06-2022	15:04:05	412.1	25.2	49.99	13.77	6.06	17.99	0.765	4.57	62.87
13-06-2022	15:04:10	412.2	24.3	49.99	13.09	5.77	17.36	0.754	4.67	65.20
13-06-2022	15:04:15	412.0	24.4	50.01	13.13	5.86	17.42	0.754	4.67	67.00
13-06-2022	15:04:20	412.2	24.5	49.99	13.19	5.91	17.51	0.753	4.63	66.63
13-06-2022	15:04:25	411.8	24.4	49.99	13.16	5.85	17.42	0.755	4.60	66.30
13-06-2022	15:04:30	412.1	24.6	49.97	13.30	5.95	17.60	0.755	4.63	66.30
13-06-2022	15:04:35	411.9	24.6	50	13.30	5.87	17.55	0.757	4.67	65.80
13-06-2022	15:04:40	412.2	24.2	49.99	13.05	5.75	17.29	0.754	4.60	66.63
13-06-2022	15:04:45	411.9	24.8	49.99	13.58	5.79	17.69	0.767	4.60	64.57
13-06-2022	15:04:50	412.0	24.9	50.01	13.64	5.87	17.77	0.767	4.53	65.70
13-06-2022	15:04:55	411.6	24.9	50.01	13.67	5.91	17.80	0.767	4.67	65.13
13-06-2022	15:05:00	411.8	25.5	49.98	14.25	5.95	18.25	0.78	4.67	61.43
13-06-2022	15:05:05	411.6	26.9	50.01	15.03	6.48	19.19	0.783	4.70	58.40
13-06-2022	15:05:10	411.6	26.8	50.01	15.03	6.41	19.12	0.785	4.63	58.20
13-06-2022	15:05:15	411.7	27.0	50	15.06	6.55	19.25	0.782	4.63	58.97
13-06-2022	15:05:20	411.7	26.9	49.99	15.02	6.53	19.19	0.782	4.70	58.00
13-06-2022	15:05:25	411.6	26.2	49.99	14.40	6.47	18.72	0.769	4.60	59.30
13-06-2022	15:05:30	411.4	28.3	49.97	15.69	7.63	20.18	0.776	4.53	54.83
13-06-2022	15:05:35	411.7	30.9	49.99	17.36	9.42	22.06	0.787	4.57	46.57
13-06-2022	15:05:40	411.6	31.1	49.99	17.52	9.39	22.18	0.79	4.47	46.10
13-06-2022	15:05:45	411.7	33.3	49.97	18.73	10.75	23.74	0.789	4.43	42.10
13-06-2022	15:05:50	411.6	34.6	49.99	19.55	11.62	24.68	0.792	4.53	40.23
13-06-2022	15:05:55	411.7	35.2	50.01	20.10	11.61	25.10	0.8	4.43	39.10
13-06-2022	15:06:00	411.0	38.2	50	21.82	12.89	27.21	0.802	4.30	36.17
13-06-2022	15:06:05	411.8	39.4	49.97	22.62	13.89	28.13	0.804	4.30	33.37
13-06-2022	15:06:10	412.2	39.7	50.01	22.88	13.94	28.37	0.806	4.33	33.03
13-06-2022	15:06:15	411.9	39.0	50	22.52	13.60	27.85	0.808	4.33	33.47
13-06-2022	15:06:20	412.0	38.4	50	21.94	13.54	27.40	0.8	4.40	33.13
13-06-2022	15:06:25	412.3	38.5	50	22.00	13.61	27.48	0.8	4.37	33.70
13-06-2022	15:06:30	412.2	38.6	49.96	22.16	13.62	27.60	0.803	4.37	32.77
13-06-2022	15:06:35	412.5	38.4	49.98	22.04	13.57	27.47	0.802	4.43	33.17
13-06-2022	15:06:40	412.5	38.6	50.02	22.21	13.55	27.59	0.804	4.47	32.67
13-06-2022	15:06:45	412.5	38.7	50	22.31	13.55	27.68	0.806	4.47	31.40
13-06-2022	15:06:50	412.4	38.9	49.99	22.51	13.51	27.82	0.809	4.47	32.07
13-06-2022	15:06:55	412.6	39.1	50.01	22.63	13.60	27.98	0.808	4.33	33.10
13-06-2022	15:07:00	412.8	39.2	49.99	22.75	13.62	28.08	0.81	4.47	32.63
13-06-2022	15:07:05	412.5	40.0	49.99	23.48	13.62	28.64	0.819	4.43	31.57

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	15:07:10	412.6	40.6	50.01	23.97	13.60	29.04	0.825	4.53	30.97
13-06-2022	15:07:15	412.4	41.8	50	24.94	13.71	29.89	0.834	4.47	30.20
13-06-2022	15:07:20	412.3	42.1	49.99	25.07	13.80	30.07	0.834	4.47	29.73
13-06-2022	15:07:25	412.6	41.9	50.03	25.03	13.75	30.01	0.834	4.50	30.63
13-06-2022	15:07:30	412.3	41.9	50	24.97	13.77	29.97	0.833	4.30	31.00
13-06-2022	15:07:35	412.7	42.0	50	24.99	13.88	30.05	0.832	4.30	30.57
13-06-2022	15:07:40	412.6	41.4	50	24.48	13.80	29.59	0.827	4.43	30.57
13-06-2022	15:07:45	412.9	40.8	49.98	23.87	13.89	29.18	0.817	4.40	30.87
13-06-2022	15:07:50	412.9	40.5	49.97	23.72	13.87	29.04	0.817	4.37	31.80
13-06-2022	15:07:55	413.0	40.6	50.03	23.75	13.83	29.04	0.817	4.37	31.60
13-06-2022	15:08:00	413.1	40.6	49.98	23.74	13.85	29.04	0.817	4.37	30.57
13-06-2022	15:08:05	413.0	39.8	49.99	23.22	13.67	28.50	0.814	4.47	32.03
13-06-2022	15:08:10	412.9	39.9	50	23.21	13.73	28.53	0.813	4.43	32.20
13-06-2022	15:08:15	413.0	39.8	50	23.19	13.69	28.48	0.814	4.43	31.93
13-06-2022	15:08:20	412.8	39.9	49.99	23.15	13.79	28.53	0.811	4.40	32.53
13-06-2022	15:08:25	412.7	39.9	49.96	23.24	13.76	28.55	0.813	4.37	32.03
13-06-2022	15:08:30	413.1	40.0	49.97	23.26	13.82	28.62	0.812	4.37	31.67
13-06-2022	15:08:35	412.7	40.4	49.99	23.75	13.66	28.90	0.822	4.30	30.43
13-06-2022	15:08:40	412.9	40.5	49.99	23.79	13.80	28.99	0.82	4.40	31.57
13-06-2022	15:08:45	412.8	40.5	50.01	23.78	13.78	29.01	0.819	4.37	31.77
13-06-2022	15:08:50	412.6	40.5	49.98	23.81	13.74	28.98	0.821	4.37	31.17
13-06-2022	15:08:55	412.8	40.5	50	23.78	13.76	28.99	0.82	4.33	31.00
13-06-2022	15:09:00	412.7	40.0	49.99	23.41	13.71	28.64	0.817	4.40	30.87
13-06-2022	15:09:05	413.0	39.9	49.98	23.25	13.72	28.56	0.814	4.40	31.47
13-06-2022	15:09:10	412.9	39.9	49.99	23.28	13.71	28.55	0.815	4.37	32.27
13-06-2022	15:09:15	413.2	39.8	50.02	23.22	13.69	28.50	0.814	4.40	31.97
13-06-2022	15:09:20	413.1	39.8	49.97	23.26	13.65	28.49	0.816	4.37	32.20
13-06-2022	15:09:25	412.0	40.5	49.99	23.83	13.63	28.95	0.823	4.30	30.40
13-06-2022	15:09:30	412.9	40.8	49.98	24.04	13.75	29.17	0.824	4.37	31.27
13-06-2022	15:09:35	412.9	40.7	49.99	23.96	13.71	29.11	0.823	4.37	30.90
13-06-2022	15:09:40	412.7	40.5	49.99	23.90	13.65	28.99	0.824	4.37	31.33
13-06-2022	15:09:45	412.8	40.6	50	23.96	13.70	29.09	0.823	4.33	31.73
13-06-2022	15:09:50	413.0	40.8	50.01	24.11	13.73	29.21	0.825	4.33	31.10
13-06-2022	15:09:55	413.1	40.8	50	24.14	13.63	29.21	0.826	4.17	30.50
13-06-2022	15:10:00	412.8	41.2	50.01	24.33	13.80	29.45	0.826	4.33	30.57
13-06-2022	15:10:05	412.8	40.7	49.98	24.02	13.74	29.16	0.823	4.43	30.90
13-06-2022	15:10:10	412.0	40.7	50	23.98	13.66	29.09	0.824	4.40	30.70
13-06-2022	15:10:15	412.8	40.6	49.97	23.93	13.74	29.07	0.822	4.43	30.93
13-06-2022	15:10:20	413.3	40.7	49.98	23.94	13.88	29.18	0.82	4.37	30.70
13-06-2022	15:10:25	413.0	40.1	50.01	23.42	13.71	28.68	0.816	4.40	30.90
13-06-2022	15:10:30	412.7	40.1	50	23.46	13.68	28.69	0.818	4.40	31.10
13-06-2022	15:10:35	413.0	40.1	49.98	23.46	13.71	28.70	0.817	4.27	32.43
13-06-2022	15:10:40	413.2	39.8	50	23.27	13.65	28.52	0.815	4.40	31.70
13-06-2022	15:10:45	413.2	39.9	49.99	23.32	13.66	28.56	0.816	4.33	32.27
13-06-2022	15:10:50	412.6	39.8	50.01	23.21	13.62	28.45	0.815	4.33	30.37

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	15:10:55	412.6	39.9	50.01	23.30	13.66	28.56	0.815	4.37	31.73
13-06-2022	15:11:00	413.0	40.0	50.01	23.28	13.76	28.59	0.814	4.33	31.77
13-06-2022	15:11:05	412.6	40.0	49.99	23.39	13.66	28.62	0.817	4.40	31.57
13-06-2022	15:11:10	412.6	40.7	49.99	23.94	13.68	29.09	0.822	4.37	31.13
13-06-2022	15:11:15	413.4	40.9	49.97	24.06	13.86	29.30	0.821	4.27	31.27
13-06-2022	15:11:20	412.3	41.6	50	24.60	13.80	29.70	0.828	4.27	29.10
13-06-2022	15:11:25	412.5	41.5	50.01	24.61	13.78	29.65	0.83	4.33	29.73
13-06-2022	15:11:30	412.4	41.5	49.96	24.60	13.85	29.71	0.828	4.40	29.53
13-06-2022	15:11:35	413.0	41.4	50	24.56	13.74	29.59	0.829	4.37	30.10
13-06-2022	15:11:40	412.0	41.7	50	24.81	13.70	29.77	0.833	4.33	30.17
13-06-2022	15:11:45	413.2	41.5	49.99	24.65	13.83	29.73	0.829	4.37	29.87
13-06-2022	15:11:50	412.7	41.1	49.99	24.37	13.68	29.39	0.829	4.43	30.50
13-06-2022	15:11:55	412.7	41.4	49.99	24.48	13.79	29.57	0.827	4.33	30.17
13-06-2022	15:12:00	412.7	41.1	49.98	24.28	13.80	29.40	0.826	4.40	30.43
13-06-2022	15:12:05	412.7	40.6	50.02	23.98	13.68	29.06	0.825	4.40	31.87
13-06-2022	15:12:10	412.4	40.6	50	23.95	13.65	29.03	0.825	4.33	30.60
13-06-2022	15:12:15	413.0	40.8	49.99	24.06	13.75	29.20	0.824	4.30	31.70
13-06-2022	15:12:20	412.9	40.1	50.01	23.46	13.70	28.66	0.818	4.33	31.70
13-06-2022	15:12:25	412.9	39.9	49.99	23.38	13.63	28.57	0.818	4.37	31.37
13-06-2022	15:12:30	413.1	40.1	49.99	23.50	13.74	28.72	0.818	4.40	31.43
13-06-2022	15:12:35	413.0	40.0	50	23.43	13.71	28.66	0.817	4.40	31.63
13-06-2022	15:12:40	412.9	40.5	49.97	23.86	13.70	28.99	0.823	4.40	30.73
13-06-2022	15:12:45	412.1	40.7	49.98	23.95	13.66	29.03	0.825	4.30	31.70
13-06-2022	15:12:50	412.9	40.6	50.01	23.91	13.74	29.07	0.822	4.37	30.93
13-06-2022	15:12:55	411.3	40.7	49.98	23.92	13.63	29.00	0.824	4.33	30.47
13-06-2022	15:13:00	412.1	40.9	49.98	24.11	13.68	29.21	0.825	4.17	31.27
13-06-2022	15:13:05	411.7	40.3	49.96	23.62	13.55	28.74	0.821	4.23	31.10
13-06-2022	15:13:10	412.2	39.7	50.01	23.22	13.48	28.36	0.818	4.33	31.60
13-06-2022	15:13:15	412.5	39.9	49.98	23.35	13.62	28.55	0.817	4.33	31.63
13-06-2022	15:13:20	411.9	40.0	50.01	23.38	13.59	28.56	0.818	4.30	30.53
13-06-2022	15:13:25	412.1	40.0	49.98	23.37	13.64	28.60	0.817	4.23	32.27
13-06-2022	15:13:30	412.4	39.8	49.98	23.28	13.53	28.43	0.818	4.30	31.73
13-06-2022	15:13:35	412.7	40.1	49.97	23.36	13.73	28.64	0.815	4.30	31.03
13-06-2022	15:13:40	412.0	39.9	49.99	23.34	13.58	28.52	0.818	4.27	31.50
13-06-2022	15:13:45	412.1	40.0	49.99	23.38	13.56	28.53	0.819	4.27	31.37
13-06-2022	15:13:50	412.3	39.9	49.99	23.32	13.65	28.54	0.817	4.23	31.87
13-06-2022	15:13:55	412.0	40.8	49.99	23.79	13.82	29.15	0.816	4.30	31.20
13-06-2022	15:14:00	411.8	41.5	49.99	24.74	13.58	29.61	0.835	4.13	30.30
13-06-2022	15:14:05	411.9	42.3	49.99	25.39	13.59	30.16	0.842	4.23	30.53
13-06-2022	15:14:10	411.7	42.3	49.99	25.47	13.54	30.17	0.844	4.23	28.73
13-06-2022	15:14:15	411.8	42.3	50	25.43	13.56	30.16	0.843	4.23	29.60
13-06-2022	15:14:20	411.4	42.3	50	25.42	13.52	30.11	0.844	4.27	28.57
13-06-2022	15:14:25	411.7	42.3	49.99	25.43	13.58	30.16	0.843	4.37	28.97
13-06-2022	15:14:30	411.7	41.6	50.01	24.85	13.52	29.64	0.838	4.23	30.10
13-06-2022	15:14:35	412.1	41.7	49.97	24.93	13.57	29.76	0.838	4.20	30.10

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	15:14:40	411.9	41.7	49.99	24.97	13.59	29.78	0.838	4.33	29.70
13-06-2022	15:14:45	411.7	41.7	50	24.91	13.60	29.74	0.837	4.37	29.70
13-06-2022	15:14:50	411.9	41.6	49.98	24.89	13.54	29.69	0.838	4.37	29.07
13-06-2022	15:14:55	411.7	41.7	49.99	24.90	13.53	29.70	0.838	4.33	30.03
13-06-2022	15:15:00	412.0	41.6	49.98	24.88	13.58	29.72	0.837	4.27	30.53
13-06-2022	15:15:05	411.7	42.4	49.99	25.45	13.65	30.23	0.841	4.30	27.93
13-06-2022	15:15:10	411.6	42.7	50.01	25.77	13.60	30.48	0.845	4.27	28.20
13-06-2022	15:15:15	411.8	42.6	50	25.67	13.68	30.42	0.843	4.30	29.07
13-06-2022	15:15:20	411.7	42.7	50.02	25.73	13.63	30.45	0.844	4.27	29.03
13-06-2022	15:15:25	411.9	43.4	50	26.25	13.77	30.95	0.848	4.23	28.33
13-06-2022	15:15:30	411.7	43.3	49.96	26.19	13.72	30.88	0.848	4.07	29.10
13-06-2022	15:15:35	411.9	43.3	50.02	26.27	13.62	30.88	0.85	4.33	27.83
13-06-2022	15:15:40	411.5	43.2	49.99	26.14	13.61	30.77	0.849	4.37	28.10
13-06-2022	15:15:45	411.6	43.1	50.01	26.07	13.60	30.70	0.849	4.33	28.37
13-06-2022	15:15:50	411.7	42.5	50	25.69	13.47	30.31	0.847	4.33	28.93
13-06-2022	15:15:55	411.7	44.0	49.99	26.36	14.21	31.36	0.84	4.27	28.97
13-06-2022	15:16:00	411.5	44.8	50.01	26.59	14.73	31.91	0.833	4.20	30.73
13-06-2022	15:16:05	411.1	43.5	50	25.88	14.24	30.95	0.836	4.23	30.17
13-06-2022	15:16:10	411.8	42.9	49.98	25.53	14.12	30.61	0.834	4.27	30.83
13-06-2022	15:16:15	411.3	43.6	49.99	25.99	14.21	31.05	0.837	4.30	29.63
13-06-2022	15:16:20	411.3	42.7	49.99	25.44	13.97	30.42	0.836	4.20	30.07
13-06-2022	15:16:25	412.0	41.6	50	24.85	13.58	29.70	0.836	4.23	31.90
13-06-2022	15:16:30	412.0	41.7	50	24.92	13.56	29.73	0.838	4.23	29.90
13-06-2022	15:16:35	411.7	41.6	50	24.88	13.50	29.67	0.838	4.23	29.63
13-06-2022	15:16:40	411.9	41.7	49.98	24.91	13.56	29.72	0.838	4.27	30.33
13-06-2022	15:16:45	411.7	42.0	49.98	25.20	13.55	29.93	0.842	4.30	29.30
13-06-2022	15:16:50	411.7	42.5	50.01	25.62	13.57	30.31	0.845	4.27	29.47
13-06-2022	15:16:55	411.4	42.6	50.02	25.70	13.51	30.35	0.847	4.23	28.97
13-06-2022	15:17:00	412.1	43.9	50.01	26.57	14.07	31.34	0.848	4.23	29.13
13-06-2022	15:17:05	412.1	43.4	49.98	26.30	13.86	31.03	0.847	4.23	29.40
13-06-2022	15:17:10	411.8	43.6	49.98	26.32	13.92	31.07	0.847	4.23	29.03
13-06-2022	15:17:15	412.1	42.9	49.98	25.75	14.00	30.62	0.841	4.17	29.07
13-06-2022	15:17:20	411.8	43.0	49.99	25.80	13.94	30.66	0.841	4.23	27.47
13-06-2022	15:17:25	412.0	42.8	49.98	25.70	13.91	30.55	0.841	4.23	29.40
13-06-2022	15:17:30	412.3	42.6	50	25.59	13.86	30.41	0.841	4.17	29.17
13-06-2022	15:17:35	412.1	42.7	50.01	25.67	13.89	30.53	0.84	4.20	28.87
13-06-2022	15:17:40	412.2	42.7	50	25.65	13.96	30.53	0.84	4.13	28.63
13-06-2022	15:17:45	412.3	42.8	49.98	25.66	13.95	30.55	0.839	4.17	29.20
13-06-2022	15:17:50	412.2	42.8	49.97	25.74	13.94	30.59	0.841	4.17	29.50
13-06-2022	15:17:55	412.5	42.6	49.98	25.57	13.93	30.45	0.839	4.20	29.37
13-06-2022	15:18:00	411.9	43.4	49.99	26.10	13.99	30.94	0.843	4.20	29.23
13-06-2022	15:18:05	412.0	43.4	49.98	26.21	13.95	31.00	0.845	4.27	29.63
13-06-2022	15:18:10	412.3	43.5	49.99	26.27	13.91	31.03	0.846	4.17	28.87
13-06-2022	15:18:15	412.1	43.4	50	26.20	13.95	30.98	0.845	4.17	29.23
13-06-2022	15:18:20	411.8	43.5	50	26.25	13.87	31.00	0.846	4.27	28.90

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	15:18:25	411.4	46.1	49.99	27.63	14.84	32.78	0.843	4.30	29.60
13-06-2022	15:18:30	411.5	45.6	50.02	27.37	14.72	32.46	0.843	4.23	28.47
13-06-2022	15:18:35	411.7	44.1	50.01	26.55	14.19	31.44	0.844	4.20	29.17
13-06-2022	15:18:40	412.2	44.7	49.98	26.69	14.76	31.92	0.836	4.23	30.03
13-06-2022	15:18:45	411.9	43.4	50.04	25.94	14.15	30.92	0.839	4.17	28.87
13-06-2022	15:18:50	412.1	42.8	49.99	25.64	14.00	30.55	0.839	4.23	29.47
13-06-2022	15:18:55	412.0	42.8	49.99	25.72	13.91	30.56	0.841	4.17	29.57
13-06-2022	15:19:00	412.0	43.1	50.02	25.89	13.94	30.74	0.842	4.17	30.40
13-06-2022	15:19:05	412.1	43.7	49.98	26.36	14.03	31.18	0.845	4.17	29.50
13-06-2022	15:19:10	412.0	43.9	50	26.48	14.10	31.31	0.845	4.23	28.47
13-06-2022	15:19:15	412.3	43.7	50.01	26.38	14.11	31.25	0.844	4.20	28.63
13-06-2022	15:19:20	412.2	43.0	50	25.94	13.72	30.70	0.845	4.17	28.33
13-06-2022	15:19:25	412.8	38.7	50.01	23.08	11.74	27.69	0.83	4.27	34.77
13-06-2022	15:19:30	411.3	26.2	49.99	14.96	5.70	18.64	0.803	4.60	59.30
13-06-2022	15:19:35	411.5	26.0	49.99	14.82	5.66	18.51	0.8	4.57	59.43
13-06-2022	15:19:40	411.3	26.1	49.98	14.86	5.69	18.58	0.799	4.53	59.97
13-06-2022	15:19:45	411.4	26.1	49.98	14.83	5.69	18.58	0.798	4.47	59.80
13-06-2022	15:19:50	411.5	25.9	50.01	14.76	5.61	18.45	0.8	4.53	59.47
13-06-2022	15:19:55	411.7	26.6	50	15.18	5.93	18.96	0.8	4.50	60.93
13-06-2022	15:20:00	411.9	26.1	50.01	14.82	5.90	18.66	0.794	4.53	62.87
13-06-2022	15:20:05	411.8	26.0	50.01	14.76	5.89	18.60	0.793	4.53	62.47
13-06-2022	15:20:10	411.9	26.1	49.98	14.80	5.91	18.65	0.793	4.50	63.67
13-06-2022	15:20:15	412.3	25.8	50	14.49	5.87	18.42	0.786	4.53	64.00
13-06-2022	15:20:20	412.3	24.1	49.99	12.71	6.07	17.22	0.738	4.57	70.40
13-06-2022	15:20:25	412.3	24.0	49.98	12.64	6.03	17.12	0.738	4.57	70.63
13-06-2022	15:20:30	412.4	24.0	49.99	12.67	6.10	17.17	0.737	4.57	70.77
13-06-2022	15:20:35	412.4	23.9	50	12.55	6.08	17.08	0.734	4.50	71.60
13-06-2022	15:20:40	412.3	24.0	50	12.83	5.92	17.16	0.747	4.57	70.30
13-06-2022	15:20:45	412.4	24.5	49.98	13.16	6.08	17.52	0.751	4.57	69.77
13-06-2022	15:20:50	412.3	24.5	50	13.12	6.06	17.46	0.751	4.63	69.77
13-06-2022	15:20:55	412.5	25.2	50	13.89	6.20	18.04	0.769	4.53	62.70
13-06-2022	15:21:00	412.4	25.3	49.99	13.95	6.15	18.09	0.771	4.60	61.30
13-06-2022	15:21:05	412.6	25.1	49.99	13.81	6.11	17.93	0.77	4.57	62.90
13-06-2022	15:21:10	412.4	25.0	50.01	13.80	6.10	17.93	0.769	4.57	62.80
13-06-2022	15:21:15	412.5	25.0	49.98	13.65	6.21	17.91	0.762	4.53	63.93
13-06-2022	15:21:20	412.5	25.0	49.97	13.56	6.27	17.86	0.759	4.50	63.07
13-06-2022	15:21:25	412.5	24.8	50	13.42	6.18	17.71	0.757	4.57	63.90
13-06-2022	15:21:30	412.6	24.8	50.01	13.52	6.24	17.79	0.76	4.57	63.37
13-06-2022	15:21:35	412.5	24.7	49.98	13.30	6.21	17.66	0.753	4.53	63.90
13-06-2022	15:21:40	412.8	25.1	50	13.71	6.22	17.96	0.763	4.53	62.77
13-06-2022	15:21:45	412.5	24.9	50.01	13.56	6.15	17.80	0.761	4.57	63.50
13-06-2022	15:21:50	412.6	24.5	49.99	13.14	6.10	17.55	0.748	4.57	69.70
13-06-2022	15:21:55	412.5	24.6	49.96	13.28	5.98	17.57	0.756	4.63	68.23
13-06-2022	15:22:00	412.3	26.3	50	14.48	6.36	18.82	0.769	4.57	61.17
13-06-2022	15:22:05	412.1	27.9	49.99	15.19	7.08	19.89	0.763	4.63	59.50

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	15:22:10	412.6	26.0	49.99	14.14	6.44	18.62	0.759	4.57	62.27
13-06-2022	15:22:15	412.8	24.9	49.99	13.49	5.93	17.78	0.758	4.53	63.90
13-06-2022	15:22:20	412.8	24.9	50	13.49	5.98	17.82	0.756	4.57	63.50
13-06-2022	15:22:25	412.8	24.9	49.99	13.52	5.98	17.83	0.758	4.57	64.10
13-06-2022	15:22:30	412.2	26.8	50	14.53	6.72	19.14	0.759	4.60	59.80
13-06-2022	15:22:35	412.5	26.8	50	14.51	6.76	19.15	0.757	4.57	61.50
13-06-2022	15:22:40	412.4	26.4	50.01	14.42	6.50	18.87	0.763	4.63	61.90
13-06-2022	15:22:45	412.6	26.3	49.98	14.26	6.58	18.82	0.758	4.60	62.30
13-06-2022	15:22:50	412.2	29.9	49.99	16.69	8.71	21.40	0.779	4.50	50.40
13-06-2022	15:22:55	413.6	29.9	50.01	16.87	8.92	21.45	0.786	4.43	48.57
13-06-2022	15:23:00	413.5	29.7	50	16.77	8.91	21.33	0.786	4.47	48.67
13-06-2022	15:23:05	412.7	33.4	49.98	18.83	11.31	23.94	0.786	4.47	40.50
13-06-2022	15:23:10	412.6	33.7	50	19.02	11.45	24.08	0.789	4.53	39.37
13-06-2022	15:23:15	413.0	33.8	49.99	19.06	11.49	24.16	0.789	4.47	40.07
13-06-2022	15:23:20	413.2	39.0	49.98	22.44	13.84	27.91	0.804	4.17	34.07
13-06-2022	15:23:25	412.6	39.7	50.01	23.16	13.72	28.38	0.815	4.30	31.77
13-06-2022	15:23:30	413.1	40.3	50	23.55	14.01	28.87	0.816	4.17	32.77
13-06-2022	15:23:35	412.6	40.4	50	23.62	13.90	28.88	0.818	4.33	30.67
13-06-2022	15:23:40	412.6	39.9	50	23.18	13.87	28.51	0.812	4.27	31.60
13-06-2022	15:23:45	413.0	39.6	50	22.94	13.89	28.33	0.809	4.27	32.97
13-06-2022	15:23:50	413.2	39.6	49.99	22.98	13.95	28.38	0.809	4.30	32.80
13-06-2022	15:23:55	412.9	39.6	49.99	22.89	13.92	28.31	0.808	4.37	32.17
13-06-2022	15:24:00	413.1	38.9	50	22.38	13.84	27.87	0.802	4.37	31.80
13-06-2022	15:24:05	413.2	39.0	49.99	22.40	13.83	27.89	0.803	4.30	33.30
13-06-2022	15:24:10	413.3	39.1	50	22.55	13.82	27.99	0.805	4.30	32.20
13-06-2022	15:24:15	412.6	41.9	49.99	23.98	14.89	29.91	0.801	4.37	33.13
13-06-2022	15:24:20	413.4	39.4	50	22.72	13.97	28.22	0.805	4.27	32.97
13-06-2022	15:24:25	412.7	40.8	49.98	23.55	14.40	29.18	0.807	4.30	31.43
13-06-2022	15:24:30	413.5	40.4	49.98	23.22	14.46	28.96	0.801	4.17	32.70
13-06-2022	15:24:35	414.0	39.3	50	22.68	14.03	28.25	0.802	4.23	33.53
13-06-2022	15:24:40	412.6	39.3	49.98	22.60	13.87	28.09	0.804	4.30	32.20
13-06-2022	15:24:45	413.2	39.4	49.99	22.73	13.94	28.21	0.805	4.40	32.00
13-06-2022	15:24:50	412.9	39.6	50.02	22.89	13.87	28.31	0.808	4.37	30.87
13-06-2022	15:24:55	413.3	40.9	49.99	24.04	14.04	29.32	0.819	4.27	30.60
13-06-2022	15:25:00	413.1	41.2	49.99	24.32	14.03	29.51	0.824	4.33	29.47
13-06-2022	15:25:05	412.9	40.7	49.99	23.92	13.94	29.15	0.82	4.27	30.37
13-06-2022	15:25:10	413.4	40.8	49.99	23.92	14.07	29.23	0.818	4.30	31.13
13-06-2022	15:25:15	413.0	40.7	50	23.91	13.93	29.15	0.82	4.23	30.33
13-06-2022	15:25:20	413.5	40.7	49.99	23.76	14.14	29.15	0.815	4.37	30.77
13-06-2022	15:25:25	413.1	40.2	50.02	23.48	13.90	28.80	0.815	4.20	30.23
13-06-2022	15:25:30	414.4	30.6	50	17.10	9.33	21.98	0.768	4.43	51.73
13-06-2022	15:25:35	413.0	23.8	49.99	12.66	5.89	17.08	0.741	4.67	66.97
13-06-2022	15:25:40	413.2	23.7	49.98	12.59	5.86	16.99	0.74	4.70	66.90
13-06-2022	15:25:45	413.3	24.2	49.98	12.86	5.98	17.32	0.741	4.63	68.93
13-06-2022	15:25:50	413.4	24.7	50.02	13.42	5.90	17.71	0.758	4.60	64.37

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	15:25:55	413.3	24.8	50	13.44	5.94	17.75	0.757	4.67	63.73
13-06-2022	15:26:00	413.4	24.8	49.98	13.46	5.93	17.74	0.758	4.70	63.03
13-06-2022	15:26:05	413.2	25.4	49.99	14.04	5.95	18.17	0.772	4.67	61.33
13-06-2022	15:26:10	413.2	25.3	49.99	14.03	5.93	18.13	0.773	4.70	62.07
13-06-2022	15:26:15	413.4	25.3	49.96	13.98	5.93	18.11	0.772	4.70	61.33
13-06-2022	15:26:20	413.1	25.1	49.98	13.96	5.86	18.03	0.774	4.67	62.53
13-06-2022	15:26:25	413.3	25.2	49.99	13.97	5.94	18.11	0.771	4.63	62.57
13-06-2022	15:26:30	413.4	25.2	49.97	13.97	5.94	18.08	0.772	4.67	62.13
13-06-2022	15:26:35	413.1	25.9	49.99	14.58	5.94	18.53	0.786	4.67	60.93
13-06-2022	15:26:40	413.4	25.4	49.99	14.10	5.94	18.19	0.775	4.70	60.93
13-06-2022	15:26:45	413.2	25.0	50.01	13.90	5.82	17.95	0.774	4.70	61.93
13-06-2022	15:26:50	413.3	25.1	49.99	13.92	5.83	17.99	0.773	4.60	63.07
13-06-2022	15:26:55	413.1	25.0	50	13.78	5.86	17.93	0.768	4.63	63.03
13-06-2022	15:27:00	413.2	24.7	49.99	13.41	5.94	17.72	0.756	4.70	63.63
13-06-2022	15:27:05	413.0	24.8	49.99	13.39	5.98	17.74	0.755	4.57	64.57
13-06-2022	15:27:10	412.7	27.6	49.98	15.00	7.04	19.75	0.759	4.63	61.40
13-06-2022	15:27:15	413.3	25.9	49.98	14.04	6.52	18.59	0.755	4.70	62.03
13-06-2022	15:27:20	412.7	25.8	50.01	14.03	6.30	18.45	0.76	4.63	63.00
13-06-2022	15:27:25	413.2	26.0	49.98	14.06	6.47	18.60	0.756	4.70	62.20
13-06-2022	15:27:30	413.1	25.0	49.99	13.61	5.99	17.91	0.76	4.67	63.60
13-06-2022	15:27:35	413.1	24.8	50.01	13.50	5.88	17.74	0.761	4.63	63.80
13-06-2022	15:27:40	413.2	24.8	49.98	13.44	5.92	17.72	0.758	4.70	63.50
13-06-2022	15:27:45	413.4	24.8	49.98	13.45	5.97	17.77	0.757	4.63	63.40
13-06-2022	15:27:50	413.2	24.8	50	13.41	5.93	17.72	0.757	4.67	63.07
13-06-2022	15:27:55	413.3	24.8	49.99	13.48	5.94	17.76	0.758	4.70	63.90
13-06-2022	15:28:00	413.5	25.0	49.99	13.67	5.95	17.91	0.762	4.60	63.67
13-06-2022	15:28:05	413.3	24.5	50.01	13.34	5.80	17.58	0.758	4.67	64.90
13-06-2022	15:28:10	413.3	24.8	49.99	13.53	5.83	17.73	0.763	4.67	63.20
13-06-2022	15:28:15	413.4	25.3	49.99	14.04	5.91	18.15	0.773	4.63	62.47
13-06-2022	15:28:20	413.4	25.3	49.99	14.02	5.94	18.15	0.772	4.60	63.03
13-06-2022	15:28:25	413.3	25.3	49.99	14.02	5.93	18.12	0.773	4.70	61.63
13-06-2022	15:28:30	413.2	25.5	50	14.19	5.93	18.27	0.777	4.57	61.27
13-06-2022	15:28:35	413.3	24.9	50	13.70	5.88	17.87	0.766	4.70	62.97
13-06-2022	15:28:40	413.1	26.9	50	14.97	6.87	19.23	0.776	4.57	57.33
13-06-2022	15:28:45	413.4	30.0	49.97	17.35	8.38	21.49	0.807	4.60	46.13
13-06-2022	15:28:50	413.2	29.7	50.01	17.00	8.63	21.28	0.798	4.57	48.30
13-06-2022	15:28:55	412.6	32.5	50	18.80	10.02	23.29	0.807	4.53	42.27
13-06-2022	15:29:00	413.5	33.6	49.99	19.28	11.09	24.06	0.801	4.47	39.37
13-06-2022	15:29:05	413.2	34.2	49.97	19.75	11.13	24.48	0.807	4.47	38.43
13-06-2022	15:29:10	413.1	36.8	49.98	21.23	12.58	26.35	0.806	4.43	34.93
13-06-2022	15:29:15	413.7	38.0	50	21.77	13.56	27.20	0.8	4.43	33.17
13-06-2022	15:29:20	413.8	37.1	49.99	21.00	13.50	26.57	0.79	4.40	34.00
13-06-2022	15:29:25	413.5	36.8	50	20.74	13.54	26.40	0.785	4.37	34.67
13-06-2022	15:29:30	413.4	36.5	49.99	20.44	13.51	26.14	0.782	4.30	35.23
13-06-2022	15:29:35	413.1	38.4	49.99	21.38	14.33	27.50	0.777	4.30	35.20

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	15:29:40	412.7	37.8	49.99	20.97	14.17	27.03	0.776	4.43	34.17
13-06-2022	15:29:45	413.9	35.8	49.99	19.62	13.76	25.70	0.763	4.40	36.77
13-06-2022	15:29:50	412.5	36.9	49.97	20.32	13.96	26.35	0.771	4.40	36.43
13-06-2022	15:29:55	413.4	36.5	50	20.42	13.51	26.14	0.781	4.30	35.93
13-06-2022	15:30:00	413.5	36.7	49.98	20.83	13.24	26.29	0.792	4.33	34.90
13-06-2022	15:30:05	413.3	36.9	49.99	21.01	13.28	26.48	0.793	4.33	34.53
13-06-2022	15:30:10	412.6	37.0	50.01	21.12	13.18	26.52	0.796	4.33	34.10
13-06-2022	15:30:15	414.2	36.6	50	20.66	13.33	26.26	0.787	4.33	34.43
13-06-2022	15:30:20	413.0	36.5	50.01	20.69	13.15	26.17	0.79	4.33	35.00
13-06-2022	15:30:25	413.9	36.4	49.98	20.55	13.18	26.09	0.787	4.33	34.47
13-06-2022	15:30:30	413.7	36.4	50	20.62	13.18	26.13	0.789	4.40	34.67
13-06-2022	15:30:35	413.4	36.5	50	20.60	13.23	26.16	0.787	4.27	34.87
13-06-2022	15:30:40	413.3	36.7	49.99	20.70	13.26	26.27	0.788	4.40	35.03
13-06-2022	15:30:45	412.5	36.6	49.98	20.61	13.16	26.14	0.788	4.23	34.33
13-06-2022	15:30:50	412.7	36.8	50	20.81	13.21	26.33	0.79	4.17	35.50
13-06-2022	15:30:55	412.7	36.9	49.99	20.80	13.27	26.37	0.788	4.20	35.63

Solar Generartion :

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	15:42:00	413.6	33.6	50	23.35	3.46	24.09	0.969	4.60	12.33
13-06-2022	15:42:05	413.6	33.6	49.99	23.38	3.51	24.09	0.97	4.57	12.13
13-06-2022	15:42:10	413.4	33.5	49.97	23.37	3.56	24.02	0.972	4.63	12.20
13-06-2022	15:42:15	413.4	33.5	49.99	23.34	3.49	23.98	0.973	4.70	12.17
13-06-2022	15:42:20	413.2	33.5	49.98	23.34	3.57	24.00	0.972	4.53	11.93
13-06-2022	15:42:25	413.5	33.7	49.97	23.31	3.56	24.13	0.966	4.50	12.00
13-06-2022	15:42:30	413.7	33.4	50.01	23.32	3.52	23.96	0.973	4.47	11.77
13-06-2022	15:42:35	413.8	33.3	49.99	23.32	3.38	23.89	0.976	4.47	12.07
13-06-2022	15:42:40	413.7	33.3	50	23.32	3.39	23.88	0.976	4.50	12.30
13-06-2022	15:42:45	413.7	33.4	49.99	23.30	3.53	23.93	0.973	4.43	11.83
13-06-2022	15:42:50	413.3	33.3	49.97	23.29	3.48	23.89	0.975	4.43	11.80
13-06-2022	15:42:55	413.3	33.4	50	23.28	3.54	23.95	0.972	4.47	12.03
13-06-2022	15:43:00	412.9	33.7	50	23.27	3.68	24.10	0.965	4.47	12.27
13-06-2022	15:43:05	413.7	33.3	50.01	23.27	3.29	23.88	0.974	4.47	12.00
13-06-2022	15:43:10	413.3	33.5	49.99	23.24	3.72	23.99	0.968	4.33	11.97
13-06-2022	15:43:15	413.7	33.2	50	23.25	3.44	23.83	0.976	4.37	11.80
13-06-2022	15:43:20	414.4	33.4	50.02	23.24	3.25	23.95	0.97	4.33	11.93
13-06-2022	15:43:25	413.8	33.3	50	23.23	3.61	23.91	0.971	4.40	11.50
13-06-2022	15:43:30	413.9	33.2	49.99	23.16	3.70	23.84	0.972	4.40	11.73
13-06-2022	15:43:35	414.3	33.1	50.01	23.15	3.38	23.79	0.973	4.30	12.03
13-06-2022	15:43:40	414.5	33.0	50	23.15	3.47	23.75	0.975	4.33	12.07
13-06-2022	15:43:45	413.7	33.2	49.97	23.11	3.53	23.81	0.97	4.33	12.13
13-06-2022	15:43:50	415.1	33.1	50.01	23.13	3.35	23.80	0.971	4.30	12.00
13-06-2022	15:43:55	413.4	33.4	50.03	23.13	3.13	23.94	0.966	4.27	12.27
13-06-2022	15:44:00	414.2	33.5	49.97	23.13	3.84	24.04	0.962	4.27	11.50
13-06-2022	15:44:05	414.4	33.2	50	23.10	3.11	23.87	0.968	4.27	11.60
13-06-2022	15:44:10	413.9	33.3	49.98	23.10	3.80	23.88	0.967	4.40	11.50
13-06-2022	15:44:15	413.7	33.4	50.02	23.11	3.18	23.96	0.964	4.23	11.47
13-06-2022	15:44:20	414.4	33.2	50.02	23.10	3.23	23.87	0.968	4.33	11.37
13-06-2022	15:44:25	413.4	33.1	49.99	23.06	3.46	23.73	0.971	4.37	11.50
13-06-2022	15:44:30	413.8	33.1	49.98	23.03	3.68	23.73	0.97	4.30	12.00
13-06-2022	15:44:35	413.6	33.1	49.98	23.00	3.24	23.76	0.968	4.33	11.77
13-06-2022	15:44:40	413.6	33.1	49.99	22.98	3.65	23.74	0.967	4.30	12.07
13-06-2022	15:44:45	413.8	32.8	49.98	22.98	3.19	23.55	0.975	4.33	12.17
13-06-2022	15:44:50	414.6	32.8	50	22.91	3.65	23.58	0.971	4.30	12.23
13-06-2022	15:44:55	413.1	33.0	50	22.93	3.33	23.68	0.968	4.30	12.10
13-06-2022	15:45:00	413.6	32.8	49.97	22.91	3.37	23.56	0.972	4.33	12.03

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	15:45:05	413.9	33.2	50	22.95	3.25	23.82	0.963	4.33	11.77
13-06-2022	15:45:10	413.2	33.1	49.99	22.99	3.20	23.70	0.97	4.40	12.13
13-06-2022	15:45:15	414.5	33.0	49.97	22.91	3.45	23.74	0.965	4.27	11.63
13-06-2022	15:45:20	412.8	33.2	50	22.93	3.16	23.77	0.964	4.27	11.83
13-06-2022	15:45:25	413.9	32.8	49.97	22.90	3.14	23.53	0.973	4.33	12.17
13-06-2022	15:45:30	413.9	32.9	49.99	22.87	3.35	23.67	0.966	4.30	12.00
13-06-2022	15:45:35	413.8	32.8	50	22.80	2.91	23.58	0.967	4.27	12.40
13-06-2022	15:45:40	413.7	32.6	49.98	22.75	3.44	23.41	0.971	4.37	12.13
13-06-2022	15:45:45	413.5	32.7	50	22.73	3.15	23.43	0.97	4.37	12.07
13-06-2022	15:45:50	413.1	32.6	49.99	22.72	3.37	23.39	0.971	4.37	12.17
13-06-2022	15:45:55	414.3	32.8	49.95	22.67	3.68	23.58	0.961	4.27	11.63
13-06-2022	15:46:00	413.0	32.7	50.03	22.66	3.03	23.41	0.968	4.30	12.07
13-06-2022	15:46:05	414.0	32.7	49.99	22.67	3.20	23.49	0.965	4.30	11.80
13-06-2022	15:46:10	412.8	32.5	49.99	22.71	3.31	23.30	0.974	4.40	12.10
13-06-2022	15:46:15	413.6	32.8	50.01	22.69	3.58	23.51	0.965	4.33	11.67
13-06-2022	15:46:20	413.6	32.6	50	22.77	3.45	23.38	0.974	4.33	12.27
13-06-2022	15:46:25	413.4	32.7	49.98	22.77	3.28	23.46	0.97	4.30	12.20
13-06-2022	15:46:30	413.1	32.6	49.98	22.75	3.30	23.35	0.974	4.40	12.40
13-06-2022	15:46:35	413.9	32.5	49.98	22.72	3.36	23.37	0.972	4.30	12.33
13-06-2022	15:46:40	413.4	32.6	49.99	22.68	3.54	23.40	0.969	4.33	12.37
13-06-2022	15:46:45	413.4	32.4	49.99	22.68	3.19	23.25	0.975	4.40	12.27
13-06-2022	15:46:50	413.8	32.6	49.98	22.65	3.24	23.38	0.969	4.37	11.57
13-06-2022	15:46:55	413.3	32.6	50	22.66	3.47	23.38	0.969	4.33	11.90
13-06-2022	15:47:00	414.4	32.5	49.97	22.71	3.45	23.37	0.971	4.30	12.07
13-06-2022	15:47:05	413.4	32.7	50.01	22.77	3.22	23.47	0.97	4.37	12.33
13-06-2022	15:47:10	413.1	32.6	49.99	22.78	3.15	23.39	0.973	4.33	11.90
13-06-2022	15:47:15	413.1	32.7	49.97	22.74	3.71	23.44	0.969	4.23	11.63
13-06-2022	15:47:20	413.5	32.7	49.97	22.72	3.41	23.43	0.969	4.30	12.30
13-06-2022	15:47:25	412.5	32.6	49.98	22.73	3.30	23.31	0.975	4.43	12.40
13-06-2022	15:47:30	412.9	32.6	50	22.73	3.26	23.37	0.973	4.43	12.37
13-06-2022	15:47:35	412.7	32.9	50	22.72	3.38	23.53	0.965	4.33	12.07
13-06-2022	15:47:40	412.9	32.6	49.98	22.73	3.42	23.35	0.973	4.40	12.30
13-06-2022	15:47:45	412.5	32.6	50	22.67	3.17	23.32	0.972	4.37	12.03
13-06-2022	15:47:50	412.1	32.5	49.98	22.67	3.40	23.25	0.974	4.43	12.07
13-06-2022	15:47:55	413.3	32.5	50	22.62	3.19	23.30	0.971	4.33	12.00
13-06-2022	15:48:00	412.2	32.5	50	22.65	3.15	23.26	0.974	4.40	12.17
13-06-2022	15:48:05	413.4	32.6	49.98	22.66	3.48	23.40	0.968	4.40	12.27
13-06-2022	15:48:10	412.8	32.4	49.99	22.65	3.16	23.20	0.976	4.43	12.43
13-06-2022	15:48:15	413.0	32.4	49.99	22.63	3.27	23.21	0.975	4.40	12.17
13-06-2022	15:48:20	413.0	32.4	50	22.62	3.59	23.23	0.973	4.40	12.43
13-06-2022	15:48:25	413.1	32.4	49.99	22.60	3.46	23.20	0.974	4.40	12.57
13-06-2022	15:48:30	412.4	32.5	49.99	22.59	3.24	23.26	0.971	4.43	12.73
13-06-2022	15:48:35	413.3	32.6	50	22.58	3.59	23.33	0.968	4.37	12.07
13-06-2022	15:48:40	412.2	32.7	50.01	22.56	3.43	23.40	0.964	4.47	12.40
13-06-2022	15:48:45	412.5	32.4	50	22.57	3.45	23.17	0.974	4.47	12.30

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	15:48:50	412.5	32.3	49.99	22.55	3.36	23.14	0.974	4.50	12.50
13-06-2022	15:48:55	412.7	32.4	50	22.54	3.44	23.14	0.974	4.47	12.37
13-06-2022	15:49:00	412.4	32.6	49.97	22.50	3.55	23.31	0.965	4.40	12.40
13-06-2022	15:49:05	412.5	32.3	49.99	22.42	3.49	23.09	0.971	4.47	12.53
13-06-2022	15:49:10	412.7	32.3	49.99	22.42	3.32	23.12	0.969	4.53	12.57
13-06-2022	15:49:15	412.4	32.4	49.98	22.44	3.43	23.14	0.969	4.40	12.33
13-06-2022	15:49:20	412.5	32.3	50	22.45	3.39	23.07	0.972	4.53	12.60
13-06-2022	15:49:25	412.6	32.2	50.03	22.43	3.30	23.03	0.974	4.53	12.67
13-06-2022	15:49:30	412.2	32.1	50.01	22.37	3.30	22.99	0.973	4.60	12.77
13-06-2022	15:49:35	412.2	32.4	49.99	22.36	3.43	23.15	0.965	4.63	12.77
13-06-2022	15:49:40	412.0	32.4	49.96	22.39	3.29	23.14	0.967	4.57	12.47
13-06-2022	15:49:45	412.3	32.4	49.99	22.36	3.44	23.15	0.966	4.57	12.60
13-06-2022	15:49:50	412.2	32.3	49.99	22.34	3.32	23.12	0.966	4.57	12.63
13-06-2022	15:49:55	412.2	32.3	49.98	22.33	3.38	23.08	0.967	4.57	12.60
13-06-2022	15:50:00	412.3	32.2	49.99	22.32	3.44	23.03	0.969	4.63	12.57
13-06-2022	15:50:05	411.9	32.3	50.03	22.33	3.33	23.07	0.967	4.60	12.60
13-06-2022	15:50:10	412.3	32.2	50.01	22.33	3.49	23.06	0.968	4.60	13.13
13-06-2022	15:50:15	411.8	32.5	50.01	22.35	3.42	23.18	0.963	4.47	12.23
13-06-2022	15:50:20	411.8	32.2	50	22.32	3.12	22.99	0.971	4.37	12.40
13-06-2022	15:50:25	412.2	32.2	50	22.33	3.46	23.04	0.969	4.33	12.37
13-06-2022	15:50:30	412.4	32.0	50	22.34	2.90	22.88	0.976	4.33	12.20
13-06-2022	15:50:35	412.5	32.2	50	22.34	3.38	23.04	0.969	4.23	12.00
13-06-2022	15:50:40	412.6	32.3	49.97	22.32	3.68	23.14	0.964	4.27	11.60
13-06-2022	15:50:45	412.3	32.3	50.01	22.27	3.24	23.11	0.963	4.33	12.07
13-06-2022	15:50:50	412.1	32.4	50.01	22.34	3.04	23.13	0.965	4.33	12.10
13-06-2022	15:50:55	412.3	32.4	49.98	22.37	3.46	23.15	0.966	4.33	12.33
13-06-2022	15:51:00	412.1	32.4	49.98	22.35	3.17	23.12	0.967	4.33	12.47
13-06-2022	15:51:05	412.0	32.3	50	22.37	2.94	23.12	0.968	4.20	12.30
13-06-2022	15:51:10	412.3	32.4	49.98	22.40	3.53	23.13	0.968	4.20	11.80
13-06-2022	15:51:15	412.3	32.1	49.97	22.40	3.31	22.96	0.976	4.27	12.37
13-06-2022	15:51:20	412.3	32.1	49.98	22.37	3.25	22.94	0.975	4.33	12.27
13-06-2022	15:51:25	412.4	32.3	49.98	22.36	3.49	23.07	0.969	4.37	12.03
13-06-2022	15:51:30	412.9	32.3	49.97	22.34	3.31	23.11	0.966	4.30	11.87
13-06-2022	15:51:35	412.7	32.0	50.02	22.40	2.67	22.95	0.975	4.27	12.03
13-06-2022	15:51:40	413.2	32.3	50	22.41	3.38	23.12	0.969	4.10	11.47
13-06-2022	15:51:45	413.3	32.1	49.98	22.42	3.22	23.00	0.974	4.17	11.83
13-06-2022	15:51:50	413.9	32.2	50	22.32	3.40	23.14	0.964	4.20	11.93
13-06-2022	15:51:55	412.5	31.9	50	22.31	2.98	22.83	0.977	4.30	12.37
13-06-2022	15:52:00	412.8	32.1	49.99	22.33	3.28	22.96	0.972	4.33	12.33
13-06-2022	15:52:05	413.3	31.9	49.99	22.31	2.97	22.85	0.976	4.37	12.43
13-06-2022	15:52:10	412.6	31.9	50.01	22.26	3.29	22.85	0.974	4.40	12.53
13-06-2022	15:52:15	413.0	31.9	49.99	22.24	3.26	22.87	0.972	4.37	12.13
13-06-2022	15:52:20	412.6	32.0	49.99	22.25	3.19	22.87	0.973	4.37	12.37
13-06-2022	15:52:25	412.4	31.9	50	22.21	3.41	22.85	0.972	4.33	12.03
13-06-2022	15:52:30	412.6	32.0	50.01	22.05	3.51	22.93	0.961	4.30	11.80

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	15:52:35	412.3	32.0	50.02	22.19	3.18	22.87	0.97	4.30	11.77
13-06-2022	15:52:40	412.4	31.9	49.99	22.24	3.15	22.81	0.974	4.30	12.00
13-06-2022	15:52:45	412.5	32.3	49.99	22.28	3.42	23.11	0.964	4.30	11.53
13-06-2022	15:52:50	412.5	32.0	49.99	22.31	3.22	22.90	0.974	4.37	12.00
13-06-2022	15:52:55	412.3	32.1	50	22.34	3.17	22.98	0.972	4.37	12.33
13-06-2022	15:53:00	412.6	32.1	49.99	22.38	3.40	22.99	0.973	4.33	12.33
13-06-2022	15:53:05	412.5	32.2	49.99	22.38	3.18	23.01	0.972	4.37	12.27
13-06-2022	15:53:10	412.4	32.1	49.97	22.38	3.32	23.00	0.973	4.27	12.20
13-06-2022	15:53:15	412.4	32.3	49.97	22.41	3.31	23.07	0.971	4.37	11.90
13-06-2022	15:53:20	412.6	32.2	50	22.45	3.33	23.07	0.973	4.30	12.13
13-06-2022	15:53:25	412.5	32.2	50	22.44	3.30	23.01	0.975	4.33	11.93
13-06-2022	15:53:30	412.6	32.3	49.98	22.40	3.31	23.08	0.97	4.33	12.23
13-06-2022	15:53:35	412.5	32.2	49.98	22.39	3.15	23.06	0.971	4.47	12.13
13-06-2022	15:53:40	412.4	32.1	50.01	22.37	3.10	22.93	0.975	4.43	12.20
13-06-2022	15:53:45	412.3	32.1	49.98	22.32	3.19	22.97	0.971	4.43	11.87
13-06-2022	15:53:50	412.7	31.9	50	22.31	2.97	22.84	0.976	4.40	12.47
13-06-2022	15:53:55	412.1	32.0	50.01	22.33	3.03	22.88	0.976	4.37	12.43
13-06-2022	15:54:00	413.0	32.1	49.98	22.31	3.12	22.96	0.972	4.50	12.60
13-06-2022	15:54:05	411.9	32.4	49.97	22.29	3.37	23.17	0.962	4.33	11.90
13-06-2022	15:54:10	411.7	32.1	49.99	22.31	3.19	22.93	0.972	4.43	12.40
13-06-2022	15:54:15	412.5	32.0	49.99	22.30	3.14	22.91	0.973	4.37	12.30
13-06-2022	15:54:20	412.3	32.2	49.99	22.27	3.29	23.03	0.967	4.37	12.33
13-06-2022	15:54:25	412.3	32.0	49.99	22.28	3.07	22.91	0.972	4.40	12.43
13-06-2022	15:54:30	412.2	32.1	50	22.31	3.28	22.99	0.97	4.43	12.47
13-06-2022	15:54:35	412.6	32.0	50	22.30	3.23	22.93	0.972	4.37	12.43
13-06-2022	15:54:40	412.5	31.8	50.01	22.25	3.20	22.79	0.976	4.40	12.30
13-06-2022	15:54:45	412.1	32.0	49.99	22.20	3.40	22.89	0.969	4.43	12.67
13-06-2022	15:54:50	412.4	31.9	49.98	22.19	3.06	22.85	0.971	4.37	12.57
13-06-2022	15:54:55	412.3	31.9	50.01	22.19	3.14	22.77	0.974	4.43	12.70
13-06-2022	15:55:00	412.2	31.8	50.01	22.19	3.01	22.73	0.976	4.50	12.67
13-06-2022	15:55:05	412.5	31.8	50	22.18	3.23	22.78	0.973	4.43	12.57
13-06-2022	15:55:10	412.8	31.8	49.99	22.15	3.09	22.79	0.972	4.37	12.50
13-06-2022	15:55:15	412.6	31.9	49.96	22.10	3.45	22.84	0.967	4.43	12.00
13-06-2022	15:55:20	411.8	31.9	50	22.10	3.02	22.80	0.969	4.43	11.97
13-06-2022	15:55:25	412.3	31.7	49.98	22.09	3.39	22.67	0.974	4.50	12.40
13-06-2022	15:55:30	412.4	31.7	49.99	22.07	3.18	22.67	0.973	4.50	12.37
13-06-2022	15:55:35	412.1	31.8	49.98	22.01	3.30	22.72	0.969	4.53	12.03
13-06-2022	15:55:40	412.8	31.5	50.01	21.94	3.50	22.56	0.972	4.47	12.60
13-06-2022	15:55:45	411.7	31.6	49.99	21.87	3.01	22.60	0.968	4.53	13.03
13-06-2022	15:55:50	412.8	31.6	50.01	21.81	3.29	22.62	0.964	4.40	12.90
13-06-2022	15:55:55	411.3	31.5	49.98	21.79	3.31	22.45	0.97	4.57	12.83
13-06-2022	15:56:00	411.8	31.3	49.99	21.74	3.19	22.35	0.972	4.53	12.73
13-06-2022	15:56:05	412.1	31.3	49.98	21.73	3.33	22.35	0.972	4.53	12.93
13-06-2022	15:56:10	411.9	31.3	49.97	21.72	3.16	22.38	0.97	4.53	12.33
13-06-2022	15:56:15	412.2	31.4	50.01	21.66	3.28	22.42	0.966	4.47	12.80

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	15:56:20	412.2	31.3	50	21.66	3.38	22.40	0.967	4.53	12.30
13-06-2022	15:56:25	412.3	31.2	50.01	21.65	3.34	22.29	0.971	4.53	12.73
13-06-2022	15:56:30	412.0	31.0	50.01	21.62	2.84	22.19	0.974	4.53	12.67
13-06-2022	15:56:35	412.4	31.1	50	21.59	3.35	22.25	0.97	4.53	12.87
13-06-2022	15:56:40	412.2	31.2	49.99	21.61	3.23	22.29	0.969	4.53	12.80
13-06-2022	15:56:45	412.2	31.3	49.98	21.63	3.32	22.40	0.965	4.50	12.60
13-06-2022	15:56:50	412.3	31.4	50	21.60	3.40	22.42	0.963	4.50	12.57
13-06-2022	15:56:55	412.2	31.0	49.99	21.60	2.94	22.15	0.975	4.53	13.03
13-06-2022	15:57:00	412.5	31.1	50.01	21.61	3.35	22.26	0.97	4.50	12.83
13-06-2022	15:57:05	411.3	31.3	49.99	21.64	3.20	22.31	0.969	4.43	12.80
13-06-2022	15:57:10	412.8	31.3	49.96	21.64	3.33	22.42	0.965	4.43	12.47
13-06-2022	15:57:15	412.5	31.2	50.01	21.62	3.22	22.31	0.969	4.53	12.47
13-06-2022	15:57:20	412.5	31.1	49.97	21.62	3.36	22.28	0.97	4.47	13.00
13-06-2022	15:57:25	412.4	31.2	49.99	21.65	3.21	22.30	0.97	4.43	12.47
13-06-2022	15:57:30	412.3	31.1	50.01	21.64	3.16	22.22	0.973	4.43	12.83
13-06-2022	15:57:35	412.5	31.1	49.98	21.66	3.44	22.26	0.973	4.43	12.90
13-06-2022	15:57:40	412.8	31.2	50	21.63	3.37	22.36	0.967	4.43	13.03
13-06-2022	15:57:45	412.5	31.0	49.99	21.58	3.26	22.21	0.971	4.43	12.87
13-06-2022	15:57:50	412.7	31.0	49.98	21.54	3.15	22.22	0.969	4.43	13.23
13-06-2022	15:57:55	412.5	31.1	50.01	21.56	3.35	22.23	0.97	4.40	12.90
13-06-2022	15:58:00	413.0	30.9	50	21.55	3.35	22.12	0.974	4.47	12.87
13-06-2022	15:58:05	412.7	30.9	50	21.58	3.24	22.15	0.974	4.43	12.70
13-06-2022	15:58:10	412.7	30.9	49.97	21.57	3.35	22.16	0.973	4.43	12.90
13-06-2022	15:58:15	412.9	31.2	49.99	21.56	3.29	22.34	0.965	4.47	13.13
13-06-2022	15:58:20	412.7	31.2	49.99	21.58	3.23	22.32	0.966	4.47	12.83
13-06-2022	15:58:25	412.9	31.1	50	21.59	3.44	22.31	0.967	4.43	13.07
13-06-2022	15:58:30	412.6	31.2	50.01	21.58	3.03	22.31	0.967	4.50	12.67
13-06-2022	15:58:35	412.9	31.1	49.98	21.57	3.45	22.27	0.968	4.43	12.93
13-06-2022	15:58:40	412.7	31.2	50.02	21.55	3.18	22.35	0.964	4.47	12.60
13-06-2022	15:58:45	413.0	30.9	50	21.53	3.35	22.18	0.97	4.47	13.10
13-06-2022	15:58:50	412.8	30.9	50	21.54	3.22	22.14	0.973	4.47	12.90
13-06-2022	15:58:55	412.6	31.0	49.98	21.54	3.11	22.21	0.969	4.47	13.03
13-06-2022	15:59:00	413.0	30.9	50	21.52	3.29	22.11	0.973	4.47	12.80
13-06-2022	15:59:05	412.8	30.8	49.98	21.48	3.21	22.07	0.973	4.47	12.87
13-06-2022	15:59:10	412.6	30.9	50.01	21.46	3.18	22.16	0.968	4.43	12.90
13-06-2022	15:59:15	412.5	31.1	49.99	21.44	3.56	22.21	0.965	4.40	12.87
13-06-2022	15:59:20	412.8	31.0	49.99	21.39	3.42	22.18	0.964	4.40	13.07
13-06-2022	15:59:25	412.6	30.7	50	21.34	3.05	21.95	0.972	4.43	12.90
13-06-2022	15:59:30	413.2	30.8	50.01	21.28	3.47	22.06	0.964	4.30	12.87
13-06-2022	15:59:35	412.6	30.6	49.99	21.28	3.15	21.90	0.971	4.43	13.03
13-06-2022	15:59:40	412.8	30.5	49.99	21.23	3.25	21.87	0.971	4.43	12.90
13-06-2022	15:59:45	412.8	30.5	49.99	21.21	3.20	21.84	0.971	4.47	13.33
13-06-2022	15:59:50	412.9	30.5	50	21.21	3.09	21.85	0.971	4.50	13.17
13-06-2022	15:59:55	412.9	30.5	49.99	21.23	3.40	21.87	0.97	4.50	12.97
13-06-2022	16:00:00	413.0	30.6	49.98	21.23	3.39	21.91	0.968	4.47	13.10

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	16:00:05	413.4	30.5	50.01	21.24	3.18	21.88	0.97	4.40	13.00
13-06-2022	16:00:10	412.3	30.6	49.98	21.25	3.03	21.84	0.972	4.43	13.03
13-06-2022	16:00:15	413.5	30.6	50	21.25	3.32	21.92	0.969	4.40	13.03
13-06-2022	16:00:20	413.2	30.5	50	21.23	3.14	21.88	0.97	4.40	12.80
13-06-2022	16:00:25	413.1	30.5	49.98	21.23	3.10	21.83	0.972	4.40	12.97
13-06-2022	16:00:30	412.6	30.7	50.01	21.23	3.21	21.94	0.967	4.43	13.07
13-06-2022	16:00:35	413.2	30.4	49.99	21.23	3.21	21.79	0.974	4.37	13.10
13-06-2022	16:00:40	412.8	30.6	50.02	21.19	3.27	21.88	0.968	4.37	13.13
13-06-2022	16:00:45	412.9	30.4	50.01	21.18	3.30	21.79	0.972	4.40	12.93
13-06-2022	16:00:50	413.3	30.3	49.97	21.14	3.28	21.73	0.972	4.47	12.93
13-06-2022	16:00:55	413.3	30.4	49.98	21.08	3.47	21.79	0.967	4.37	13.10
13-06-2022	16:01:00	413.7	30.4	50.01	21.06	3.11	21.85	0.964	4.40	13.33
13-06-2022	16:01:05	413.0	30.5	49.98	21.05	3.27	21.87	0.962	4.53	12.87
13-06-2022	16:01:10	413.1	30.4	50.02	21.03	3.26	21.76	0.966	4.53	13.23
13-06-2022	16:01:15	413.2	30.2	50	21.01	3.26	21.65	0.97	4.57	13.70
13-06-2022	16:01:20	413.0	30.3	49.99	21.00	3.22	21.72	0.967	4.57	13.47
13-06-2022	16:01:25	413.3	30.4	49.99	21.00	3.42	21.79	0.963	4.57	13.73
13-06-2022	16:01:30	413.0	30.2	49.99	21.01	3.31	21.68	0.969	4.60	13.93
13-06-2022	16:01:35	413.3	30.1	49.99	20.99	3.12	21.60	0.971	4.67	14.07
13-06-2022	16:01:40	413.1	30.3	50	21.01	3.34	21.72	0.967	4.57	13.73
13-06-2022	16:01:45	413.0	30.4	49.98	21.03	3.42	21.77	0.965	4.57	13.73
13-06-2022	16:01:50	412.8	30.2	50	21.01	3.08	21.62	0.972	4.67	13.63
13-06-2022	16:01:55	412.7	30.2	50.02	20.98	3.05	21.60	0.971	4.63	13.53
13-06-2022	16:02:00	413.0	30.2	49.98	20.94	3.45	21.66	0.967	4.60	13.57
13-06-2022	16:02:05	413.0	30.0	50.01	20.86	3.30	21.49	0.971	4.60	13.63
13-06-2022	16:02:10	412.6	29.8	50.01	20.77	3.08	21.38	0.971	4.63	13.70
13-06-2022	16:02:15	412.6	29.9	49.99	20.76	3.30	21.40	0.97	4.67	13.73
13-06-2022	16:02:20	412.7	30.1	49.99	20.76	3.50	21.53	0.964	4.53	13.73
13-06-2022	16:02:25	412.8	29.9	49.99	20.72	3.26	21.41	0.967	4.60	14.10
13-06-2022	16:02:30	412.8	29.9	49.99	20.70	3.26	21.38	0.968	4.63	14.13
13-06-2022	16:02:35	413.1	29.9	49.99	20.77	3.20	21.40	0.97	4.67	14.00
13-06-2022	16:02:40	412.9	30.0	49.99	20.80	3.38	21.51	0.966	4.60	13.53
13-06-2022	16:02:45	413.3	30.0	50.01	20.79	3.33	21.50	0.966	4.63	14.03
13-06-2022	16:02:50	413.0	30.0	49.98	20.81	3.23	21.48	0.969	4.60	13.63
13-06-2022	16:02:55	413.2	30.2	50	20.86	3.19	21.64	0.964	4.57	13.70
13-06-2022	16:03:00	413.1	30.1	49.99	20.90	3.26	21.59	0.968	4.57	13.33
13-06-2022	16:03:05	413.4	30.0	49.99	20.89	3.44	21.55	0.969	4.63	13.93
13-06-2022	16:03:10	413.1	30.2	49.98	20.89	3.35	21.66	0.964	4.63	13.63
13-06-2022	16:03:15	413.1	30.2	49.99	20.89	3.25	21.66	0.964	4.53	13.53
13-06-2022	16:03:20	413.0	30.2	49.99	20.89	3.24	21.66	0.964	4.60	13.70
13-06-2022	16:03:25	413.2	30.1	49.99	20.88	3.20	21.57	0.967	4.60	13.97
13-06-2022	16:03:30	413.3	30.1	49.98	20.84	3.63	21.59	0.965	4.57	14.00
13-06-2022	16:03:35	412.9	30.1	50	20.85	3.21	21.57	0.966	4.67	13.53
13-06-2022	16:03:40	413.0	30.1	49.98	20.85	3.18	21.53	0.968	4.63	13.23
13-06-2022	16:03:45	413.3	30.3	49.98	20.87	3.47	21.76	0.958	4.57	13.97

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	16:03:50	412.9	30.2	50	20.91	3.28	21.61	0.967	4.63	13.37
13-06-2022	16:03:55	413.1	30.0	49.99	20.90	3.14	21.53	0.97	4.63	13.23
13-06-2022	16:04:00	412.8	30.1	49.96	20.88	3.37	21.56	0.968	4.60	13.47
13-06-2022	16:04:05	412.6	30.1	49.99	20.88	3.49	21.56	0.968	4.40	13.27
13-06-2022	16:04:10	413.1	30.1	50	20.89	3.36	21.58	0.968	4.43	13.47
13-06-2022	16:04:15	413.8	30.0	49.99	20.92	3.16	21.54	0.971	4.37	13.07
13-06-2022	16:04:20	412.6	30.2	49.98	20.91	3.59	21.65	0.965	4.43	12.97
13-06-2022	16:04:25	413.3	30.0	50	20.93	3.13	21.55	0.971	4.40	13.30
13-06-2022	16:04:30	413.0	30.2	50	20.94	3.37	21.64	0.967	4.37	13.07
13-06-2022	16:04:35	412.8	30.2	49.98	20.92	3.59	21.60	0.968	4.40	13.17
13-06-2022	16:04:40	412.6	30.3	49.97	20.92	3.52	21.67	0.965	4.37	13.17
13-06-2022	16:04:45	412.1	30.2	49.99	20.91	2.97	21.58	0.968	4.30	12.80
13-06-2022	16:04:50	411.9	30.1	50	20.93	3.32	21.52	0.973	4.33	12.60
13-06-2022	16:04:55	412.0	30.1	50.02	20.93	3.17	21.51	0.973	4.30	12.67
13-06-2022	16:05:00	412.0	30.1	50.01	20.94	3.20	21.48	0.974	4.33	12.97
13-06-2022	16:05:05	412.2	30.2	49.96	20.94	3.34	21.63	0.968	4.33	12.37
13-06-2022	16:05:10	412.1	30.2	50.03	20.94	2.91	21.58	0.97	4.33	12.60
13-06-2022	16:05:15	412.1	30.2	50.02	20.94	3.25	21.57	0.97	4.30	12.87
13-06-2022	16:05:20	412.1	30.2	49.99	20.91	3.18	21.60	0.968	4.30	13.10
13-06-2022	16:05:25	412.1	30.4	49.96	20.90	3.22	21.73	0.961	4.20	12.37
13-06-2022	16:05:30	412.0	30.1	49.98	20.91	3.15	21.54	0.97	4.33	12.60
13-06-2022	16:05:35	411.6	30.1	50.02	20.91	3.08	21.49	0.973	4.43	13.00
13-06-2022	16:05:40	411.7	30.0	50.01	20.92	3.04	21.47	0.974	4.43	13.00
13-06-2022	16:05:45	411.6	30.1	49.97	20.91	3.21	21.49	0.972	4.43	13.20
13-06-2022	16:05:50	412.0	30.0	49.98	20.90	3.09	21.46	0.974	4.43	13.17
13-06-2022	16:05:55	412.4	30.0	49.99	20.81	3.08	21.46	0.969	4.37	13.53
13-06-2022	16:06:00	411.9	29.9	50.01	20.75	3.08	21.41	0.969	4.53	13.57
13-06-2022	16:06:05	411.9	29.9	50	20.78	3.09	21.37	0.972	4.60	13.77
13-06-2022	16:06:10	411.9	30.0	49.98	20.77	3.27	21.39	0.97	4.67	13.70
13-06-2022	16:06:15	412.0	30.0	49.99	20.68	2.89	21.45	0.964	4.53	14.03
13-06-2022	16:06:20	412.0	29.8	50.01	20.55	3.24	21.32	0.963	4.57	13.43
13-06-2022	16:06:25	411.7	29.7	49.97	20.66	3.18	21.25	0.972	4.67	13.43
13-06-2022	16:06:30	411.9	29.9	50.01	20.67	2.98	21.38	0.966	4.77	13.63
13-06-2022	16:06:35	411.8	30.0	49.99	20.65	3.19	21.42	0.964	4.60	13.20
13-06-2022	16:06:40	412.1	29.7	49.97	20.54	3.46	21.28	0.965	4.60	13.83
13-06-2022	16:06:45	411.9	29.6	50	20.63	3.11	21.19	0.973	4.60	13.67
13-06-2022	16:06:50	412.0	29.8	49.98	20.58	3.25	21.29	0.966	4.57	13.67
13-06-2022	16:06:55	411.7	29.7	50	20.56	3.23	21.26	0.967	4.77	14.00
13-06-2022	16:07:00	412.2	29.5	50	20.55	3.19	21.14	0.971	4.67	14.13
13-06-2022	16:07:05	412.1	29.5	49.96	20.37	3.43	21.09	0.966	4.50	13.83
13-06-2022	16:07:10	411.9	29.6	49.98	20.36	3.24	21.12	0.963	4.50	14.10
13-06-2022	16:07:15	411.6	29.5	50	20.37	3.16	21.06	0.967	4.47	14.07

Work Shop :

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	16:52:30	412.5	25.2	49.97	15.67	6.51	18.05	0.868	4.23	20.90
13-06-2022	16:52:35	412.5	25.2	49.99	15.67	6.50	18.04	0.868	4.20	21.00
13-06-2022	16:52:40	412.5	25.2	49.97	15.67	6.52	18.05	0.868	4.20	20.63
13-06-2022	16:52:45	412.4	25.2	49.99	15.69	6.48	18.07	0.868	4.23	21.00
13-06-2022	16:52:50	412.5	25.2	49.99	15.69	6.49	18.06	0.868	4.17	21.17
13-06-2022	16:52:55	412.5	25.1	49.98	15.62	6.50	18.01	0.867	4.20	20.97
13-06-2022	16:53:00	412.5	25.2	50	15.67	6.48	18.03	0.868	4.20	21.07
13-06-2022	16:53:05	412.4	25.0	50.01	15.58	6.37	17.92	0.869	4.17	21.03
13-06-2022	16:53:10	412.5	24.6	49.99	15.24	6.18	17.57	0.867	4.20	21.63
13-06-2022	16:53:15	412.7	23.4	50.02	14.36	5.81	16.77	0.856	4.23	25.17
13-06-2022	16:53:20	412.6	23.5	50	14.46	5.83	16.85	0.857	4.27	24.47
13-06-2022	16:53:25	412.7	23.6	50.02	14.50	5.83	16.88	0.859	4.23	24.83
13-06-2022	16:53:30	412.7	23.5	49.98	14.37	5.84	16.79	0.855	4.27	24.93
13-06-2022	16:53:35	412.6	23.4	50	14.36	5.82	16.78	0.855	4.23	24.90
13-06-2022	16:53:40	412.7	25.2	49.96	16.01	5.87	18.02	0.886	4.20	22.07
13-06-2022	16:53:45	412.8	26.4	49.98	17.19	5.86	18.88	0.91	4.23	19.53
13-06-2022	16:53:50	412.8	25.4	50.02	16.24	5.83	18.19	0.891	4.27	21.27
13-06-2022	16:53:55	412.5	23.4	50	14.35	5.81	16.75	0.856	4.43	24.50
13-06-2022	16:54:00	412.3	23.4	49.98	14.32	5.81	16.72	0.856	4.50	24.77
13-06-2022	16:54:05	412.2	23.4	50	14.32	5.78	16.71	0.857	4.50	24.90
13-06-2022	16:54:10	411.7	23.4	50	14.31	5.80	16.69	0.857	4.53	24.63
13-06-2022	16:54:15	412.1	23.4	49.99	14.34	5.80	16.72	0.857	4.53	24.73
13-06-2022	16:54:20	412.1	23.4	50	14.35	5.77	16.74	0.857	4.53	24.47
13-06-2022	16:54:25	412.0	23.4	49.99	14.34	5.76	16.72	0.857	4.53	25.00
13-06-2022	16:54:30	412.2	23.3	50.01	14.33	5.77	16.72	0.857	4.50	24.90
13-06-2022	16:54:35	412.1	23.3	49.98	14.31	5.78	16.70	0.856	4.50	25.13
13-06-2022	16:54:40	412.5	23.4	49.99	14.32	5.80	16.73	0.856	4.47	25.00
13-06-2022	16:54:45	412.6	23.4	50	14.31	5.81	16.71	0.856	4.50	24.97
13-06-2022	16:54:50	412.6	23.3	49.98	14.28	5.82	16.69	0.855	4.47	24.90
13-06-2022	16:54:55	413.3	23.3	49.99	14.30	5.82	16.72	0.855	4.47	24.93
13-06-2022	16:55:00	412.1	23.3	49.99	14.29	5.80	16.69	0.856	4.50	24.67
13-06-2022	16:55:05	412.2	23.4	50.01	14.32	5.80	16.73	0.856	4.40	24.77
13-06-2022	16:55:10	412.6	23.4	50	14.33	5.81	16.74	0.855	4.50	24.53
13-06-2022	16:55:15	413.0	23.4	50.02	14.32	5.83	16.74	0.855	4.37	24.57
13-06-2022	16:55:20	412.9	23.4	49.98	14.34	5.80	16.75	0.856	4.47	24.90
13-06-2022	16:55:25	412.2	23.4	50.01	14.32	5.77	16.71	0.856	4.53	24.97
13-06-2022	16:55:30	412.3	23.4	49.99	14.33	5.80	16.73	0.856	4.47	24.97

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	16:55:35	412.6	23.4	50	14.35	5.82	16.77	0.856	4.47	25.03
13-06-2022	16:55:40	412.7	23.4	49.97	14.32	5.82	16.74	0.855	4.47	25.10
13-06-2022	16:55:45	412.3	23.4	50.01	14.30	5.80	16.71	0.855	4.50	24.87
13-06-2022	16:55:50	412.7	23.3	50.01	14.28	5.81	16.70	0.855	4.33	25.07
13-06-2022	16:55:55	412.6	23.4	50.01	14.30	5.81	16.72	0.855	4.37	25.00
13-06-2022	16:56:00	412.4	23.4	49.98	14.33	5.82	16.75	0.855	4.37	25.07
13-06-2022	16:56:05	412.5	23.4	50	14.34	5.79	16.75	0.856	4.30	24.80
13-06-2022	16:56:10	412.4	24.0	49.99	14.72	6.07	17.18	0.856	4.30	23.70
13-06-2022	16:56:15	412.3	24.7	49.99	15.34	6.33	17.70	0.866	4.30	21.67
13-06-2022	16:56:20	412.4	24.8	50.01	15.42	6.27	17.74	0.869	4.27	21.83
13-06-2022	16:56:25	412.4	24.8	49.99	15.41	6.29	17.73	0.869	4.27	21.93
13-06-2022	16:56:30	412.3	24.7	50.01	15.36	6.30	17.68	0.868	4.30	21.63
13-06-2022	16:56:35	412.3	24.7	49.98	15.33	6.30	17.68	0.867	4.27	22.07
13-06-2022	16:56:40	412.5	24.7	49.99	15.30	6.31	17.65	0.867	4.30	22.03
13-06-2022	16:56:45	412.5	24.7	50	15.30	6.30	17.64	0.867	4.27	21.87
13-06-2022	16:56:50	412.5	24.7	49.98	15.30	6.33	17.66	0.866	4.13	21.53
13-06-2022	16:56:55	412.7	24.6	50	15.28	6.33	17.65	0.865	4.10	21.67
13-06-2022	16:57:00	412.9	24.6	50.01	15.29	6.35	17.67	0.865	4.03	21.43
13-06-2022	16:57:05	413.1	24.7	50.01	15.30	6.33	17.66	0.866	4.07	21.77
13-06-2022	16:57:10	413.1	24.7	50.01	15.31	6.36	17.69	0.865	4.03	21.87
13-06-2022	16:57:15	413.0	24.7	50	15.32	6.35	17.69	0.865	4.03	21.50
13-06-2022	16:57:20	413.1	24.7	50.01	15.33	6.33	17.69	0.866	4.03	21.37
13-06-2022	16:57:25	413.1	24.7	49.99	15.32	6.31	17.70	0.865	4.07	21.63
13-06-2022	16:57:30	413.1	24.7	50.01	15.35	6.35	17.71	0.866	4.03	21.53
13-06-2022	16:57:35	412.9	24.7	49.99	15.37	6.35	17.72	0.867	4.07	21.77
13-06-2022	16:57:40	413.0	24.7	50.01	15.38	6.33	17.72	0.868	4.07	21.57
13-06-2022	16:57:45	412.8	24.7	49.97	15.36	6.33	17.71	0.867	4.07	21.67
13-06-2022	16:57:50	412.7	24.8	50.01	15.41	6.30	17.74	0.868	4.03	21.30
13-06-2022	16:57:55	412.8	24.8	49.99	15.40	6.31	17.74	0.868	4.03	21.43
13-06-2022	16:58:00	413.1	24.8	49.97	15.43	6.34	17.78	0.867	4.07	21.53
13-06-2022	16:58:05	413.2	24.8	50.01	15.43	6.33	17.79	0.867	4.07	21.23
13-06-2022	16:58:10	413.1	24.8	49.99	15.42	6.35	17.77	0.867	4.07	21.50
13-06-2022	16:58:15	413.2	24.8	49.97	15.43	6.34	17.79	0.867	4.03	21.53
13-06-2022	16:58:20	413.2	24.9	50.02	15.55	6.34	17.88	0.869	4.07	21.23
13-06-2022	16:58:25	413.0	24.9	49.99	15.49	6.34	17.82	0.868	4.03	21.27
13-06-2022	16:58:30	413.1	24.9	49.98	15.49	6.33	17.83	0.868	4.00	21.60
13-06-2022	16:58:35	413.0	24.9	50.01	15.51	6.31	17.85	0.869	4.07	21.43
13-06-2022	16:58:40	413.2	24.0	49.97	14.82	6.04	17.21	0.861	4.03	23.43
13-06-2022	16:58:45	412.9	23.4	50	14.37	5.84	16.80	0.855	4.03	24.67
13-06-2022	16:58:50	412.8	23.4	50.02	14.32	5.81	16.73	0.856	4.10	24.77
13-06-2022	16:58:55	412.8	23.3	50.04	14.33	5.81	16.73	0.856	4.23	24.90
13-06-2022	16:59:00	412.7	23.4	49.98	14.33	5.82	16.74	0.856	4.27	24.83
13-06-2022	16:59:05	412.8	23.4	50.01	14.33	5.81	16.73	0.856	4.27	24.47
13-06-2022	16:59:10	412.7	23.5	49.97	14.37	5.82	16.78	0.856	4.27	24.90
13-06-2022	16:59:15	412.6	23.4	50.02	14.35	5.78	16.74	0.856	4.27	24.70

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	16:59:20	412.7	23.4	50.01	14.36	5.81	16.75	0.857	4.27	24.73
13-06-2022	16:59:25	412.7	23.4	50.01	14.35	5.81	16.74	0.856	4.30	24.83
13-06-2022	16:59:30	412.8	23.4	50	14.38	5.84	16.79	0.856	4.27	24.77
13-06-2022	16:59:35	412.9	23.4	50.01	14.36	5.81	16.77	0.856	4.33	24.67
13-06-2022	16:59:40	413.0	23.4	50	14.38	5.86	16.80	0.855	4.30	24.97
13-06-2022	16:59:45	412.9	23.4	50.02	14.34	5.81	16.74	0.856	4.27	24.60
13-06-2022	16:59:50	412.8	23.4	49.98	14.33	5.83	16.74	0.856	4.23	24.87
13-06-2022	16:59:55	412.9	23.4	50	14.33	5.82	16.72	0.856	4.33	24.50
13-06-2022	17:00:00	412.8	23.4	50	14.37	5.83	16.77	0.857	4.27	24.67
13-06-2022	17:00:05	412.8	23.4	49.98	14.37	5.86	16.77	0.857	4.33	24.83
13-06-2022	17:00:10	412.8	23.4	50.01	14.35	5.79	16.74	0.857	4.33	24.57
13-06-2022	17:00:15	412.9	23.3	49.99	14.32	5.80	16.70	0.857	4.30	24.57
13-06-2022	17:00:20	413.0	23.4	49.98	14.35	5.82	16.76	0.856	4.33	24.63
13-06-2022	17:00:25	412.8	23.3	50.02	14.35	5.79	16.74	0.857	4.27	24.53
13-06-2022	17:00:30	412.7	23.4	50	14.37	5.79	16.75	0.858	4.27	24.60
13-06-2022	17:00:35	412.6	23.4	49.98	14.39	5.77	16.76	0.858	4.27	24.57
13-06-2022	17:00:40	412.7	23.4	49.98	14.41	5.80	16.77	0.859	4.27	24.40
13-06-2022	17:00:45	412.6	23.4	50.01	14.39	5.76	16.75	0.859	4.33	24.53
13-06-2022	17:00:50	412.4	23.4	49.97	14.38	5.78	16.74	0.859	4.23	24.50
13-06-2022	17:00:55	412.5	23.4	49.97	14.38	5.77	16.74	0.859	4.23	24.53
13-06-2022	17:01:00	412.6	23.4	50.01	14.37	5.76	16.73	0.859	4.23	24.43
13-06-2022	17:01:05	412.5	23.4	49.99	14.37	5.78	16.73	0.859	4.30	24.57
13-06-2022	17:01:10	412.7	23.4	50	14.36	5.78	16.73	0.858	4.27	24.40
13-06-2022	17:01:15	412.8	23.3	49.97	14.35	5.77	16.72	0.858	4.27	24.70
13-06-2022	17:01:20	412.8	23.4	49.99	14.36	5.80	16.73	0.858	4.30	24.60
13-06-2022	17:01:25	412.9	23.4	50.01	14.40	5.80	16.78	0.858	4.30	24.53
13-06-2022	17:01:30	412.6	23.4	49.99	14.36	5.77	16.73	0.858	4.27	24.47
13-06-2022	17:01:35	412.7	23.4	49.99	14.37	5.77	16.74	0.858	4.23	24.63
13-06-2022	17:01:40	412.4	24.4	49.97	15.06	6.22	17.49	0.861	4.27	21.33
13-06-2022	17:01:45	412.5	24.7	50	15.38	6.27	17.68	0.87	4.27	21.23
13-06-2022	17:01:50	412.3	24.8	49.98	15.46	6.28	17.74	0.871	4.30	21.43
13-06-2022	17:01:55	412.4	24.8	49.97	15.44	6.28	17.73	0.87	4.03	21.40
13-06-2022	17:02:00	412.5	24.8	49.99	15.43	6.30	17.75	0.869	4.10	21.57
13-06-2022	17:02:05	412.6	24.8	49.99	15.45	6.30	17.78	0.869	4.13	21.30
13-06-2022	17:02:10	412.6	24.8	50	15.45	6.29	17.76	0.869	4.10	21.33
13-06-2022	17:02:15	412.6	24.8	49.97	15.44	6.32	17.77	0.869	4.13	21.30
13-06-2022	17:02:20	412.7	24.8	50	15.43	6.32	17.77	0.868	4.10	21.47
13-06-2022	17:02:25	412.6	24.8	50	15.44	6.31	17.77	0.868	4.10	21.47
13-06-2022	17:02:30	412.4	24.8	49.99	15.44	6.32	17.78	0.868	4.10	21.50
13-06-2022	17:02:35	412.5	24.8	49.99	15.44	6.31	17.78	0.868	4.10	21.63
13-06-2022	17:02:40	412.4	24.8	50	15.43	6.30	17.77	0.868	4.10	21.73
13-06-2022	17:02:45	412.4	24.9	49.98	15.46	6.30	17.79	0.868	4.10	21.43
13-06-2022	17:02:50	412.5	24.8	50.01	15.45	6.31	17.78	0.869	4.10	21.73
13-06-2022	17:02:55	412.7	24.8	49.98	15.43	6.32	17.76	0.868	4.10	21.60
13-06-2022	17:03:00	412.7	24.8	50.01	15.44	6.33	17.77	0.868	4.13	21.73

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	17:03:05	412.7	24.8	49.99	15.44	6.32	17.76	0.869	4.10	21.43
13-06-2022	17:03:10	412.7	24.8	50	15.44	6.29	17.75	0.869	4.13	21.30
13-06-2022	17:03:15	412.7	24.8	49.99	15.44	6.28	17.75	0.87	4.10	21.50
13-06-2022	17:03:20	412.4	24.8	50	15.45	6.30	17.77	0.869	4.10	21.60
13-06-2022	17:03:25	412.5	24.8	49.97	15.45	6.32	17.78	0.869	4.10	21.60
13-06-2022	17:03:30	412.6	24.8	49.97	15.45	6.31	17.78	0.869	4.10	21.63
13-06-2022	17:03:35	412.6	24.8	49.99	15.45	6.32	17.77	0.869	4.10	21.53
13-06-2022	17:03:40	412.8	24.8	49.99	15.45	6.31	17.78	0.869	4.10	21.33
13-06-2022	17:03:45	412.7	24.8	49.99	15.44	6.30	17.77	0.869	4.10	21.40
13-06-2022	17:03:50	412.9	24.8	49.99	15.44	6.32	17.77	0.868	4.27	21.50
13-06-2022	17:03:55	412.8	24.4	49.98	15.14	6.19	17.51	0.864	4.20	21.90
13-06-2022	17:04:00	412.6	23.6	49.97	14.45	5.98	16.91	0.854	4.27	24.03
13-06-2022	17:04:05	411.9	23.6	49.99	14.43	5.94	16.86	0.855	4.23	23.90
13-06-2022	17:04:10	411.6	23.6	50.01	14.43	5.89	16.84	0.856	4.20	24.00
13-06-2022	17:04:15	411.7	23.6	49.97	14.42	5.92	16.85	0.855	4.17	24.00
13-06-2022	17:04:20	411.9	23.6	50	14.43	5.91	16.86	0.855	4.20	24.20
13-06-2022	17:04:25	412.0	23.6	49.99	14.45	5.95	16.89	0.855	4.23	23.97
13-06-2022	17:04:30	412.1	23.6	50.01	14.45	5.95	16.89	0.855	4.23	24.23
13-06-2022	17:04:35	412.2	23.6	50.02	14.44	5.95	16.88	0.855	4.20	23.83
13-06-2022	17:04:40	412.2	23.6	49.99	14.44	5.98	16.89	0.854	4.17	24.10
13-06-2022	17:04:45	412.3	23.6	49.99	14.44	5.97	16.89	0.854	4.20	23.80
13-06-2022	17:04:50	412.4	23.6	50	14.44	5.96	16.90	0.854	4.17	24.07
13-06-2022	17:04:55	412.2	23.7	49.99	14.43	5.95	16.90	0.854	4.20	24.10
13-06-2022	17:05:00	412.1	23.6	50.01	14.42	5.94	16.88	0.854	4.20	24.10
13-06-2022	17:05:05	412.1	23.6	50.01	14.42	5.96	16.87	0.854	4.20	24.00
13-06-2022	17:05:10	412.0	23.6	49.99	14.41	5.93	16.86	0.854	4.17	24.13
13-06-2022	17:05:15	412.3	23.6	49.99	14.41	5.95	16.86	0.854	4.20	24.10
13-06-2022	17:05:20	412.1	23.6	49.99	14.40	5.94	16.86	0.854	4.20	24.37
13-06-2022	17:05:25	412.4	23.5	49.98	14.37	5.98	16.83	0.853	4.13	24.23
13-06-2022	17:05:30	412.3	23.5	49.99	14.36	5.94	16.82	0.853	4.13	24.17
13-06-2022	17:05:35	412.1	23.5	50	14.36	5.95	16.82	0.853	4.17	24.27
13-06-2022	17:05:40	412.1	23.5	50.01	14.36	5.92	16.82	0.854	4.13	24.43
13-06-2022	17:05:45	412.1	23.5	50.01	14.37	5.95	16.83	0.853	4.20	24.10
13-06-2022	17:05:50	412.3	23.5	49.97	14.36	5.95	16.82	0.853	4.23	24.33
13-06-2022	17:05:55	412.2	23.5	49.99	14.36	5.97	16.82	0.853	4.20	24.00
13-06-2022	17:06:00	412.2	23.5	49.98	14.34	5.96	16.80	0.853	4.17	24.27
13-06-2022	17:06:05	412.1	23.5	49.99	14.34	5.94	16.80	0.854	4.20	24.20
13-06-2022	17:06:10	412.0	23.5	50	14.35	5.92	16.81	0.853	4.20	24.23
13-06-2022	17:06:15	412.1	23.5	49.99	14.36	5.93	16.82	0.854	4.23	24.10
13-06-2022	17:06:20	412.1	23.6	49.98	14.42	5.95	16.88	0.854	4.13	24.17
13-06-2022	17:06:25	412.0	23.6	49.97	14.40	5.95	16.86	0.854	4.20	24.07
13-06-2022	17:06:30	412.3	23.6	49.99	14.42	5.93	16.88	0.854	4.17	24.10
13-06-2022	17:06:35	412.2	23.6	49.99	14.40	5.96	16.87	0.853	4.20	24.20
13-06-2022	17:06:40	412.3	23.6	50	14.41	5.95	16.88	0.853	4.23	24.20
13-06-2022	17:06:45	412.2	23.6	50	14.45	5.95	16.91	0.854	4.20	24.30

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	17:06:50	412.2	23.6	49.97	14.45	5.95	16.92	0.854	4.07	24.10
13-06-2022	17:06:55	412.2	24.6	49.99	15.04	6.33	17.58	0.855	4.00	22.63
13-06-2022	17:07:00	412.2	25.0	50.01	15.50	6.44	17.91	0.865	4.00	21.20
13-06-2022	17:07:05	412.1	25.1	49.98	15.60	6.42	17.97	0.868	4.00	21.03
13-06-2022	17:07:10	411.9	25.1	50.03	15.64	6.38	17.99	0.869	3.97	21.23
13-06-2022	17:07:15	411.5	25.1	50	15.58	6.36	17.95	0.868	3.93	21.27
13-06-2022	17:07:20	411.6	25.1	49.99	15.54	6.37	17.93	0.866	3.97	21.10
13-06-2022	17:07:25	411.8	25.1	49.97	15.52	6.41	17.92	0.866	3.97	21.10
13-06-2022	17:07:30	412.0	25.0	50	15.53	6.38	17.91	0.867	3.93	20.93
13-06-2022	17:07:35	411.8	24.9	49.99	15.47	6.33	17.82	0.868	3.97	20.97
13-06-2022	17:07:40	411.5	24.8	49.99	15.39	6.21	17.70	0.869	3.97	21.53
13-06-2022	17:07:45	411.7	24.8	50.02	15.43	6.22	17.74	0.869	4.00	21.80
13-06-2022	17:07:50	411.6	24.8	50	15.43	6.24	17.75	0.869	3.93	21.60
13-06-2022	17:07:55	411.6	24.8	49.98	15.43	6.21	17.74	0.869	4.00	21.50
13-06-2022	17:08:00	411.6	24.8	49.99	15.43	6.21	17.73	0.87	3.97	21.23
13-06-2022	17:08:05	411.5	24.8	49.99	15.41	6.24	17.72	0.869	3.97	21.40
13-06-2022	17:08:10	411.6	24.8	49.99	15.43	6.23	17.74	0.869	4.00	21.37
13-06-2022	17:08:15	411.5	24.8	49.99	15.44	6.23	17.74	0.87	4.00	21.50
13-06-2022	17:08:20	411.5	24.9	50.03	15.48	6.20	17.76	0.871	4.00	21.50
13-06-2022	17:08:25	411.5	24.8	50	15.47	6.20	17.75	0.871	4.03	21.57
13-06-2022	17:08:30	411.2	24.8	49.99	15.46	6.19	17.72	0.872	4.07	21.27
13-06-2022	17:08:35	411.5	24.9	50	15.49	6.19	17.75	0.872	4.13	21.23
13-06-2022	17:08:40	411.8	24.9	50.01	15.50	6.23	17.78	0.872	4.13	21.50
13-06-2022	17:08:45	412.0	24.9	50.01	15.49	6.26	17.78	0.871	4.13	21.53
13-06-2022	17:08:50	411.9	24.9	50.02	15.49	6.25	17.78	0.871	4.13	21.37
13-06-2022	17:08:55	411.8	24.8	50.01	15.46	6.22	17.74	0.871	4.13	21.37
13-06-2022	17:09:00	412.0	24.8	50	15.48	6.25	17.77	0.87	4.13	21.43
13-06-2022	17:09:05	412.1	24.9	49.98	15.47	6.27	17.77	0.87	4.13	21.47
13-06-2022	17:09:10	412.1	24.9	49.99	15.49	6.26	17.79	0.87	4.13	21.20
13-06-2022	17:09:15	412.1	24.9	49.98	15.51	6.27	17.80	0.871	4.13	21.37
13-06-2022	17:09:20	412.1	24.8	49.97	15.46	6.25	17.75	0.87	4.17	21.13
13-06-2022	17:09:25	412.0	23.4	49.98	14.34	5.77	16.72	0.857	4.17	24.43
13-06-2022	17:09:30	411.9	23.3	50	14.33	5.74	16.70	0.858	4.20	24.67
13-06-2022	17:09:35	411.9	23.3	50.02	14.33	5.71	16.69	0.858	4.17	24.63
13-06-2022	17:09:40	412.1	23.4	49.99	14.32	5.75	16.70	0.857	4.20	24.47
13-06-2022	17:09:45	412.1	23.4	50	14.34	5.75	16.72	0.858	4.23	24.53
13-06-2022	17:09:50	412.2	23.4	50.01	14.35	5.74	16.73	0.857	4.17	24.53
13-06-2022	17:09:55	412.0	23.4	50.01	14.34	5.77	16.73	0.857	4.20	24.63
13-06-2022	17:10:00	412.1	23.3	49.97	14.32	5.74	16.70	0.857	4.17	24.77
13-06-2022	17:10:05	412.0	23.3	50.01	14.33	5.73	16.70	0.857	4.13	24.80
13-06-2022	17:10:10	411.9	25.1	49.98	15.98	5.74	17.94	0.889	4.13	21.67
13-06-2022	17:10:15	412.1	26.3	50.01	17.16	5.79	18.81	0.912	4.13	19.40
13-06-2022	17:10:20	412.4	26.3	50	17.18	5.81	18.84	0.911	4.10	19.40
13-06-2022	17:10:25	412.1	26.3	50.02	17.15	5.80	18.82	0.911	4.13	19.70
13-06-2022	17:10:30	412.3	26.2	50	17.11	5.78	18.78	0.911	4.13	19.57

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	17:10:35	412.2	26.2	49.97	17.07	5.77	18.73	0.911	4.13	19.50
13-06-2022	17:10:40	412.3	24.0	50.01	15.03	5.72	17.22	0.871	4.13	23.33
13-06-2022	17:10:45	412.0	23.3	49.99	14.34	5.69	16.68	0.859	4.13	24.30
13-06-2022	17:10:50	411.8	23.3	49.99	14.33	5.69	16.68	0.859	4.13	24.43
13-06-2022	17:10:55	411.9	23.3	50.02	14.34	5.69	16.68	0.86	4.20	24.33
13-06-2022	17:11:00	412.2	23.3	50	14.32	5.70	16.66	0.859	4.20	24.27
13-06-2022	17:11:05	412.2	23.3	49.99	14.30	5.72	16.64	0.859	4.20	24.40
13-06-2022	17:11:10	412.1	23.3	49.99	14.30	5.70	16.65	0.859	4.20	24.33
13-06-2022	17:11:15	412.0	23.3	50	14.32	5.69	16.66	0.859	4.20	24.70
13-06-2022	17:11:20	411.8	23.3	49.98	14.32	5.69	16.66	0.859	4.17	24.33
13-06-2022	17:11:25	411.8	23.3	49.97	14.30	5.71	16.64	0.859	4.17	24.27
13-06-2022	17:11:30	412.3	23.3	50.05	14.36	5.73	16.71	0.859	4.03	24.20
13-06-2022	17:11:35	411.9	23.2	49.99	14.29	5.70	16.63	0.859	4.00	24.43
13-06-2022	17:11:40	411.9	23.3	49.99	14.30	5.71	16.65	0.858	4.00	24.47
13-06-2022	17:11:45	412.2	23.3	50.01	14.32	5.70	16.66	0.859	4.03	24.20
13-06-2022	17:11:50	411.9	23.3	50	14.30	5.70	16.65	0.859	4.00	24.37
13-06-2022	17:11:55	411.9	23.3	50	14.29	5.67	16.64	0.858	4.00	24.43
13-06-2022	17:12:00	411.7	23.2	49.96	14.26	5.65	16.61	0.858	4.03	24.33
13-06-2022	17:12:05	411.7	23.3	50.01	14.30	5.66	16.64	0.859	4.00	24.40
13-06-2022	17:12:10	411.7	23.3	50	14.32	5.68	16.67	0.859	4.00	24.33
13-06-2022	17:12:15	411.9	23.3	50.01	14.30	5.67	16.65	0.858	4.03	24.13
13-06-2022	17:12:20	412.2	23.3	50	14.30	5.70	16.65	0.858	4.03	24.47
13-06-2022	17:12:25	412.1	24.4	50.01	15.03	6.15	17.46	0.861	4.13	21.13
13-06-2022	17:12:30	412.0	24.6	49.98	15.33	6.21	17.62	0.869	4.07	21.20
13-06-2022	17:12:35	412.0	24.7	50	15.41	6.19	17.67	0.872	4.10	21.13
13-06-2022	17:12:40	412.2	24.7	49.98	15.40	6.22	17.67	0.871	4.07	21.23
13-06-2022	17:12:45	412.1	24.7	50	15.39	6.20	17.66	0.871	4.07	21.17
13-06-2022	17:12:50	412.0	24.7	50.01	15.36	6.22	17.64	0.871	4.13	21.10
13-06-2022	17:12:55	412.1	24.8	50.02	15.48	6.17	17.74	0.872	4.10	21.20
13-06-2022	17:13:00	412.1	24.8	49.99	15.46	6.19	17.73	0.872	4.10	21.30
13-06-2022	17:13:05	412.0	24.7	50	15.40	6.17	17.67	0.871	4.13	21.23
13-06-2022	17:13:10	411.9	24.7	50	15.45	6.16	17.67	0.874	4.27	20.97
13-06-2022	17:13:15	412.2	24.7	50	15.41	6.16	17.64	0.873	4.27	20.77
13-06-2022	17:13:20	412.0	24.7	49.99	15.40	6.18	17.64	0.873	4.23	21.17
13-06-2022	17:13:25	411.9	24.7	49.98	15.40	6.18	17.65	0.872	4.23	21.03
13-06-2022	17:13:30	411.9	24.7	50.01	15.43	6.16	17.66	0.873	4.27	21.30
13-06-2022	17:13:35	411.9	24.6	49.97	15.40	6.18	17.63	0.873	4.27	21.03
13-06-2022	17:13:40	411.9	24.7	50.01	15.41	6.16	17.63	0.873	4.23	20.83
13-06-2022	17:13:45	412.0	24.7	49.98	15.41	6.16	17.65	0.872	4.27	21.23
13-06-2022	17:13:50	412.0	24.7	50	15.40	6.17	17.63	0.873	4.30	20.97
13-06-2022	17:13:55	412.0	24.6	49.99	15.40	6.17	17.63	0.874	4.27	21.30
13-06-2022	17:14:00	411.9	24.6	49.99	15.39	6.17	17.61	0.873	4.27	21.07
13-06-2022	17:14:05	412.4	24.7	50	15.41	6.19	17.65	0.873	4.33	21.10
13-06-2022	17:14:10	412.2	24.4	50	15.23	6.10	17.48	0.871	4.37	21.63
13-06-2022	17:14:15	412.4	23.2	49.99	14.31	5.67	16.63	0.86	4.40	24.13

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	17:14:20	412.6	23.2	49.99	14.32	5.68	16.64	0.86	4.37	24.30
13-06-2022	17:14:25	412.4	23.2	49.99	14.31	5.69	16.63	0.86	4.37	24.20
13-06-2022	17:14:30	412.6	23.3	50	14.33	5.70	16.65	0.86	4.40	24.50
13-06-2022	17:14:35	412.7	23.3	49.97	14.34	5.72	16.66	0.861	4.37	24.30
13-06-2022	17:14:40	412.7	23.3	50	14.35	5.69	16.67	0.861	4.43	24.13
13-06-2022	17:14:45	412.6	23.3	49.99	14.34	5.70	16.65	0.861	4.40	24.27
13-06-2022	17:14:50	412.6	23.3	49.99	14.34	5.70	16.67	0.86	4.43	24.33
13-06-2022	17:14:55	412.7	23.3	49.97	14.35	5.69	16.66	0.861	4.40	24.07
13-06-2022	17:15:00	412.4	23.3	50.01	14.35	5.68	16.67	0.861	4.47	24.40
13-06-2022	17:15:05	412.6	23.2	50.01	14.34	5.70	16.66	0.86	4.43	24.30
13-06-2022	17:15:10	412.7	23.3	49.99	14.34	5.69	16.66	0.86	4.33	24.40
13-06-2022	17:15:15	412.9	23.3	49.98	14.33	5.71	16.65	0.86	4.43	24.20
13-06-2022	17:15:20	412.8	23.2	50.01	14.32	5.70	16.64	0.86	4.43	24.23
13-06-2022	17:15:25	412.8	23.2	50.01	14.31	5.69	16.63	0.86	4.43	24.27
13-06-2022	17:15:30	412.7	23.2	49.99	14.28	5.69	16.59	0.86	4.37	24.07
13-06-2022	17:15:35	412.7	23.2	50.01	14.29	5.68	16.60	0.86	4.37	24.17
13-06-2022	17:15:40	412.7	23.3	50.01	14.37	5.70	16.68	0.861	4.40	24.07
13-06-2022	17:15:45	412.9	23.2	50.02	14.33	5.69	16.64	0.861	4.40	24.47
13-06-2022	17:15:50	412.7	23.2	49.98	14.32	5.72	16.64	0.86	4.40	24.27
13-06-2022	17:15:55	412.7	23.2	49.99	14.32	5.70	16.63	0.86	4.43	24.20
13-06-2022	17:16:00	412.7	23.2	49.98	14.31	5.70	16.63	0.86	4.33	24.20
13-06-2022	17:16:05	412.4	23.3	49.96	14.33	5.67	16.64	0.861	4.30	23.97
13-06-2022	17:16:10	412.6	23.3	49.99	14.35	5.68	16.66	0.861	4.10	24.13
13-06-2022	17:16:15	412.5	23.1	49.98	14.25	5.67	16.55	0.86	4.07	24.20
13-06-2022	17:16:20	412.5	22.7	49.99	13.95	5.69	16.27	0.857	4.13	24.57
13-06-2022	17:16:25	412.6	22.7	49.98	13.93	5.71	16.25	0.857	4.10	24.63
13-06-2022	17:16:30	412.6	22.5	49.99	13.79	5.71	16.12	0.855	4.23	24.70
13-06-2022	17:16:35	412.6	22.2	50.02	13.51	5.72	15.86	0.851	4.23	25.13
13-06-2022	17:16:40	412.5	21.9	49.98	13.31	5.78	15.70	0.848	4.20	25.87
13-06-2022	17:16:45	412.6	21.9	50.02	13.33	5.76	15.69	0.849	4.23	25.47
13-06-2022	17:16:50	412.7	22.1	50	13.44	5.76	15.80	0.85	4.23	25.43
13-06-2022	17:16:55	412.7	22.1	49.99	13.46	5.76	15.82	0.85	4.23	25.57
13-06-2022	17:17:00	412.7	22.1	49.96	13.43	5.74	15.81	0.849	4.23	25.47
13-06-2022	17:17:05	412.9	22.1	49.98	13.44	5.76	15.80	0.85	4.13	25.20
13-06-2022	17:17:10	412.8	22.7	50.02	13.79	5.98	16.22	0.849	4.23	24.47
13-06-2022	17:17:15	412.7	23.4	50.01	14.44	6.28	16.78	0.861	4.13	22.20
13-06-2022	17:17:20	412.8	23.5	49.99	14.53	6.26	16.82	0.863	4.17	22.10
13-06-2022	17:17:25	412.6	23.5	50	14.55	6.25	16.83	0.864	4.17	22.00
13-06-2022	17:17:30	412.6	23.4	49.99	14.44	6.24	16.74	0.862	4.20	22.53
13-06-2022	17:17:35	412.5	23.0	50	14.11	6.27	16.45	0.858	4.17	22.83
13-06-2022	17:17:40	412.5	23.0	49.98	14.10	6.29	16.45	0.857	4.13	22.83
13-06-2022	17:17:45	412.6	23.0	49.98	14.08	6.26	16.42	0.857	4.20	22.93
13-06-2022	17:17:50	412.8	22.9	50	14.08	6.28	16.42	0.857	4.20	22.97
13-06-2022	17:17:55	412.8	22.9	50.02	14.08	6.28	16.41	0.857	4.23	22.70
13-06-2022	17:18:00	412.9	23.0	50	14.10	6.29	16.44	0.857	4.30	23.07

Date:	Time:	Avg.Voltage	Avg.Current	F	PT	QT	ST	PFT	Avg. V THD	Avg.I THD
		V	A	Hz	kW	kvar	kVA		%f	%f
13-06-2022	17:18:05	412.7	22.9	50	14.10	6.31	16.43	0.857	4.33	22.63
13-06-2022	17:18:10	412.6	23.0	49.99	14.11	6.28	16.44	0.858	4.37	23.03
13-06-2022	17:18:15	413.1	23.5	49.99	14.44	6.51	16.83	0.858	4.33	21.90
13-06-2022	17:18:20	412.2	23.3	49.99	14.24	6.40	16.63	0.856	4.30	22.50

ENERGY AUDIT REPORT OF VIDYAVARDHINI COLLEGE OF ENGINEERING AND TECHNOLOGY, VASAI.

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ENERGY IS LIFE
CONSERVE IT

ऊर्जा दक्षता ब्यूरो
(भारत सरकार, विद्युत मंत्रालय)
BUREAU OF ENERGY EFFICIENCY
(Government of India, Ministry of Power)

10/02/Accred./BEE/17/749-59 04 May, 2017

Shri Sachin Deshpande
A.R.S. Energy Auditors
A1/101, Pramodoni Palace Chs,
Near Air India Colony, Virar (E),
Maharashtra- 401305

Sub: Application for accreditation as accredited energy auditors- reg.

Sir,

The undersigned is to refer to your application for the accreditation of Energy Auditors and the subsequent Oral interview you had before the Accreditation Advisory Committee at BEE office, New Delhi.

We are pleased to inform that the Accreditation Advisory Committee has recommended your name for the accreditation as Accredited Energy Auditor. The recommendation of Accredited Energy Advisory Committee will be put up to Management Advisory Committee of BEE for approval in its next meeting. After approval, BEE will include your name in the list of Accredited Energy Auditor, maintained by BEE on its website (www.beeindia.nic.in)

Yours faithfully,

(Rajini Thomson)
Coordinator (Exam)

स्वहित एवं राष्ट्रहित में ऊर्जा बचाएँ Save Energy for Benefit of Self and Nation

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ACKNOWLEDGEMENT

ARS ENERGY AUDITORS thanks the management of **Vidyavardhini College of Engineering and Technology** for assigning this important work of Energy Study at their Engineering Collage at **VASAI.** We appreciate the cooperation and guidance extended to ARS Execution Team for completion of study.

Our special thanks to:

- *Dr. Harish V. Vankudre (Principal)*
- *Dr. Megha Trivedi, HOD (Computer)*
- *Dr. Uday Aswalekar, HOD (Mechanical)*
- *Mr. Swapnil Mane, Asst Prof. Mechanical*
- *Mr. Vishwas Palve, Asst Prof. Mechanical*
- *Mr. Prabhakar Patil, Substation Incharge, VCET*

For giving us necessary inputs to carry out this very vital exercise of Energy Audit Assessment.

We are also thankful to other Staff Members and Students who were actively involved and supported while collecting the data and conducting field measurements.

For A.R.S. Energy Auditors,

Mr. Sachin S. Deshpande.

ABOUT CONSULTANT

A.R.S ENERGY AUDITOR is a leading name in the field of energy conservation. The company has diversified its business from the Solar Water Heating Application to the field of Energy Conservation through Energy Audit & Electrical Safety Audits. With a team of experienced professionals the company has successfully completed the Safety Audit Assignments for many prestigious clients. The company has empanelment with Prestigious Organization Like – *Bureau of Energy Efficiency (BEE), Maharashtra Energy Development Agency (MEDA), Gujarat Energy Development Agency (GEDA), Karnataka Renewable Energy Development Agency Ltd. (KREDAL), Rural Electrification Corporation (REC), and PCRA for Energy Conservation Activities.*

AUDIT TEAM MEMBER

Mr. Sachin Deshpande.

Accredited Energy Auditor, Chief Consultant, M. Tech. (Energy), B.E. Mechanical Eng.

Mr. Saurabh Raul.

Senior Engineer, B.E. Mechanical Eng.

Mr. Himanshu Patil.

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Mr. Pavan Sharma.

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Mr. Neeraj Naik.

Senior Engineer, B.E. Electrical Eng.

EXECUTIVE SUMMARY OF PLANT ENERGY SAVING POTENTIAL

Sr. No.	Energy Conservation Measures	Annual Saving	Total Annual Cost Saving	Approximate Investment Cost	SPP - Simple Payback Period	
		kWh/year	Rs./year	Rs.	Years	Months
1	Replace old Split AC With Energy Efficient 5-Star Split AC.	**24,576**	**3,44,064**	**9,60,000**	**2.79**	**33.4**
2	Stoppage of 10 no of fans in library.	**1,536**	**21,504**	**Nil**	**Immediate**	**Immediate**
3	Installation of water level controller to reduce the working time of pumps.	**312.5**	**4,375**	**20,000**	**4.57**	54
Total Saving		**26,424.5**	**3,69,943**	**9,80,000**	**7.36**	**87.4**

1. INTRODUCTION

1.1 About Vidyavardhini's College of Engineering & Technology

Vidyavardhini means a Body committed to enhancement of Knowledge. Vidyavardhini was established as a registered society in 1970 by late Padmashri H. G. alias Bhausaheb Vartak for the noble cause of education in rural areas.

Vidyavardhini's College of Engineering and Technology, Vasai is located on the sprawling campus of Vidyavardhini, spread over an area of 12.27 acres. It is a short, two minutes' walk from Vasai Road (W) Railway Station. The college is also accessible by road from Mumbai.

Vidyavardhini Society received approval from AICTE to start the new college of Engineering & Technology with effect from July, 1994. The college is affiliated to the University of Mumbai for the four year degree program leading to the degree of Bachelor of Engineering.

1.2 Organization Load List

Sr. No.	Organization Section	Details: Type, Total Capacity of All Units	Quantity (Nos)
1	Air Conditioning System	0.8 Ton	6 Nos
2		1 Ton	3 Nos
3		1.5 Ton	11 Nos
4		2 Ton	9 Nos
5		2.4 Ton	1 Nos
6		3 Ton	4 Nos
7		4 Ton	10 Nos
8		5.5 Ton	5 Nos
9		7.5 Ton	4 Nos
10		8.5 Ton	4 Nos
11	Computers	60 W	400 Nos.
12	Lighting Load & Types	LED Tube light (20 W), LED panel, Tube light (40 W)	952 Nos.
13	Fan	Ceiling Fan	473 Nos.
14	Water Pump	Pump- 5 hp	2 Nos.
15	Work shop	Lath M/Cs 40 kW	18 Nos.
16	Other Load	Exhaust Fan, Cooler, Elevator,	-

1.3 Organization Energy Meter Details

Details	Service No:	Consumer Name	Sanctioned & Connected Load	Contract demand	Tariff Type	Electricity Provider
Meter	001849021636	M/S Vidyavardhini Collage of Engg. & Tech	1000 kW	525 kVA	HT – IX B HT – VIII B	MSEDCL

- The tariff type was changed from HT – IX B to HT – VIII B after April 2020

2 ABOUT ENERGY AUDIT

2.1 Introduction

Energy audits are a powerful tool for uncovering operational and equipment improvements that will save energy, reduce energy costs, and lead to high performance. Energy audits can be done as a stand-alone effort but may be conducted as part of a larger analysis across a group of facilities, or across an owner's entire portfolio.

The purpose of an energy audit (sometimes called an "energy assessment" or "energy study") is to determine where, when, why and how energy is used in a facility, and to identify opportunities to improve efficiency. Energy auditing services are offered by energy services companies (ESCOs), energy consultants and engineering firms. The energy auditor leads the audit process but works closely with building owners, staff and other key participants throughout to ensure accuracy of data collection and appropriateness of energy efficiency recommendation.

The audit typically begins with a review of historical and current utility data and benchmarking of your building's energy use against similar buildings. This sets the stage for an onsite inspection of the physical building. The main outcome of an energy audit is a list of recommended energy efficiency measures (EEMs), their associated energy savings potential, and an assessment of whether EEM installation costs are a good financial investment.

2.2 Types of Energy Audits :

Energy audits typically take a whole building approach by examining the building envelope, building systems, operations and maintenance procedures, and building schedules. Whole building audits provide the most accurate picture of energy savings opportunities at your facility.

Alternately, energy audits can be targeted to specific systems (i.e., lighting or heating, ventilation and air conditioning). Targeted audits may miss significant bigger picture energy savings opportunities, but may be a good route if you have specific energy efficiency retrofit projects in mind and limited funds to invest.

2.3 Energy Audits Identify:

- ✓ No-cost operational or maintenance adjustments that will save energy
- ✓ Short-term, low-cost energy efficiency retrofit recommendations
- ✓ Action plans for energy efficiency capital investments
- ✓ Comfort and code issues that can be addressed immediately
- ✓ Opportunities for better adherence to lighting and comfort standards

3 ELECTRICITY BILL ANALYSIS

There is electricity meter requirement of lighting, Air conditioners & other electrical load. Contract demand of for meter is 525 kVA. The below table indicates average consumption for the reference period.

Sr. No.	Billing Month	Contract Demand (CD)	Billed Demand (BD)	Maximum Demand (MD)	Units Consumed	Units Consumed	Adjustment (Solar Units)	Total Consumption	Billed Power Factor	Demand Charges (DC),	Wheeling Charges	Energy Charges (EC),
		(kVA)	(kVA)	(kVA)	(kVAh)	(kWh)	(kWh)	(kWh)	(lagg.)	(Rs.)	(Rs.)	(Rs.)
1	Mar-20	525	263	188	18,477	16,311	2,076	14,235	0.949	1,02,833	5,266.95	1,38,079.50
2	Apr-20	525	289	18	1,527	3,243	2,301	942	0.617	1,18,779	870.39	14,475.96
3	May-20											
4	Jun-20	525	289	43	3,458	5,781	3,291	2,490	0.720	1,18,779	1,971.06	32,781.84
5	Jul-20	525	289	67	10,487	8,784	594	8,190	0.781	1,18,779	5,977.59	99,416.76
6	Aug-20	525	289	62	9,145	8,097	552	7,545	0.825	1,18,779	5,212.65	86,694.60
7	Sep-20	525	289	79	10,944	9,114	567	8,547	0.781	1,18,779	6,238.08	1,03,749.12
8	Oct-20											
9	Nov-20	525	289	78	8,478	7,179	1,287	5,892	0.695	1,18,779	4,832.46	80,371.44
10	Dec-20	525	289	47	11,175	8,541	495	8,046	0.720	1,18,779	6,369.75	1,05,939.00
11	Jan-21	525	289	69	14,616	12,984	297	12,687	0.868	1,18,779	8,331.12	1,38,559.68
12	Feb-21	525	289	71	11,980	11,262	636	10,626	0.887	1,18,779	6,828.60	1,13,570.40
13	Mar-21	525	289	115	17,533	16,884	666	16,218	0.925	1,18,779	9,993.81	1,66,212.84
Total					**1,17,820**	**1,08,180**	**12,762**	**95,418**		**14,09,402**	**61,892.46**	**10,79,851.14**
Avg.			**287**	**76**	**10,711**	**9,835**	**1,160**	**7,340**	**0.797**	**1,17,450**	**4,760.96**	**83,065.47**
Min.			**263**	**18**	**1,527**	**3,243**	**297**	**-**	**0.617**	**1,02,833**	**-**	**-**
Max.			**289**	**188**	**18,477**	**16,884**	**3,291**	**16,218**	**0.949**	**1,18,779**	**9,994**	**1,66,212.84**

Sr. No.	Billing Month	Contract Demand (CD)	TOD Zone				TOD Tariff EC	FAC (@ 100 Ps/Unit)	Electricity duty	Tax on sale (@ 19.04 Ps/unit)	Total Current Bill	Principal Arrears
		(kVA)	Zone-1	Zone-2	Zone-3	Zone-4	(Rs)	(Rs)	(Rs.)		(Rs.)	(Rs.)
1	Mar-20	525	-3,609.00	-	2,985.60	1,696.20	1,072.8	14,235.0	54,912.32	2,710.34	3,19,109.91	-4.57
2	Apr-20	525	-	-	-	1,679.70	1,679.7	-	28,519.06	179.36	1,64,503.47	-40,431.16
3	May-20											
4	Jun-20	525	-850.50	-	676.80	1,719.30	1,545.6	-	32,566.28	474.10	1,88,117.88	-1,64,239.53
5	Jul-20	525	-4,822.50		2,052.80	1,707.20	-1,062.5	-	46,853.28	1,559.38	2,71,523.51	-2.65
6	Aug-20	525	-4,543.50	-	1,344.00	1,647.80	-1,551.7	-	43,918.26	1,436.57	2,54,489.38	-0.14
7	Sep-20	525	-4,885.50	-	1,677.60	1,808.40	-1,399.5	-	47,747.01	1,627.35	2,76,741.06	-1.76
8	Oct-20											
9	Nov-20	525	-5,037.00	-	569.60	1,951.40	-2,516.0	-	42,308.05	1,121.84	2,44,896.79	-6,910.40
10	Dec-20	525	-4,837.50	-	1,456.80	1,901.90	-1,478.8	-	48,217.88	1,531.96	2,79,358.79	-7,095.14
11	Jan-21	525	-4,438.50	-	2,544.00	1,806.20	-88.30	-	55,772.12	2,415.60	3,23,769.22	-2.35
12	Feb-21	525	-4,266.00	-	1,769.60	1,722.60	-773.80	-	50,064.88	2,023.19	2,90,492.27	0.87
13	Mar-21	525	-4,786.50		2,859.20	1,822.70	-104.60	-	61,925.02	3,087.91	3,59,893.98	-0.86
Total			**-42,076.50**	**-**	**17,936.00**	**19,463.40**	**-4,677.1**	**14,235**	**5,12,804.16**	**18167.58**	**30,91,675.25**	**-2,18,687.69**
Avg.			**-3,825.14**	**-**	**1,630.55**	**1,769.40**	**-359.78**	**1,095**	**42,733.68**	**1,397.51**	**2,37,821.17**	**-19,880.70**
Min.			**-5,037.00**	**-**	**-**	**1,647.80**	**-2,516.0**	**-**	**-**	**-**	**-**	**-1,64,239.53**
Max.			**-**	**-**	**2,985.60**	**1,951.40**	**1,679.7**	**14,235**	**61,925.02**	**3,087.91**	**3,59,893.98**	**0.87**

Sr. No.	Billing Month	Contract Demand (CD)	Total Bill Amount	Total bill Rounded	Delayed payment Charges	Amount Payable	Total Units Consumed	Per Unit Electricity Cost
		(kVA)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(kWh)	(Rs/kWh)
1	Mar-20	525	3,19,105.34	3,19,110	3,988.87	3,23,090	14,235	22.70
2	Apr-20	525	1,24,072.31	1,24,070	2,056.29	1,26,130	942	133.90
3	May-20		-				-	-
4	Jun-20	525	23,878.35	23,880	2,351.47	26,230	2,490	10.53
5	Jul-20	525	2,71,520.86	2,71,520	3,394.04	2,74,910	8,190	33.57
6	Aug-20	525	2,54,489.24	2,54,490	3,181.12	2,57,670	7,545	34.15
7	Sep-20	525	2,76,739.30	2,76,741	3,459.26	2,80,200	8,547	32.78
8	Oct-20	525	1,18,779.00				-	-
9	Nov-20	525	2,37,986.39	2,37,990	3,061.21	2,41,050	5,892	40.91
10	Dec-20	525	2,72,263.65	2,72,260	3,491.98	2,75,760	8,046	34.27
11	Jan-21	525	3,23,766.87	3,23,770	4,047.12	3,27,810	12,687	25.84
12	Feb-21	525	2,90,493.14	2,90,490	3,631.15	2,94,120	10,626	27.68
13	Mar-21	525	3,59,893.12	3,59,894	4,498.67	3,64,390	16,218	22.47
Total			**28,72,987.56**	**27,54,215**	**37,161.18**	**27,91,360**	**95,418**	
Avg.			**2,20,999.04**	**2,50,383**	**3,378.29**	**2,53,760**	**7,340**	**32.22**
Min.			**-**	**23,880**	**2,056.29**	**26,230**	**-**	**-**
Max.			**3,59,893.12**	**3,59,894**	**4,498.67**	**3,64,390**	**16,218**	**133.90**

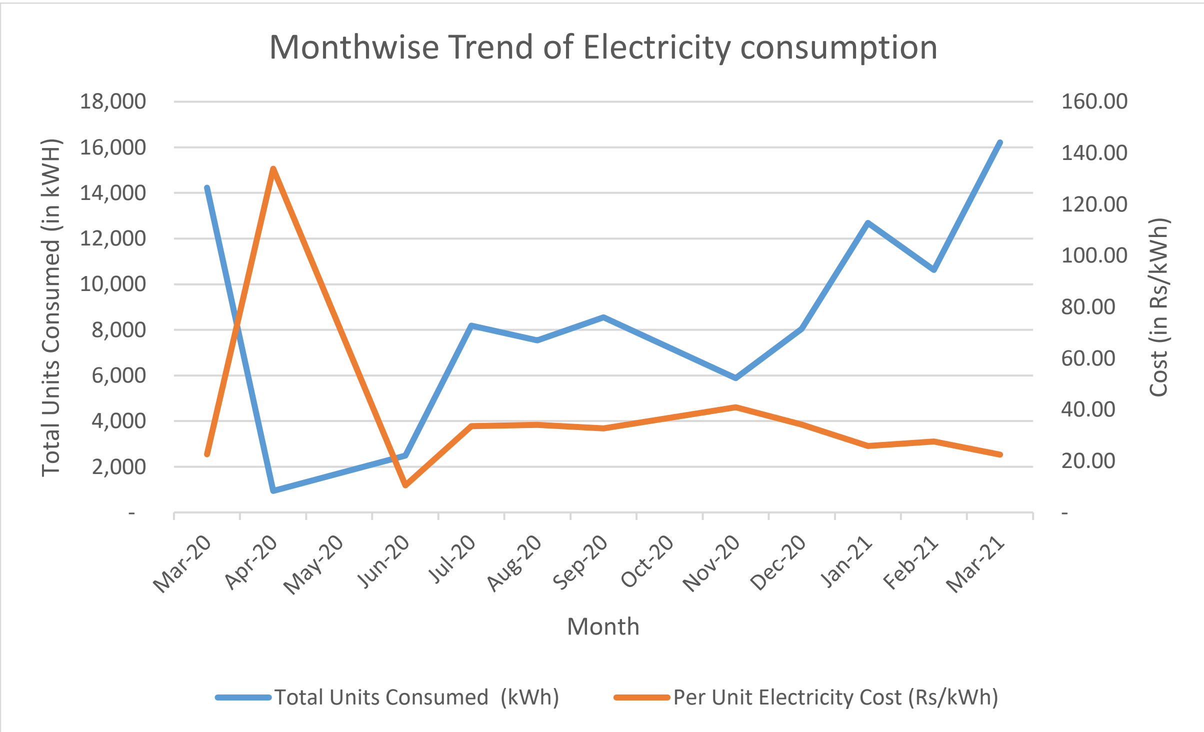
The following are the conclusions of Electrical Bill Analysis:

- For meters Maximum Demands are in near to the 50% of Contract Demand. Hence, it is ok.
- Average monthly electricity consumption is 7340 kWh and avg. monthly bill is Rs. 2,53,760 /-.
- The average PF was found to be 0.797 which is very low, adequate numbers of capacitors should be installed For Meter.
- Average of last 12 months unit cost is Rs. 32.22/ kWh, is very high. The avg. unit cost depends on the tariff of MSEB.
- The per unit cost in the month of April was found to be Rs. 133.9/ kWh which may be due to Covid reasons as the maximum demand was about 76 kVA against the contract demand of 525 kVA.
- A detailed study of Bill analysis needs to be done post-covid period to determine accurate values & contract demand & power factor has to be rationalized.

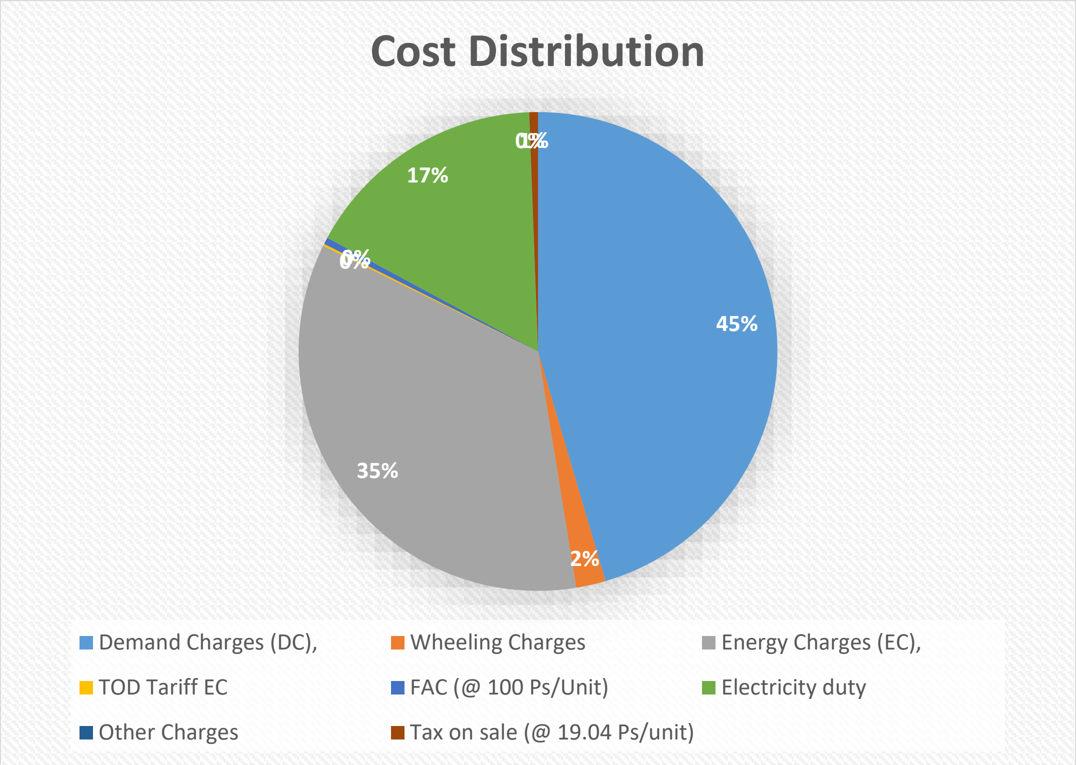
- Present Tariff Details :-

Parameter	Value	Unit
Tariff Type :	**HT- IX B/HT VIII B**	
Contract Demand :	**525**	**kVA**
TOD Tariff :-		
2200 Hrs-0600 Hrs	-1.50	Rs./kVAh
0600 Hrs-0900 Hrs & 1200 Hrs-1800 Hrs	0.00	Rs./kVAh
0900 Hrs-1200 Hrs	0.80	Rs./kVAh
1800 Hrs-2200 Hrs 1.10	1.10	Rs./kVAh

The following graph shows the trend of electricity consumption and its unit rate



The cost distribution of the Electricity bill is as shown in the pie chart.



- As seen from the above pie-chart Demand charges contribute about 45% of the amount in the electricity bill with Energy charges and Wheeling charges contributing 35% & 2% respectively.
- The Demand charges are more due to high contract demand.
- The contract demand needs to be assessed properly based on previous year's bill.

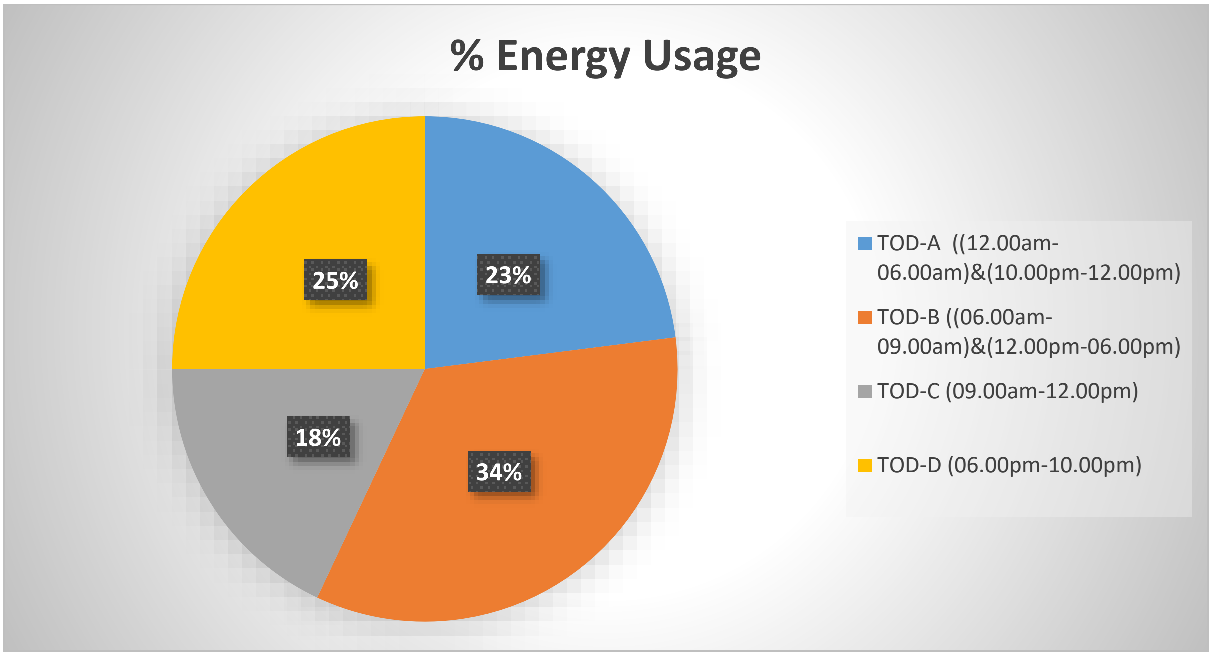
3.1 Electricity TOD Tariff

The following table gives information regarding the tariff rates, Units consumed during different tariff zones & its Energy charges.

Sr. No.	Month	TOD-A ((12.00am-06.00am)&(10.00pm-12.00pm)				TOD-B ((06.00am-09.00am)&(12.00pm-06.00pm)				TOD-C (09.00am-12.00pm)			
		Units Consumed	Rate of Electricity	Energy Charges (EC)-A	% Usages	Units Consumed	Rate of Electricity	Energy Charges (EC)-B	% Usages	Units Consumed	Rate of Electricity	Energy Charges (EC)-B	% Usages
		(kVAh)	(Rs.kVAh)	(Rs.)	%	(kVAh)	(Rs.kVAh)	(Rs.)	%	(kVAh)	(Rs.kVAh)	(Rs.)	%
1	Mar-20	2,406	-1.50	-3,609.00	17%	6,555	-	-	46%	3,732	0.80	2,985.60	26%
2	Apr-20	-	-1.50	-	0%	-	-	-	0%	-	0.80	-	0%
3	May-20		-1.50	-			-	-			0.80	-	
4	Jun-20	567	-1.50	-850.50	16%	483	-	-	14%	846	0.80	676.80	24%
5	Jul-20	3,215	-1.50	-4,822.50	31%	3,154	-	-	30%	2,566	0.80	2,052.80	24%
6	Aug-20	3,029	-1.50	-4,543.50	33%	2,938	-	-	32%	1,680	0.80	1,344.00	18%
7	Sep-20	3,257	-1.50	-4,885.50	30%	3,945	-	-	36%	2,097	0.80	1,677.60	19%
8	Oct-20		-1.50	-			-	-			0.80	-	
9	Nov-20	3,358	-1.50	-5,037.00	40%	2,633	-	-	31%	712	0.80	569.60	8%
10	Dec-20	3,225	-1.50	-4,837.50	29%	4,400	-	-	39%	1,821	0.80	1,456.80	16%
11	Jan-21	2,959	-1.50	-4,438.50	20%	6,836	-	-	47%	3,180	0.80	2,544.00	22%
12	Feb-21	2,844	-1.50	-4,266.00	24%	5,357	-	-	45%	2,212	0.80	1,769.60	18%
13	Mar-21	3,191	-1.50	-4,786.50	18%	9,110	-	-	52%	3,574	0.80	2,859.20	20%
Total		**28,051.00**		**-42,076.50**		**45,411.00**	**-**	**-**		**22,420.00**		**17,936.00**	
Avg.		**2,550.09**	**-1.50**	**-3,236.65**	**23%**	**4,128.27**	**-**	**-**	**34%**	**2,038.18**	**0.80**	**1,379.69**	**18%**
Min.		**-**	**-1.50**	**-5,037.00**	**0%**	**-**	**-**	**-**	**0%**	**-**	**0.80**	**-**	**0%**
Max.		**3,358.00**	**-1.50**	**-**	**40%**	**9,110.00**	**-**	**-**	**52%**	**3,732.00**	**0.80**	**2,985.60**	**26%**

Sr. No.	Month	TOD-D (06.00pm-10.00pm)				Units Consumed	TOD - TOTAL TOD CHARGES
		Units Consumed	Rate of Electricity	Energy Charges (EC)-B	% Usages		
		(kVAh)	(Rs.kVAh)	(Rs.)	%	(kVAh)	(Rs.)
1	Mar-20	1,542	1.10	1,696.20	11%	14,235	1,072.80
2	Apr-20	1,527	1.10	1,679.70	100%	1,527	1,679.70
3	May-20		1.10	-		-	-
4	Jun-20	1,563	1.10	1,719.30	45%	3,459	1,545.60
5	Jul-20	1,552	1.10	1,707.20	15%	10,487	-1,062.50
6	Aug-20	1,498	1.10	1,647.80	16%	9,145	-1,551.70
7	Sep-20	1,644	1.10	1,808.40	15%	10,943	-1,399.50
8	Oct-20		1.10	-		-	-
9	Nov-20	1,774	1.10	1,951.40	21%	8,477	-2,516.00
10	Dec-20	1,729	1.10	1,901.90	15%	11,175	-1,478.80
11	Jan-21	1,642	1.10	1,806.20	11%	14,617	-88.30
12	Feb-21	1,566	1.10	1,722.60	13%	11,979	-773.80
13	Mar-21	1,657	1.10	1,822.70	9%	17,532	-104.60
Total		**17,694.00**		**19,463.40**		**1,13,576.00**	**-4,677.10**
Avg.		**1,608.55**	**1.10**	**1,497.18**	**25%**	**8,736.62**	**-359.78**
Min.		**1,498.00**	**1.10**	**-**	**9%**	**-**	**-2,516.00**
Max.		**1,774.00**	**1.10**	**1,951.40**	**100%**	**17,532.00**	**1,679.70**

The % of Energy usage during different Tariff rates is described in the pie chart below



	Parameter	Value	Unit
	TOD Tariff :-		
TOD-A	2200 Hrs-0600 Hrs	-1.50	Rs./kVAh
TOD-B	0600 Hrs-0900 Hrs & 1200 Hrs-1800 Hrs	0.00	Rs./kVAh
TOD-C	0900 Hrs-1200 Hrs	0.80	Rs./kVAh
TOD-D	1800 Hrs-2200 Hrs	1.10	Rs./kVAh

- As seen from the pie chart 34% of total energy is used during the TOD-B where the unit rate is 0 Rs/kVAh.
- Also, 23% of energy is used during the TOD-A, when the tariff rate is -1.5 Rs/kVAh.

6. CONSERVATION MEASURES

- The unit rate was high due to covid situations, so for calculation purpose previous year's average rate of 14 Rs/kWh is considered.

6.1 ENCON Measure-01

ENCON Measures – 01			
A :	**Title of Recommendation**	:	Replace old Split AC With Energy Efficient 5-Star Split AC.
B :	**Description of Existing System and its Operation**	:	Presently Organization has 8 AC which are not star rated
C :	**Description of Proposed System**	:	All 8 non star rated AC are replaced with Suitable Rating 5-Star AC which will result in saving of 0.3 kW/TR
D :	**Modified System**	:	
	Proposed System Actual Electrical Consumption (kWh/Month)	:	Savings will be 64*0.2=12.8 kWh (Total TR * saving achieved by replacing by 5 star rating AC)
E :	**Total annual kWh saving/year**	:	**24576 kWh/Annum**
	Per unit Cost (Rs./kWh)	:	**14 Rs./kWh**
	Annual cost saving (Rs./Year)	:	**344064 Rs./Annum**
F :	**Approximate Total Investment Cost**	:	**9,60,000 Rs.**
G :	**Simple Payback Period**	:	**2.79 Years**
		:	**33.4 Months**

6.2 ENCON Measure-02

ENCON Measures – 02			
A:	Title of Recommendation	:	Stoppage of 10 no of fans in library.
B:	Description of Existing System and its Operation	:	The fans are placed at very closed distance.
C:	Description of Proposed System	:	The fans can be placed at proper distance so that 10 to 15 fans can be removed.
D:	Existing System Actual Electrical Consumption (Kwh/Month)	:	Considering 8 hrs of Operation for 240 Days/year, Existing fan load will consumes Energy Around, 10*80*8*240 = **1536 kWh Annum.** (10 no of fans of 80 W each, operating for 8 hours each day for 240 days)
E:	Total annual kWh saving/year	:	**1536 kWh/Annum**
	Per unit Cost (Rs./kWh)	:	**14 Rs./kWh**
	Annual cost saving (Rs./Year)	:	**21,504 Rs./Annum**
F:	Approximate Total Investment Cost	:	**Nil.**
G:	Simple Payback Period	:	**Immediate**

6.3 ENCON Measure-03

ENCON Measures – 03			
A:	Title of Recommendation	:	Installation of water level controller to reduce the working time of pumps.
B:	Description of Existing System and its Operation	:	Two pumps of 5 kW are used to fill up the tank. At present both the pumps are operated manually. After the tank is filled the pumps are turned OFF manually which leads to wastage of water and increase in operating time of pumps which leads to increase in energy consumption.
C:	Description of Proposed System	:	A water level controller can be installed which eliminates the wastage of water and reduces the operating time of the pump which further leads to reduced energy consumption.
D:	Existing System Actual Electrical Consumption (Kwh/Month)	:	Considering 15 minutes of operation after the tank is filled which results in wastage of approx. 200 litre/day Operation for 240 Days/year, Existing operating condition will consumes Energy Around, 5*0.25*240 = **312.5 kWh Annum.** (5 kW pump operated for extra 15 minutes for 240 days/year)
E:	Modified System	:	A water level controller can be installed which eliminates the wastage of water and reduces the operating time of the pump which further leads to reduced energy consumption.
	Proposed System Actual Electrical Consumption (kWh/Month)	:	
F:	Total annual kWh saving/year	:	**312.5 kWh/Annum**
	Per unit Cost (Rs./kWh)	:	**14 Rs./kWh**
	Annual cost saving (Rs./Year)	:	**4375 Rs./Annum**
H:	Approximate Total Investment Cost	:	**20,000 Rs**
I:	Simple Payback Period	:	**4.57 Years**
		:	**54 Months**

ANNEXURE-01 BEST PRACTICE CHECKLIST

The following are key energy best practices within common systems in industrial facilities. Spreadsheets to estimate the possible energy savings for some of these common system best practices can be found on the enclosed CD-ROM. For more information on these best practices, free technical support to estimate the best practice energy savings for your systems and possible financial incentives call the Focus on Energy - Industrial Program at 800-762-7077.

System	Best Practices	System	Best Practices
Compressed Air		**Area Comfort Heating**	
	Reduce system pressure		Reduce waste heat
	Repair leaks		De-stratify heated air in plant
	Single vs. two stage		Control heating to desired temperature
	Variable inlet volume		Use infrared heating
	Variable speed control		Optimize CFM air exhausted
	Energy efficient motor		Automatic temperature control
Lighting			Minimize heat to storage areas
	Light meter used to verify levels	**Comfort Cooling**	
	T-8 or pulse start MH lighting are considered		Install removable insulation
	Occupancy sensors		Minimize unnecessary ventilation
	Lights off during process shutdown		Minimize moisture released
	Task lighting is maximized		Higher efficiency AC
	Night lighting is turned off		Optimize room air temperature
	LED lamps in exit signs	**Dehumidification**	
Motors			Reduce humidity load
	Premium efficiency motor vs. repair		Accurately controlling humidity
	Cogged belts vs. V-belts		Optimize ventilation
	Premium efficiency motors specified		Desiccant dehumidification
Pumps			Minimize reheat energy
	Trim impeller to meet maximum Load		
	Use VSD instead of throttled control		
	Use VSD instead of bypass control		

ANNEXURE -02 GENERAL TIPS FOR ENERGY CONSUMPTION

General Tips for Energy Conservation in Different Utilities Systems

Electricity

- Schedule your operations to maintain a high load factor
- Minimize maximum demand by tripping loads through a demand controller
- Use standby electric generation equipment for on-peak high load periods.
- Correct power factor to at least 0.99 under rated load conditions.
- Set transformer taps to optimum settings.
- Shut off unnecessary computers, printers, and copiers at night.

Motors

- Properly size to the load for optimum efficiency.
- (High efficiency motors offer of 4 - 5% higher efficiency than standard motors)
- Check alignment.
- Provide proper ventilation
- (For every 10°C increase in motor operating temperature over recommended peak, the motor life is estimated to be halved)
- Check for under-voltage and over-voltage conditions.
- Balance the three-phase power supply.
- (An Imbalanced voltage can reduce 3 - 5% in motor input power)
- Demand efficiency restoration after motor rewinding.

Drives

- Use variable-speed drives for large variable loads.
- Use high-efficiency gear sets.
- Use precision alignment.
- Check belt tension regularly.
- Eliminate variable-pitch pulleys.
- Use flat belts as alternatives to v-belts.
- Use synthetic lubricants for large gearboxes.
- Eliminate eddy current couplings.
- Shut them off when not needed.

Fans

- Use smooth, well-rounded air inlet cones for fan air intakes.
- Avoid poor flow distribution at the fan inlet.
- Minimize fan inlet and outlet obstructions.
- Clean screens, filters, and fan blades regularly.
- Use aerofoil-shaped fan blades.
- Minimize fan speed.
- Use low-slip or flat belts.
- Check belt tension regularly.
- Eliminate variable pitch pulleys.

- Use variable speed drives for large variable fan loads.
- Use energy-efficient motors for continuous or near-continuous operation
- Eliminate leaks in ductwork.
- Minimize bends in ductwork
- Turn fans off when not needed.

Pumps

- Operate pumping near best efficiency point.
- Modify pumping to minimize throttling.
- Adept to wide load variation with variable speed drives or sequenced control of smaller units.
- Stop running both pumps -- add an auto-start for an on-line spare or add a booster pump in the problem area.
- Use booster pumps for small loads requiring higher pressures.
- Increase fluid temperature differentials to reduce pumping rates.
- Repair seals and packing to minimize water waste.
- Balance the system to minimize flows and reduce pump power requirements.
- Use siphon effect to advantage: don't waste pumping head with a free-fall (gravity) return.

HVAC (Heating / Ventilation / Air Conditioning)

- Tune up the HVAC control system.
- Consider installing a building automation system (BAS) or energy management system (EMS) or restoring an out-of-service one.
- Balance the system to minimize flows and reduce blower/fan/pump power requirements.
- Eliminate or reduce reheat whenever possible.
- Use appropriate HVAC thermostat setback.
- Use building thermal lag to minimize HVAC equipment operating time.
- In winter during unoccupied periods, allow temperatures to fall as low as possible without freezing water lines or damaging stored materials.
- In summer during unoccupied periods, allow temperatures to rise as high as possible without damaging stored materials.
- Improve control and utilization of outside air.
- Use air-to-air heat exchangers to reduce energy requirements for heating and cooling of outside air.
- Reduce HVAC system operating hours (e.g. -- night, weekend).
- Optimize ventilation.
- Ventilate only when necessary. To allow some areas to be shut down when unoccupied, install dedicated HVAC systems on continuous loads (e.g. -- computer rooms).
- Provide dedicated outside air supply to kitchens, cleaning rooms, combustion equipment, etc. to avoid excessive exhausting of conditioned air.
- Use evaporative cooling in dry climates.
- Clean HVAC unit coils periodically and comb mashed fins.
- Upgrade filter banks to reduce pressure drop and thus lower fan power requirements.

- Check HVAC filters on a schedule (at least monthly) and clean/change if appropriate.
- Check pneumatic controls air compressors for proper operation, cycling, and maintenance.
- Isolate air-conditioned loading dock areas and cool storage areas using high-speed doors or clear PVC strip curtains.
- Install ceiling fans to minimize thermal stratification in high-bay areas.
- Relocate air diffusers to optimum heights in areas with high ceilings.
- Consider reducing ceiling heights.
- Eliminate obstructions in front of radiators, baseboard heaters, etc.
- Check reflectors on infrared heaters for cleanliness and proper beam direction.
- Use professionally designed industrial ventilation hoods for dust and vapour control.
- Use local infrared heat for personnel rather than heating the entire area.
- Use spot cooling and heating (e.g. -- use ceiling fans for personnel rather than cooling the entire area).
- Purchase only high-efficiency models for HVAC units.
- Put HVAC window units on timer control.
- Don't oversize cooling units. (Oversized units will "short cycle" which results in poor humidity control.)
- Install multi-fuelling capability and run with the cheapest fuel available at the time.
- Consider dedicated make-up air for exhaust hoods. (Why exhaust the air conditioning or heat if you don't need to?)
- Minimize HVAC fan speeds.
- Consider desiccant drying of outside air to reduce cooling requirements in humid climates.
- Seal leaky HVAC ductwork.
- Seal all leaks around coils.
- Repair loose or damaged flexible connections (including those under air handling units).
- Eliminate simultaneous heating and cooling during seasonal transition periods.
- Zone HVAC air and water systems to minimize energy use.
- Inspect, clean, lubricate, and adjust damper blades and linkages.
- Establish an HVAC efficiency-maintenance program. Start with an energy audit and follow-up, then make an HVAC efficiency-maintenance program a part of your continuous energy management program.

Lighting

- Reduce excessive illumination levels to standard levels using switching; delamping, etc. (Know the electrical effects before doing delamping.)
- Aggressively control lighting with clock timers, delay timers, photocells, and/or occupancy sensors.
- Install efficient alternatives to incandescent lighting, mercury vapour lighting, etc. Efficiency (lumens/watt) of various technologies range from best to worst approximately as follows: low pressure sodium, high-pressure sodium, metal halide, fluorescent, mercury vapour, incandescent.

- Select ballasts and lamps carefully with high power factor and long-term efficiency in mind.
- Upgrade obsolete fluorescent systems to Compact fluorescents and electronic ballasts
- Consider lowering the fixtures to enable using less of them.
- Consider day lighting, skylights, etc.
- Consider painting the walls a lighter colour and using less lighting fixtures or lower wattages.
- Use task lighting and reduce background illumination.
- Re-evaluate exterior lighting strategy, type, and control. Control it aggressively.
- Change exit signs from incandescent to LED.

DG sets

- Optimize loading
- Use waste heat to generate steam/hot water /power absorption chillers or preheat process or utility feeds.
- Use jacket and head cooling water for process needs
- Clean air filters regularly
- Insulate exhaust pipes to reduce DG set room temperatures
- Use cheaper heavy fuel oil for capacities more than 1MW

Buildings

- Seal exterior cracks/openings/gaps with caulk, gasketing, weather stripping, etc.
- Consider new thermal doors, thermal windows, roofing insulation, etc.
- Install windbreaks near exterior doors.
- Replace single-pane glass with insulating glass.
- Consider covering some window and skylight areas with insulated wall panels inside the building.
- If visibility is not required but light is required, consider replacing exterior windows with insulated glass block.
- Consider tinted glass, reflective glass, coatings, awnings, overhangs, draperies, blinds, and shades for sunlit exterior windows.
- Use landscaping to advantage.
- Add vestibules or revolving doors to primary exterior personnel doors.
- Consider automatic doors, air curtains, strip doors, etc. at high-traffic passages between conditioned and non-conditioned spaces. Use self-closing doors if possible.
- Use intermediate doors in stairways and vertical passages to minimize building stack effect.
- Use dock seals at shipping and receiving doors.
- Bring cleaning personnel in during the working day or as soon after as possible to minimize lighting and HVAC costs.

Water & Wastewater

- Recycle water, particularly for uses with less-critical quality requirements.
- Recycle water, especially if sewer costs are based on water consumption.
- Balance closed systems to minimize flows and reduce pump power requirements.

- Eliminate once-through cooling with water.
- Use the least expensive type of water that will satisfy the requirement.
- Fix water leaks.
- Test for underground water leaks. (It's easy to do over a holiday shutdown.)
- Check water overflow pipes for proper operating level.
- Automate blow down to minimize it.
- Provide proper tools for wash down -- especially self-closing nozzles.
- Reduce flows at water sampling stations.
- Eliminate continuous overflow at water tanks.
- Promptly repair leaking toilets and faucets.
- Use water restrictors on faucets, showers, etc.
- Use the lowest possible hot water temperature.
- Do not use a heating system hot water boiler to provide service hot water during the cooling season -- install a smaller, more-efficient system for the cooling season service hot water.
- If water must be heated electrically, consider accumulation in a large insulated storage tank to minimize heating at on-peak electric rates.
- Use multiple, distributed, small water heaters to minimize thermal losses in large piping systems.
- Use freeze protection valves rather than manual bleeding of lines.
- Consider leased and mobile water treatment systems, especially for deionized water.
- Seal sumps to prevent seepage inward from necessitating extra sump pump operation.
- Install pre-treatment to reduce TOC and BOD surcharges.
- Verify the water meter readings. (You'd be amazed how long a meter reading can be estimated after the meter breaks or the meter pit fills with water!)
- Verify the sewer flows if the sewer bills are based on them

Miscellaneous

- Meter any unmetered utilities. Know what normal efficient use is. Track down causes of deviations.
- Shut down spare, idling, or unneeded equipment.
- Make sure that all of the utilities to redundant areas are turned off -- including utilities like compressed air and cooling water.
- Install automatic control to efficiently coordinate multiple air compressors, chillers, cooling tower cells, boilers, etc.
- Renegotiate utilities contracts to reflect current loads and variations.
- Consider buying utilities from neighbours, particularly to handle peaks.
- Leased space often has low-bid inefficient equipment. Consider upgrades if your lease will continue for several more years.
- Adjust fluid temperatures within acceptable limits to minimize undesirable heat transfer in long pipelines.
- Minimize use of flow bypasses and minimize bypass flow rates.
- Provide restriction orifices in purges (nitrogen, steam, etc.).
- Eliminate unnecessary flow measurement orifices.
- Consider alternatives to high-pressure drops across valves.
- Turn off winter heat tracing that is on in summer.

ANNEXURE -03 ELECTRICITY BILL COPY

MAHAVITARAN

Maharashtra State Electricity Distribution Co. Ltd.

BILL OF SUPPLY FOR THE MONTH OF JUN 2020

VASAI CIRCLE 540 VASAI O&M DN 434 B VASAI RD WEST S/DN

Consumer No. : [illegible] M/S VIDYAV

Consumer Name : M/S VIDYAVARDHINI COLLEGE OF ENGG & TECH

Address : VASAI ROAD NAVGHAR TAL VASAI

Village : VASAU Pin Code : 401202

BILL DATE	13-07-2020	23,880.00
DUE DATE	27-07-2020	
IF PAID UPTO	20-07-2020	22,330.00
IF PAID AFTER	27-07-2020	26,230.00

Last Receipt No./Date : 0000344832 / 16-06-2020

Last Month Payment : 3,27,880.00

Scale/Sector : Small Scale

Activity : COLLEGE & UNVRSITIES

Email ID : ***l_inbox@vcet.edu.in

Mobile No. : 98*******16 Meter No. : 055 - X0364388

Sanctioned Load (KW) : 1,000 Connected Load (KW) : 1,000.00

Contract Demand (KVA) : 525 55% of Con. Demand(KVA) : 258.75

Tariff : 170 HT-VIII B old trf HT-VIII B

Seasonal : Load Shed Ind INDUST

Urban/Rural Flag : U Express Feeder Flag : No

Feeder Voltage (KV) : 22 LIS Indicator :

Date of Connection : 10-06-1998 Category : PUBL. SERVICES OTH GSTIN :

Supply at : HT Elec. Duty : 06 PART B PAN : AAATV2687C

Prev. Highest (Mth) : SEP Prev. Highest Bill Demand (KVA) : 254

Security Deposit Held Rs. : 4,47,000.00 Addl. S.D. Demanded Rs. 0.00

Bank Guarantee Rs. : 0.00 S.D. Arrears Rs. : 0.00

BILLING HISTORY

Bill Month	Units	Bill Demand(KVA)	Bill Amount
MAY-20	1,585	289	1,65,298
APR-20	1,527	289	1,64,503
MAR-20	14,235	263	3,19,110
FEB-20	21,531	263	4,20,351
JAN-20	21,264	263	4,16,515
DEC-19	15,495	263	3,36,125
NOV-19	18,265	263	3,67,363
OCT-19	27,711	263	4,69,905
SEP-19	24,222	263	5,06,281
AUG-19	26,136	263	4,35,109
JUL-19	30,000	263	4,08,403
JUN-19	18,036	263	3,49,825

CUSTOMER CARE Toll Free No. 1912, 1800-233-3435, 1800-102-3435

IGRC: 2/3 DEEPSHREE BULDG,NAVGHAR (EAST) VASAI RAOD, Phone - 0250-2393373 In case of non-redressal of grievance here, consumer may make his representation to below forum CGRF: BEHIND "TEJASHREE" JAHANGIR MEHERWANJI RAOD,KALYAN(W), Phone - 0251-2210707

For making Energy Bill payment through RTGS/NEFT mode, use following details

- Beneficiary Name: MSEDCL
- Beneficiary Account Number: MSEDHT01001849021638
- IFS Code: SBIN0008965 (fifth, sixth and seventh character is zero)
- Name of Bank: SBI Bank
- Name of Branch: [illegible]

- Tariff Revised w.e.f. 01.04.2020. Tariff Order is available at Mahavitaran Portal.
- Physical Bills are not served. You can view and pay bill online at portal https://wss.mahadiscom.in/wss/wss
- Consumer can pay bill through portal using various online modes.
- As per Income Tax provision vide section 269 ST cash receipt of Rs. 2.00 lakhs and above will not be accepted by MSEDCL against any type of payment.

Important Message

[illegible]

ANNEXURE -04 INSTRUMENTS LIST

Sr. No.	Model No.	Instrument Sr. No.	Instrument Name
1	LM31	2548/140618	Krykard LM 31-Power Analyser
2	G15	G15-03	ACRON-Ultrasonic Flow Meter
3	BHUFM1000	81700411	BASE-Ultrasonic Flow Meter
4	17.05.GOB	2092	Globlin 1-Power Analyser
5	3510PHW	140610933	MECO- Power Analyser
6	3510PHW	151100113	MECO- Power Analyser
7	AM-4201		49521

ANNEXURE -05 ACCREDITATION CERTIFICATE

ENERGY IS LIFE
CONSERVE IT

ऊर्जा दक्षता ब्यूरो
(भारत सरकार, विद्युत मंत्रालय)
BUREAU OF ENERGY EFFICIENCY
(Government of India, Ministry of Power)

10/02/Accred./BEE/17/744-59 **04 May, 2017**

Shri Sachin Deshpande
A.R.S. Energy Auditors
A1/101, Pramodoni Palace Chs,
Near Air India Colony, Virar (E),
Maharashtra- 401305

Sub: Application for accreditation as accredited energy auditors- reg.

Sir,

The undersigned is to refer to your application for the accreditation of Energy Auditors and the subsequent Oral interview you had before the Accreditation Advisory Committee at BEE office, New Delhi.

We are pleased to inform that the Accreditation Advisory Committee has recommended your name for the accreditation as Accredited Energy Auditor. The recommendation of Accredited Energy Advisory Committee will be put up to Management Advisory Committee of BEE for approval in its next meeting. After approval, BEE will include your name in the list of Accredited Energy Auditor, maintained by BEE on its website (www.beeindia.nic.in)

Yours faithfully,

(Rajini Thomson)
Coordinator (Exam)

स्वहित एवं राष्ट्रहित में ऊर्जा बचाएँ Save Energy for Benefit of Self and Nation

Click here for summary page

Bill for Energy Audit

VIDYAVARDHINI COLLEGE OF ENGG AND TECH (From 1 Apr 2015)
State Name : Maharashtra, Code : 27

Payment Voucher

No. 466 Dated 28-Jul-2023

Particulars	Amount
Account :	
AUDIT FEE	53,100.00
Less: T.D.S	(-)4,500.00

Through :

UNION BANK OF INDIA 1031

On Account of :

CH. NO. 210593, PAID TO M/S. ARS ENERGY AUDITORS AGAINST INVOICE NO. ARS/2021-22/031, DTD. 16/08/2022 FOR AUDIT CHARGES FOR ENERGY AUDIT & GREEN AUDIT FOR 2020 & 2021 AS PER STATEMENT SUBMITTED BY DR. MEGHA TRIVEDI, IQAC COORDINATOR / MR. SWAPNIL MANE

Amount (in words) :

Indian Rupees Forty Eight Thousand Six Hundred Only

₹ 48,600.00

Receiver's Signature:

Authorised Signatory

To

The Principal

VCET, Vasai

Subject: Release of Payment for Energy Audit & Green Audit for the Year 2020 and 21

Respected Sir,

This is to bring to your kind consideration that the Energy Audit and Green Audit for the year 2020 and 2021 is successfully completed by **ARS Energy Auditors, Virar** and the final Report is submitted by them. As per the enclosed bill, I request you to clear the due amount of **Rs. 53,100/- (Fifty-Three Thousand One Hundred Only)** including GST.

Attached with this letter is the correspondence mail related to conduct of Energy and Green Audit for the Year 2020 and 2021.

Yours faithfully,

S R Mane

Assistant Professor, MECH.

Dr. Megha Trivedi

IQAC Co-ordinator

To
Regist / Accounts
please do the
needful
19/7/23

[illegible]

[illegible]

Web: www.arsenergyauditors.com

State : Maharashtra State Code: 27

INVOICE

Invoice No. : ARS/2021-22/031
Invoice Date : 16-Aug-2022

r Vidyavardhini's College of Engineering & Technology
ress vasai (west)
palghar State : Maharashtra Pin Code : 401202

IN 27AAATV2687C1ZD

No.	Quantity	Description	Unit Price	TOTAL (Rs.)	
1	1	For Energy Audit and Green Audit for 2020 and 2021	45,000.00		45,000.00
				- TDS 10%	4500-W
					40500-W
			CGST	9%	4,050.00
			SGST	9%	4,050.00
			IGST	0%	48600-W
			Total		53,100.00
			Travelling Expenses as per Debit Note		-
			Total Amount Payble		53,100.00

Amount in Words : Rupees FiftyThree Thousand One Hundred Only

Bank Details :		For ARS Energy Auditors :	
NAME OF THE BANK :	BANK OF MAHARASHTRA		
IFSC CODE :	MAHB0000094		
NAME OF THE FIRM :	A.R.S. ENERGY AUDITORS		A.R.S. ENERGY AUDITORS VIRAR
A/C NO :	60038379509		
BANK ADDRESS :	KSHIRSAGAR BHAVAN, VIRAR (W)		
Company Details :			
PAN No. :	ACXPD2190H	Authorised Signatory	Company Seal
GST No. :	27ACXPD2190H1ZC	Mr. Sachin S. Deshpande,	
HSN Code :	998331	Mob. No. : +917507184478	

Kindly release the payment
S R Mane

·oposal for Energy Audit, Water Audit & Green Audit at Vidyavardhini College of ngineering and Technology

i messages

RS Energy Auditors <arskcal@gmail.com> Tue, Dec 7, 2021 at 12:01 PM
> vcet_inbox@vcet.edu.in, Swapnil Mane <swapnil.mane@vcet.edu.in>
c: Sachin Deshpande <sachin.ameya@gmail.com>, Himanshu Patil <himanshup1801@gmail.com>,
ervice@arsenergyauditors.com

Approved letter

Dear Sir,

Greetings of the day !!!

Kindly find the attached proposal as per the requirement.

In case of any queries please feel free to contact us.

Mr. Sachin Deshpande
Mob : 7507184478

Regards
A.R.S. Energy Auditors
http://www.arsenergyauditors.com/

1273_Energy Audit, Water Audit & Green Audit_ Of Vidyavardhini's College of Engineering and Technology.pdf
1350K

Swapnil Mane <swapnil.mane@vcet.edu.in> Thu, Dec 9, 2021 at 2:33 PM
To: "Dr. Harish Vankudre" <principal@vcet.edu.in>
Cc: Megha Trivedi <megha.trivedi@vcet.edu.in>, madhavi.waghmare@vcet.edu.in

[Quoted text hidden]
--
Regards,
Swapnil R Mane, Assistant Professor
M. Tech Energy Sci & Engg (IIT Bombay)
Department of Mechanical Engineering
Vidyavardhini`s College of Engineering & Technology, Vasai West.

1273_Energy Audit, Water Audit & Green Audit_ Of Vidyavardhini's College of Engineering and Technology.pdf
1350K

Megha Trivedi <megha.trivedi@vcet.edu.in> Tue, May 10, 2022 at 9:30 PM
To: principal@vcet.edu.in, registrar@vcet.edu.in
Cc: madhavi.waghmare@vcet.edu.in, swapnil.mane@vcet.edu.in

Dear Sir,
Energy Audit and Green Audit for 2020 and 2021 is to be done. As per the proposal received from A.R. S Energy Auditor(proposal attached) the estimated cost for the same is 49,000/- (+18% GST)= Rs. 57820/-
I request you to sanction the same.
thanks and regards
[Quoted text hidden]

1273_Energy Audit, Water Audit & Green Audit_ Of Vidyavardhini's College of Engineering and Technology.pdf
1350K

Mane <swapnil.mane@vcet.edu.in>
...hin Deshpande <sachin.ameya@gmail.com>

Hello Sir,
Please provide final discounted price
[Quoted text hidden]

1273 Energy Audit, Water Audit & Green Audit Of Vidyavardhini's College of Engineering and Technology.pdf
1350K

Sachin Deshpande <sachin.ameya@gmail.com> Thu, May 12, 2022 at 11:57 AM
To: Swapnil Mane <swapnil.mane@vcet.edu.in>

Dear sir,
Greetings fir the day!!
Sir our final discounted price will be Rs 45,500/ plus GST.
Thanks & Regards,

Sachin Deshpande,
7507184478
A.R.S Energy Auditors,
Accredited Energy Auditor (BEE, GOI), CEM (AEE), M. Tech. (Energy), Solar System Tech (IIT-Madras), Lead Auditor En-MS 50001 (BSI), F.I.E., F.I.V.
[Quoted text hidden]

Swapnil Mane <swapnil.mane@vcet.edu.in> Thu, May 12, 2022 at 1:51 PM
To: "Dr. Harish Vankudre" <principal@vcet.edu.in>
Cc: registrar@vcet.edu.in, Megha Trivedi <megha.trivedi@vcet.edu.in>, madhavi.waghmare@vcet.edu.in, Sachin Deshpande <sachin.ameya@gmail.com>, abhay.jadhav@vcet.edu.in

Respected Sir,
Please find appended mail regarding final quotation for energy audit and green audit for the year 2020 and 2021.
I request you to approve the same.
[Quoted text hidden]

Dr. Harish Vankudre <principal@vcet.edu.in> Thu, May 12, 2022 at 3:09 PM
To: Swapnil Mane <swapnil.mane@vcet.edu.in>
Cc: Vishal Save <registrar@vcet.edu.in>, Megha Trivedi <megha.trivedi@vcet.edu.in>, madhavi waghmare <madhavi.waghmare@vcet.edu.in>, Sachin Deshpande <sachin.ameya@gmail.com>, abhay jadhav <abhay.jadhav@vcet.edu.in>

Approved. Pl do the needful
[Quoted text hidden]

Sachin Deshpande <sachin.ameya@gmail.com> Thu, May 12, 2022 at 4:02 PM
To: "Dr. Harish Vankudre" <principal@vcet.edu.in>
Cc: Swapnil Mane <swapnil.mane@vcet.edu.in>, Vishal Save <registrar@vcet.edu.in>, Megha Trivedi <megha.trivedi@vcet.edu.in>, madhavi waghmare <madhavi.waghmare@vcet.edu.in>, abhay jadhav <abhay.jadhav@vcet.edu.in>

Dear sir,
Thank you for entrusting us the work.
We will complete the report in stipulated time.
Thanks & Regards,

Sachin Deshpande,
7507184478
A.R.S Energy Auditors,
Accredited Energy Auditor (BEE, GOI), CEM (AEE), M. Tech. (Energy), Solar System Tech (IIT-Madras), Lead Auditor En-MS 50001 (BSI), F.I.E., F.I.V.
[Quoted text hidden]

Swapnil Mane <swapnil.mane@vcet.edu.in> Mon, May 16, 2022 at 10:44 PM

Deshpande <sachin.ameya@gmail.com>
...irish Vankudre" <principal@vcet.edu.in>, Vishal Save <registrar@vcet.edu.in>, Megha Trivedi
...ha.trivedi@vcet.edu.in>, madhavi waghmare <madhavi.waghmare@vcet.edu.in>, abhay jadhav
...bhay.jadhav@vcet.edu.in>

Gentle Reminder
Awaiting for the certificate and audit summary report.
[Quoted text hidden]

Sachin Deshpande <sachin.ameya@gmail.com> — Tue, May 17, 2022 at 10:19 AM
To: Swapnil Mane <swapnil.mane@vcet.edu.in>, saurabh raul <saurabhraul12@gmail.com>

Dear sir,
Greetings for the day!
We will send the required documents shortly.
Thanks & Regards,

Sachin Deshpande,
7507184478
A.R.S Energy Auditors,
Accredited Energy Auditor (BEE, GOI), CEM (AEE), M. Tech. (Energy), Solar System Tech (IIT-Madras), Lead Auditor En-MS 50001 (BSI), F.I.E., F.I.V.

On Wed, 11 May, 2022, 12:30 pm Swapnil Mane, <swapnil.mane@vcet.edu.in> wrote:
[Quoted text hidden]

VIDYA VARDHINI'S COLLEGE OF ENGINEERING & TECHNOLOGY VASAI ROAD-401202 DIST. PALGHAR

VIDYAVARDHINI'S COLLEGE OF ENGG. & TECHNOLOGY, VASAI ROAD.

Date: 03/08/2023

To

The Branch Manager

UNION BANK OF INDIA

Vidyavardhini's College Campus,

VASAI ROAD - 401 202.

Sir / Madam,

Enclosed please find a Cheque No. 210593, Dated 28/07/2023 for Rs. 48,600/--(Rs. Forty Eight Thousand Six Hundred Only.)

We request you to credit the following amount to the respective A/C s.

NAME	BANK NAME	BRANCH	A/c NO.	IFSC CODE	AMOUNT
ARS ENERGY AUDITORS	BANK OF MAHARASHTRA	VIRAR W	60038379509	MAHB0000094	48600.00
TOTAL					48600.00

Rs. 48,600/--(Rs. Forty Eight Thousand Six Hundred Only.)

Thanking you.

यूनियन बैंक ऑफ इंडिया / Union Bank of India
अंतरण
0 3 AUG 2023
TRANSFER
Vidhya Vardhini College Rd. Br. Vasai (W)
विद्यावर्धिनी कॉलेज रोड शाखा, वसई (प.)

Click here for summary page

Beyond Campus Activity

Vidyavardhini's College of Engineering and Technology

Vasai Road (west)

15 October 2018

The Principal

Vcet

Subject : Report on Mahatma Gandhi Jayanti

Dear Sir,

India's 3 rd national festival, Gandhi Jayanti, was celebrated at Vidyavardhini College of Engineering and Technology to commemorate the 150 th birth anniversary of the father of our nation- Mahatama Gandhi.

The programme started at 9:00 am with the inaugural speech of the Principal who addressed to the gathering, appealing to their nationalistic spirit, also emphasizing the role of youth today as the true wealth of a country. The faculty members and the students of VCET with true spirits came forward to carry out a peace rally approximately 500 members including faculty members and students f, highlighting the message 'Say No ToPlastic'. The rally began at 9:30 am starting from Vidyavardhini College to Panchavati.

Along the journey, the ecstatic faculties and students chanted various slogan and sung patriotic songs adding on to the vibes of patriotism headed by Prof. Yogesh Pingale sir as lead singer.

Also on the same day three groups of students were formed and they carried different aactivites at different places. The details are as below:

Campus Cleaning team : 45

Station Cleaning Team : 60

It was overall a successful event. The moments were captured as memories to be rememberedand cherished forever.

Dr.Pradip Gulbhile

Program Officer

NSS

Click here for summary page

Beach Cleaning

Vidyavardhini's College of Engineering & Technology

K. T. Marg, Near Railway Station, Vasai Road(W), Dist. Palghar, Pin. 401202

Activity Report

Academic Year	2019-20
Title of the activity	NAVAPUR BEACH CLEANING
Date of the activity	02/01/2020
Description of the activity	NSS-VCET Volunteers visited navapur beach for cleaning sea shore
Venue of the event	GREEN LIFE FOUNDATION AND NSS UNIT AT NAVAPUR BEACH
Organizing committee	NSS-VCET
Number of participants	27

Dr. Pradip Gulbhile
Programme Officer, NSS
VCET, Vasai

Vidyavardhini's College of Engineering & Technology

K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2019-20)

Date - 29th August, 2019

To,

Principal

VCET

Subject: Report on Beach Cleaning on 29th August 2019.

Respected Sir,

This is the era where purity of Oceans is degrading due to enormous pollutants which are being dumped in it by citizens. On 29th August 2019,the NSS Wing of Vidyavardhini's College of Engineering and Technology,Vasai associated with Green Life Foundation and carried out an event named "BEACH CLEANING" under the guidance of Prof. Chandan Kolvankar,, Prof. Vishal Pande and myself.

The event was held at Rajodi Beach, Nalasopara. It was successfully carried out by the students. Total area cleaned was 400mtrs. The before and after picture is awestruck!

The feeling of cleaning the beach made everyone to pledge not to litter around and not let others do either! Leading an initiative to a clean and beautiful city around.

Dr. Pradip Gulbhile,

Programme Officer,

NSS.

BEACH CLEANING

P.O.

BEACH CLEANING

P.O.

Vidyavardhini's College of Engineering & Technology
K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2019-20)

Sr. No	Name	Year
1	Sarvesh Wapilkar	BE
2	Soham Dahanukar	BE
3	Aditi Rasal	BE
4	Trupti Hedalkar	BE
5	Arya Vartak	BE
6	Sushant Shetty	BE
7	Aditi Shirke	BE
8	Apurva Gurav	BE
9	Jui Patil	BE
10	Harsh Mittal	BE
11	Nishant Bhandigare	BE
12	Shikhar Mehta	BE
13	Raghavendra	TE
14	Deepali Kothari	TE
15	Aryan Darade	TE
16	Hrithik Gavankar	TE
17	Devesh	TE
18	Aniket Agavane	TE
19	Akansha Singh	TE
20	Prathamesh Mayekar	TE
21	Ameya Late	TE
22	Anushka Supe	TE
23	Jitesh Agnihotri	TE
24	Pawan Patil	TE
25	Sahil Jadhav	TE
26	Anagha Francis	TE
27	Akash Mourya	TE

P.O. NSS

Activity Report

Academic Year	2019 - 20
Title of the activity	RAJODI BEACH CLEANING
Date of the activity	29 / 08 / 2019
Description of the activity	Beach cleaning in association with "GREEN LIFE FOUNDATION" at Rajodi Beach to Promote nature conservation.
Venue of the event	RAJODI. BEACH
Organizing committee	NSS - VCET
Number of participants	27

Dr. Pradip Gulbhile
Programme Officer, NSS
VCET, Vasai

Vidyavardhini's College of Engineering & Technology

K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2019-20)

Date - 29th August, 2019

To,

Principal

VCET

Subject: Report on Beach Cleaning on 29th August 2019.

Respected Sir,

This is the era where purity of Oceans is degrading due to enormous pollutants which are being dumped in it by citizens. On 29th August 2019,the NSS Wing of Vidyavardhini's College of Engineering and Technology,Vasai associated with Green Life Foundation and carried out an event named "BEACH CLEANING" under the guidance of Prof. Chandan Kolvankar,, Prof. Vishal Pande and myself.

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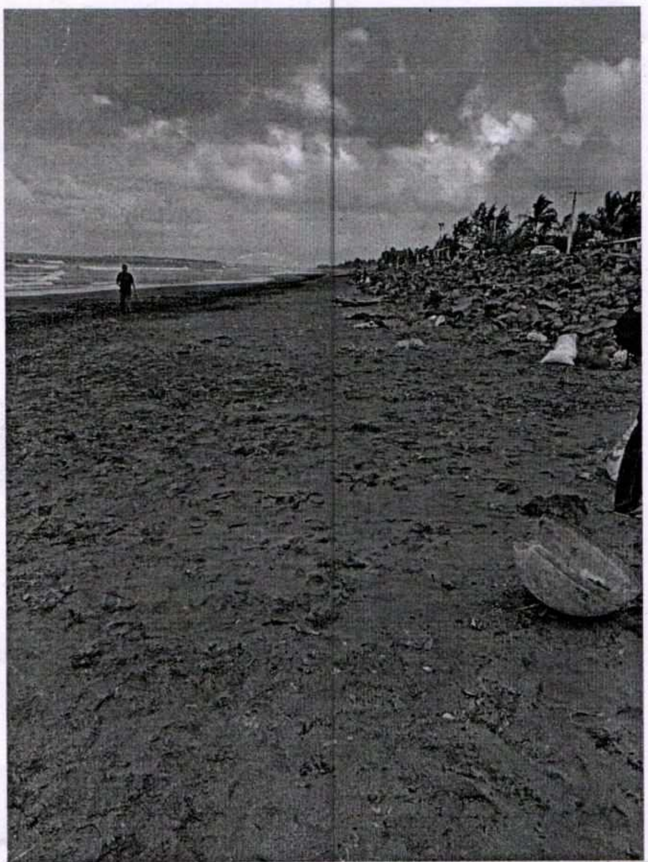
Dr. Pradip Gulbhile,

Programme Officer,

NSS.

BEACH CLEANING

BEACH CLEANING



BEACH CLEANING

Vidyavardhini's College of Engineering & Technology

K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2019-20)

Sr. No	Name	Year
1	Aryan Patil	BE
2	Manoj Prabhu	BE
3	Devesh	BE
4	Roma Dhake	BE
5	Juneeth Panjri	BE
6	Ninad patil	BE
7	Swapna Khade	BE
8	Naman Annadate	BE
9	Omkar Suresh Suryavanshi	BE
10	Vinayak Deore	BE
11	Aniket Agavane	BE
12	Janhavi Mhatre	BE
13	Jayesh Nakashe	BE
14	Jessica Lobo	BE
15	Tanishka Wani	BE
16	Tanzil Irfan Shaikh	BE
17	Jay Kore	BE
18	Siddhi jangam	BE
19	Sundar Chaudhary	BE
20	Ajit Singh	BE
21	Omkar Chaudhari	TE
22	Chitresh Kheur	TE
23	Vinay Gawai	TE
24	Piyusha Rane	TE
25	Bhakti Shetty	TE
26	Gauravi Patankar	TE
27	Haripriya Ramisetty	TE

P.O. NSS

Vidyavardhini's College of Engineering & Technology

K. T. Marg, Near Railway Station, Vasai Road(W), Dist. Palghar, Pin. 401202

Activity Report

Academic Year	2022-23
Title of the activity	BUND DAM CONSTRUCTION ACTIVITY
Date of the activity	28/01/2023
Description of the activity	THE DAM WAS BUILD TO REDUCE FLOW OF WATER DURING RAINS
Venue of the event	SAPHALE VILLAGE
Organizing committee	NSS
Number of participants	58

Dr. Pradip Gulbhile
Programme Officer, NSS
VCET, Vasai

Bund Dam Building

Vidyavardhini's College of Engineering & Technology

K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2022-23)

Date - 28th January, 2023

To,

The Principal

VCET

Subject: Bund Dam Construction Activity

On the second day of Residential Camp, All the students got up early in the morning, exercised, had breakfast.

Later groups were formed to start the first task of the nss camp . Everyone formed a group to build a dam. All the students reached the location where the work was to be done i.e. Karasunda.

The dam was to be built to reduce the flow of water during rains. Everyone made a pit where they wanted to make a dam and filled cement bags with soil and built them. Then by placing them one on top of each other, approximately 15 feet long, 3 feet wide and 6 feet high was made. About 250 bags filled with mud were used in this.

Everyone completed this work in two and a half hours. It's truly said that, "Unity is strength...when there is teamwork and collaboration, wonderful things can be achieved". Even the villagers praised the students and were joyful.

Later , all the students returned to the residential camp and a meeting was taken by students to discuss the workflow for the next day.

Thank you

Dr.Pradip Gulbhile

Program Officer

NSS

Bund Dam Constrcution, 2022-23

Bund Dam Constrcution, 2022-23

P.O. NSS

Vidyavardhini's College of Engineering & Technology

K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2022-23)

Event Name: Day 2 [illegible] Date: 28/01/2023

Program Officer Sign: [signature] Leader's Sign: [signature]

Sr. No	NAME	BRANCH	SIGN
1.	Deeksha Shetty	CIVIL	
2.	Urvashi Patil	CSE(DS)	
3	Radha Vishwakarma.	comps	Radha
4.	ARCHA JADHAV	Comps	
5	Prerna Kanekar	comps	
6	Prerna Gawali	COMPS	
7.	Tejal Mendhe	IT	
8.	Gaurari Patankar	AI & DS	
9	Suryanarayan Choudhury	AI/DS	
10.	Harshal S. Bhamare	CSE (DS)	
11.	Sachin . P. Rai	MECH	Rai
12.	Jay Prajapati	comp	
13.	Chetan Jangale	AI/DS	
14	Hrushikesh Shetty	COMPS	
15.	Rohit Redekar	Comps	
16.	Suyash Shelar	COMPS	
17.	Sarvadhan Salve	mech	
18.	Ankur ~~sha~~ saha	mech	
19	Vedant Chaskar	COMPS	
20.	Aayush Jha	CSE(DS)	
21	Tejas Puchadiya	Mech	
22	Kshitij Patil	Comp	
23	Onkar Suryavanshi	comp	
24	Pratham Ingawale	comps	
25	Sushant Shetty	INST	
26	Shubham Nakashe	comps	
27	Nikita Mundaye	comps	
28	Ankita Bhosle	INST	
29	Prajakta Borse	Civil	
30	Bhupeksha Patil	COMPS	
31	Aashlesha Rajput	IT	
32	Vrushti Sanghavi	CSE(DS)	
33	Siddhi Jangam	CSE(DS)	
34	Janvi Chavan	CSE(DS)	
35	Prinshi Jha	CSE(DS)	
36	Chaitanya Patil	COMPS	
37	Prathamesh G. More	MECH	
38	AYUSH S. SINGH.	MECH.	Singh.
39	Soham Murudkar	Mech	
40	Shravan Tanode	EXTC	
41	Abhishek Gharat	Mech	Gharat

Vidyavardhini's College of Engineering & Technology
K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2022-23)

Event Name: ________ Date: 28/1/23

Program Officer Sign: ________ Leader's Sign: [signature]

Sr. No	NAME	BRANCH	SIGN
42	Vaishnavi Deokar	IT	[signature]
43	Pallavi Thakur	IT	[signature]
44	Ujwal Upadhyay	MECH	[signature]
45	Ragini Nair	INST	[signature]
46	Sirajuddin Syed Qadri	MECH	[signature]
47	Aditi Rathod	MECH	[signature]
48	Dhruv P. PURAV	Civil	[signature]
49	Anagha Francis	MECH	[signature]
50	Abhishek Mahi	IT	[signature]
51	Kshitij Shitty	COMPS	[signature]
52	Niharika K. Dev	MECH	[signature]
53	Dhrupal Patil		
54	Dr. Pradip Gulbhile (24 hours)	FE.	[signature]
55	Ms. Manita Santosh Raut	IT	[signature]
56	Ms. Pragati A. Patil	IT	[signature]
57	Sudhir N. Patil	Staff	[signature]
58	Prabhakar K. Patil	"	[signature]

Updated 30/01/23. Deepa Dalvi

[signature] 30/01/23 P.O. N.S.S.

Vidyavardhini's College of Engineering & Technology

K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2022-23)

Date – 29th January, 2023

To,

The Principal

VCET

Subject: Report on NSS Camp'23- Day 3

On the third day of the camp everyone gathered at Sri Dutt Mandir Auditorium as the students of Vidyavardhini College of Engineering and Technology and staff eagerly waited for the program to begin. The chief guest, Mhatre, and teachers of Vidyavardhini College of Engineering and Technology, Swapnil Mane, Vishwas Palve and Prakash Panda was welcomed with much enthusiasm and admiration. Three speakers, Mr. Swapnil Mane, Mr. Vishwas Palve, and Mr. Prakash Panda, spoke about different topics to enlighten the students on the importance of energy and rain water harvesting.

Mr. Swapnil Mane provided an informative summary about the evolution of energy, contrasting its past and present forms. Mr. Vishwas Palve then discussed single phase commercial and three phase commercial energy sources in detail. Finally, Mr. Prakash Panda explained the importance of rain water harvesting, citing various examples.

The program ended with an impressive felicitation ceremony conducted by the National Service Scheme students for the chief guest. This program provided an invaluable opportunity for all those in attendance to gain an understanding of the importance of energy and rainwater harvesting. It was certainly an enriching experience for all who attended this memorable program.

Thank you.

Dr.Pradip Gulbhile

Program Officer
NSS

Residential Camp Day 3, 2022-23

Residential Camp Day 3, 2022-23

Click here for summary page

Environment Awareness

Vidyavardhini's College of Engineering & Technology

K. T. Marg, Near Railway Station, Vasai Road(W), Dist. Palghar, Pin. 401202

Activity Report

Academic Year	2022-23
Title of the activity	ENVIRONMENT DAY
Date of the activity	02/06/2022 - 05/06/2022
Description of the activity	NSS COMMITEE ORGANISED AN INSTITUTE WIDE HANDMADE POSTER MAKING COMPETITION
Venue of the event	VCET
Organizing committee	NSS
Number of participants	84

Dr. Pradip Gulbhile
Programme Officer, NSS
VCET, Vasai

Vidyavardhini's College of Engineering & Technology
K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2022-23)

Date - 6th June, 2022

To,

The Principal

VCET.

Subject: Environment Day

The NSS unit of Vidyavardhini's College Of Engineering and Technology, Vasai, celebrated World Environment Day to promote awareness and encourage the protection of our Mother Earth. The unit organized an institution-wide Handmade Poster Making Competition from June 2nd to June 5th, 2022, successfully conducted on an online platform. The theme for the competition was 'Only One Earth'.

VCET's NSS Committee wholeheartedly participated in the event. NSS student leaders Ragini Nair, Syed Sirajuddin, Aditi Rathod, Shravan Tawde, along with committee members, promoted the theme with various creative and inspirational designs.

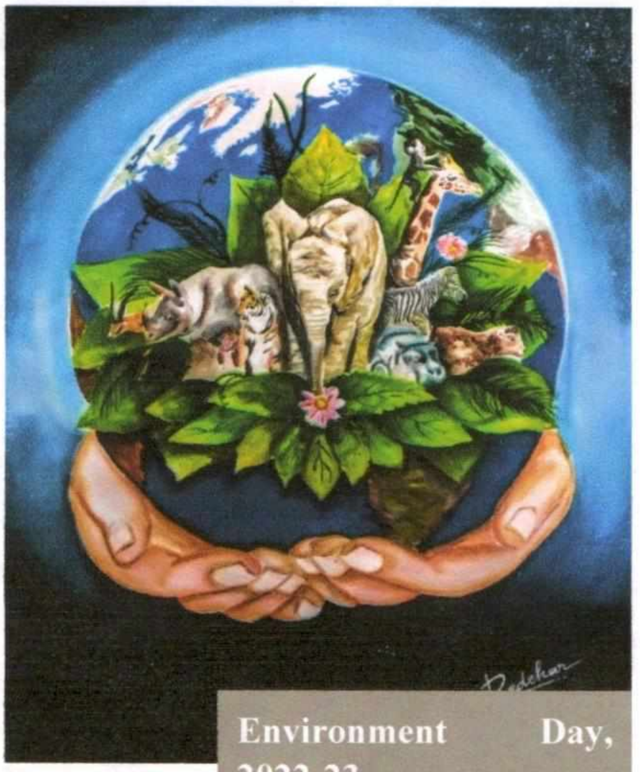
Following this, participants with the most praiseworthy submissions were awarded cash prizes. Upon concluding the event, all participants were bestowed with participation certificates.

Thank you

Dr.Pradip Gulbhile

Program Officer

NSS



Environment Day, 2022-23

Environment Day, 2022-23

Vidyavardhini's College of Engineering & Technology
K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2022-23)

ENVIRONMENT DAY

SR NO	NAME	YEAR
1	Riya Dutta	TE
2	Riddhi Chavda	TE
3	Soham Murudkar	TE
4	Niharika Das	TE
5	Nilesh Birje	TE
6	Pallavi Thakur	TE
7	Rishabh Nahar	TE
8	Omkar Jadhav	TE
9	Siddhi Kolawankar	TE
10	Sanskruti Kokare	TE
11	Aditi Khambe	TE
12	Abhishek Hatui	TE
13	Vaishnavi Deokar	TE
14	Rishabh Tripathi	TE
15	Onkar Suryavanshi	TE
16	Hrushikesh Shetty	TE
17	Sachin Rai	TE
18	Jay Prajapati	TE
19	Sanika Patil	TE
20	Bhupeksha Patil	TE
21	Kshitij Patil	TE
22	Pratham Ingawale	TE
23	Prerna Gawali	TE
24	Vedant Chaskar	TE
25	Sachin Rai	TE
26	Krish Vaity	TE
27	Prajakta Borse	TE
28	Sneh Dave	TE
29	Manas Raut	TE
30	Harsh Sharma	TE
31	Deekha Shetty	TE
32	Chetan Jawale	TE
33	Janvi Chavan	TE
34	Sahil Gujral	TE
35	Siddhi Jangam	TE
36	Aayush Jha	TE
37	Prinshi Jha	TE
38	Urvashi Patel	TE
39	Jidnyasa Patil	TE
40	Vrushti Sanghvi	TE
41	Durvesh Karjekar	SE
42	Vinayak Deore	SE
43	Harshal Bhamre	SE
44	Prachi Shah	SE
45	Shruti Pawar	SE
46	Gauravi Patankar	SE
47	Raghvendra Devadiga	SE

SR NO	NAME	YEAR
48	Soham Dahanu	SE
49	Suryanarayan (	SE
50	jagruti Borse	SE
51	Isha Kshatriya	SE
52	Tejal Mendhe	SE
53	Prathamesh Ma	SE
54	Rutuja Mestry	SE
55	Sahil Kulabkar	SE
56	Sayali Gupta	SE
57	Vaishnavi Gaik	SE
58	Amey Chaudari	SE
59	Vipul Bhoir	SE
60	Nishant Bhandi	SE
61	Parth Baradia	SE
62	Aryan Darade	SE
63	Ujjwal Upadhay	SE
64	Anirudha Jadha	SE
65	Shranya Rudral	SE
66	Akash Mourya	SE
67	Kavisha Pachal	SE
68	Vaishnavi Dung	SE
69	Anushka Supe	SE
70	Aditya Bhandar	SE
71	Ankita Bhosle	BE
72	Mayuresh Kada	BE
73	Ragini Nair	BE
74	Riya Raut	BE
75	Sushant Shetty	BE
76	Urmiksha Tawd	BE
77	Chaitanya Patil	BE
78	Sundar Chaudh	BE
79	Prathamesh Mc	BE
80	Syed Qadri Sira	BE
81	Aditi Rathod	BE
82	Ankur Saha	BE
83	Anagha Francis	BE
84	Shravan Tawde	BE

P.O - NSS

HRUSHIKESH SHETTY
NSS LEADER

DEEKSHA SHETTY
UDAAN PRESIDENT

Vidyavardhini's College of Engineering & Technology
Academic Year 2022-23

Report on Energy Conservation Day 2022

Program Energy Conservation Day 2022

Date 14/12/2022

Venue

1. Vidyavardhini`s College of Engineering
2. Municipal outskirts of Vasai West region for Bicycle Rally
3. Podar School, Vasai West
4. New English School, Nirmal, Vasai
5. St. Annes High School, Vasai West
6. Shree Taramai Vartak Memorial Academy, Virar

Description Every year, Department of Mechanical Engineering, Vidyavardhini`s College of Engineering and Technology (VCET), Vasai (west), organizes "Energy Conservation Week". The event is organised on "World Energy Conservation Day" i.e 14th December to highlight the importance of energy consumption and its use in our day-today life.

The contents covered in this program are:

Sr No	Name of Activity	Date	Duration
01	Inauguration of Energy Conservation Week 2021 by Mrs. Rashmi Joshi,	14/12/2022	3 pm to 5 pm
02	Expert Talk on the Roadmap for Electric Vehicles – Earth EV	15/12/2022	3pm to 5 pm
03	**Bicycle rally to create awareness about Energy conservation and energy Efficiency**	16/12/2022	10 am to 12 pm
04	Renewable Energy Startup talk by Mr. Ratnesh Shingrupe, Quasar Innovative Solutions.	19/12/2022	10 am to 12 pm
05	Outreach Activity by the Faculty of Mechanical Engineering Department at various schools in the VVCMC Region	20/12/2022	9 am to 5 pm

Organized By Coordinators: Mr Swapnil R Mane, Assistant Professor, Mechanical Engineering
Chief Guest: Mrs. Rashmi Joshi, Environment Consultant, Mumbai

S. R. Mane

HEAD
Dept. of Mechanical Engg.
Vidyavardhini's College of Engineering & Technology
Vasai Road-401 202.

Vidyavardhini's College of Engineering & Technology

Academic Year 2022-23

Guest Lecture by Mrs. Rashmi Joshi on Energy and Environment
14th December 2022
Venue: Ground Floor Seminar Hall (3pm to 5pm)

About the Guest:
Name: Ms. Rashmi Joshi
Designation: Environment Consultant
No. of Participants: 21

Phone no. 9819599851

Mail id rashmijoshi72@rediffmail.com

Currently working as Environment Consultant for last 10 years with a special focus on Composting,

E-waste Collection Drives, Seed ball making and Kitchen Gardening

Educational Qualifications

M.A. (Greek Philosophy), NET Exam Qualified

Experience

- Lecturer at Ruparel Junior College, Khalsa Degree college, Government Law College and Mumbai University
- Public awareness related to environment issues-
- Creating awareness among students in particular and society in general by delivering lectures, guidance, training and implementation of composting projects at around 50 plus schools, colleges and 100 plus housing societies.
- E-waste collection, plastic waste collection and sending it for recycling – from approximately 50 colleges of Mumbai, Navi Mumbai, Thane, Pen (Raigad) & Ratnagiri; 200 plus housing societies and 25 Schools and other institutions including the corporates.
- Organisation of E-waste collection drives in 40 colleges, 25 schools and 50 residential colonies of Mumbai, Dombivali, Thane & Navi Mumbai and collected around & 20 ton of E-waste and its disposal for scientific recycling to Government approved recycler. This way the E-waste reached the recycling facility instead of reaching the dumping ground.
- Similarly, composting projects were completed at several locations and few hundred tons of wet waste in the form of kitchen waste and garden waste was prevented from reaching the dumping ground.
- Conducted around 2000 plus awareness lectures on Solid Waste Management in various Educational Institutions, Housing Societies & other Institutions.
- I was also involved in organization of Plastic Waste Collection Drives in various educational and other institutions.
- Conducted webinars in around 100 institutions during lockdown till date. Awareness interviews on All India Radio as well as Media Coverage in various Newspapers.

Awards and Achievement

- Felicitated by Thane Municipal Corporation
- Felicitation by F/North Ward of MCGM.
- Naari Swashakti Puraskaar.
- Guru Nanak College Award
- Prasar Bharati Award for work in Swachh Bharat Abhiyan
- Kartrutvavaan Naariratna Gaurav Puraskar 2020
- Corona Warrior Awards (from 4 Organizations)
- Rajyastariy Covid Yodhha Samaj Rakshak Mahasanman 2021
- Adarsh Corona Warrior Award received on 1st May 2021.
- Served a critical cancer patient continuously for two years.

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Mrs. Rashmi Joshi addressed about the scientific findings that a global energy transformation is needed to address the growing risks associated with accelerated global environmental change. Anthropogenic pressures on the planet have reached a level where large-scale deleterious impacts, or even catastrophic ones, can no longer be excluded. She also mentioned that such impacts have the potential to undermine human development.

This new global social environmental predicament is closely associated with energy. Atmospheric emissions from energy use contribute to multiple environmental impacts. In addition to climate change, atmospheric pollutants may limit net primary productivity of ecosystems, and lead to the acidification and eutrophication of land and seascapes. Energy and Environment

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interact, reinforcing impacts on social and environmental systems, in complex ways that are not always well understood. She talked about Climate change and GHG emissions.

Students asked about how they can contribute to reducing the impact of Global Climate change to which she replied to follow the SDG's which can cause a greater impact on the sustainability index of the country.

The session ended with a vote of thanks by Mr. Vishwas Palve, Assistant Professor at the Department of the Mechanical Engineering.

Prepared By
Swapnil Mane
Coordinator, ECW 2022
Assistant Professor, MECH Dept.

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Academic Year 2022-23

Outreach Activity at various schools for awareness about Energy Conservation
16th December 2022

Venue: St. Annes High School, Podar International School, Issac Newton High School, New English School and Taramai Vartak Memorial School

Aim: To create awareness among the citizens towards Energy Conservation and Efficiency

With an aim to create awareness among the citizen of Vasai Virar Municipal region, Department of Mechanical Engineering on the National Energy Conservation Day proposed an outreach activity under the name "Urja Vistaar".

Objectives Of Urja Vistaar

The objective of **URJA VISTAAR** is to create awareness among the public and equip them for efficient management of all forms of energy, to promote energy efficiency and energy conservation and to develop new sources of energy as well as novel energy technologies with a view to increasing the production and facilitating the use of energy on a sustainable basis. It aims at seeking the school children of Class 9th and 10th to convene, catalyze and facilitate works in the energy conservation related activities in a participatory mode by utilising the natural sources of Energy. Therefore, schools that have been involved in community participation, environment, and energy conservation work were approached for promoting the sustainable usage of Energy for Cooking, Transportation and Lighting.

Activities

This program, in general, focuses on enhancing environmental awareness and fostering critical thinking and problem- solving approaches among participants, by helping them to become actively involved in the exploration of their immediate environment through understanding certain concepts and undertaking some selected activities related to Energy conservation and energy efficiency. The intention is to encourage an approach which takes some of these basic ideas and adapts them to suit local needs. Thus, the activities of the Urja Vistaar program consist of demonstration of Solar Cooker so that the basic needs of cooking can be established by the participants. Also the program involves to demonstrate and distribute solar Lamps to students living in tribal areas who are deprived of uninterrupted power supply which hinders there need for studying during the off sunlight periods.

Action:

The faculties of the Department of Mechanical Engineering visited the schools in the Vasai-Virar Municipal Corporation region to sensitize the students and inculcate mitigation from conventional methods of energy usage. The snaps of the visit are as follows:

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Report of
Expert Talk on Process of Innovation Development Technology Readiness Level(TRL),Commercialization of Lab Technologies and Tech-Transfer
19th Dec 2022

Objective: The process of Innovation Development in Solar Energy Conservation and Start up Strategy

About the Speaker: The guest speaker for the session

1. Speaker:- Mr.Ratnesh Shingrupe

   Founder- and CEO of Quasar Innovative Solutions – India (Qinso),Thane Maharashtra

Brief introduction

Quasar Innovative Solutions – India have received four national awards in System Designing in Renewable Technology. Years of R & D in Industry has gained confidence to attempt for extremely difficult levels of Projects Implementation. Challenges inspires Quasar Innovative Solutions – India to work & resolve them with best possible solutions. Environment & Innovative research are the fields which inspires them to work passionately for betterment of the society. We wish for the better business relations in coming time.

Mr.Ratnesh graduated in Computer Science from Mumbai University established his own start up by this venture. Mr.Ratnesh is a motivational speaker for the students since long time and today he is presenting about the innovation development technologies ,TRL and ways of commercialization

Brief discussion of the event

Mr.Ratnesh is very close to solar energy work and established his own Quasar Innovative Solutions – India (Qinso) for manufacturing of solar panels. Mr.Ratnesh is actively involved in the solar photovoltaic plant installation and commissioning.

Brief Description of the event

Mr. Ratnesh elaborate about the clear goals and vision. In view of Mr.Ratnesh, the vision should be created keeping long term goals. This vision only powers the enterprise to travel on the path of growth. This vison set by the founder of entrepreneur should be the vison of all employee working in the enterprise. Its not only to earn higher salary or higher position in the company.

The broad vision may have small small goals in order to fulfill the vision. Time to time after reaching to set targets, the vision of the company could be improvised.

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Mr.Ratnesh highlight of getting inspired by the vision. All employees together will prepare the action plan the vision. If all focused on vision then the small goals are automatically fulfilled.

Mr. Ratnesh emphasis that see the dreams when you are awake not when you are sleeping. Those you can follow and put forward steps towards fulfillment of them.

Mr.Ratnesh established his own competence keep consistency in the technology readiness level with respect to market. Mr.Ratnesh explained about the TRLs for establishing an enterprise rather who could mae his/her way towards entreprises based on TRL, MRL. The review of market should be very important and one should keep the plan in hand to execute the technology on time.

Be diligent and and inspired for technology transfer with industries ,research labs for progess of the product in term consumer market gain.

Overall the session was excellent and may videos shared by Mr.Ratnesh during installation of the solar plants by their venture. The mathematics of calculating the project cost and quoting also discussed in details. Students were actively participated in the Q and A session. Total 52 students and 4 faculty members were participated in the event.

Thank you

Dr. Ashish Chaudhari

Dr.Ashish Chaudhari

President IIC

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19th Dec 2022

Glimpses of the Event

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Website: www.vcet.edu.in

Report of
Expert Talk on Energy Conservation Strategy in Electric Vehicles
14th Dec 2022

Objective: To create awareness for innovations in energy conservation strategies needed in electric vehicles

About the Speaker: The guest speaker for the session

1. Speaker:- Mr.Kavan Raval

   Chief Strategic Sales and Partnership Officer, Earth Energy EV,Vasai

Brief introduction

Mr. Kavan is A Techno-Commercial expert in the field of EV Automobiles with a proven record in sales, operations, and corporate relations. Been part of an electrified journey where Mr. Raval saw a company & product in making from scratch and contributed to solidifying the roots of the same. Always ready to take up the driving seat of prototypes, push the machine to its limits, present the inputs to R and D team. Mr.Raval undertook vehicle development & logistical operations, event management, company representation activities at seminars and conferences.

Beyond vehicle technology, a significant boost in EV adoption could be awareness programs for users and technicians. Mr.Raval and team create a pool of EV promoters by organizing seminars/workshops for potential users and mechanics. There are many misconceptions about EVs that need to be addressed, which can be clarified by continuous interactions as a community. EV charging infra-availability is also an important game changer.

Brief Summary of the talk

Mr. Raval started his session with the introduction of his company Earth Energy EV and the startup growth and present status in field of electric vehicles. Mr.Raval highlights upon the key factors during design and development of the electric vehicle is the weight of the vehicle and the battery usage for maximum milage.

To understand this , the weight of the electric vehicle could be kept low using the innovative materials without compromise of the safety and anti-collision test. Various materials are under research and utilized in the making of electric vehicles. The weight of vehicle could be substantially reduced using the composite materials maintaining the same strength.

The lower the weight higher will be the performance of the vehicle. Further the battery system of the electric vehicle is another important part for the best efficiency of the vehicle. The battery system is such

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that it should be light in weight. Different orientations of the cell and frame design is crucial in the development of battery system of the electric vehicle.

The cooling system of the battery affects the performance in electric vehicle. In two-wheel vehicles, air cooling or natural draft cooling only possible, however in four wheel vehicle the cooling system need to be designed which could keep the cell temperature below designed limit of 40-45 degree centigrade. For this liquid coolant flow around cell is important. The maximum heat generated in the cell in axial direction which need to be dissipated to the surrounding, for this Mr.Kaval demonstrated different designs which are in exist and also under research. Mr. Kaval emphasis scope for innovation and research in this field of battery management system.

Optimum design of Battery system will automatically improve the performance of the vehicle. Battery swapping method which is a new technology initiated by the different start ups in India. Government of India is promoting the young engineers to establish their start up in this sector. Mr.Kaval gives the detailed explanation of the Battery Swapping technology.

Further Mr. Kaval put forward a question whether the electric vehicle causes pollution/emission. Mr. Kaval explains the clean environment or zero carbon footprint policy of Government of India. Electric vehicles consume electricity for charging. This electricity if generated from renewable sources such as solar photovoltaic or wind turbine farm could make a difference.

Overall the program was full of research and innovation. Students interacted with Mr.Raval with lots of question for this very new and silent technology of Electric Vehicles,

Around 50 students and 4 faculty members attended the event.

Thank you sir,

Dr. Ashish Chaudhari

Dr.Ashish Chaudhari

President IIC

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Report of
Expert Talk on Energy Conservation Strategy in Electric Vehicles
14th Dec 2022

Glimpses of the Event

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ATTENDANCE SHEET

Seminar on "Energy Conservation Strategy in Electric Vehicle"

Expert Speaker

Mr. Kavan Raval

Lead Corporate Alliance at Jindal Mobilitric | Chief Strategic Sales and Partnership Officer at Earth Energy EV

Sr. No.	Name of Student	Year	Branch	Sign
1	Rush V Manjrekar	FE	Comp	[signature]
2	Rohit Mali	FE	COMP	[signature]
3	Ashish Mane	FE	COMP	Ashish
4	Mahadiya Vatsal J.	FE	Comp	Vatsal
5	Suyash S. Palkar	F.E	Comp	Palkar
6	Smit mhatre	F.E	Comp	[signature]
7	Siddhesh. S. More	F.E	COMP	[signature]
8	Ashirwad Kathavate	F.E	COMP	[signature]
9	Tanmay Narayankar	F.E.	COMP	Tanmay
10	Mihirkumar V Lad	F.E	COMP	Mvlad
11	Sambit Mazumder	F.E	COMP	[signature]
12	Wajiha Kulsum	FE	comp	wajiha kulsum
13)	Vedant U. Kale	FE	comp	Kale
14)	Jilla Saivamshi R	FE	COMP	J.Saivamshi
15]	Jenil Rajesh Kotadia	F.E	comp	Jkotadia
16]	SAURABHSING DIPAKSING PARDESHI	F.E	AI&DS	Pardeshi
17]	Apurv Sanjay Kini	F.E	AI&DS	[signature]
18]	Saurabh mane	F.E	AI&DS	Saurane
19)	SAKSHI KAKTE	D.S.E	Civil	Sakakte.
20]	Aniruddha Rane	D.S.E	Civil	Arane
21)	Pranam A Sorenki	D.S.E	civil	Prashams.
22)	Prasham K. Gandhi	D.S.E	Civil	Prasham
23)	Tejas T Shevale.	D.S.E	Civil	[signature]
24)	Shubham Gonwale	D.S.E	Civil	[signature]
25)	Jay. patil	F.E	AI/DS	Jay
26)	Vedika. Pawar	F.E	AI/DS	Vedika
27)	Yash. Patil	FE	AI/DS	Yash
28)	Rohan Ganpat. Mangaonkar	FE	AI/DS	[signature]
29)	Sakshi Anant shelar	~~FE~~ D.S.E	Civil	[signature]
30)	Sai S. Gosavi	D.S.E.	civil	Saigosavi
31	Kaustubh K Chavan	D.S.E	civil	[signature]
32	Apurva Umakant Jagtap	D.S.E	Civil	Apurva
33)	Ajay. s Lachaka.	D-S-E	CIVIL	Alachaka.
34)	Yajurved V. VAIDYA	D.S.E.	CIVIL	[signature]
35)	JATIN. VATARE	D.SE	CIVIL	[signature]

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[signature]

Dr. Ashish Chaudhari

Sr.No.	Name of Student	Year	Branch	Sign.
36)	Jay Panchal	D.S.E	mech	Jay
37]	DHRUV HANAKIA	DSE	CIVIL	DHRUV
38]	Aniket Falka	DSE	mech	Aniket
39)	Rohit Kache	DSE	CIVIL	Rkache
40)	Krutesh Aarekar	DSE	CIVL	Krutesh
41)	Niketan P. Saudekar	DSE	Mech	Niketan
42)	Bansal Simaria	DSE	MECH	Bansal
43)	Aniket Jha	FE	COMP	[illegible]
44)	Sandesh Pakhidde	F.E.	AI/DS	Sandesh.
45)	Shubham. S. Mohanty	F.E	AI/DS	Mohanty
46)	Sainath. S. Khot	FE	AI/DS	[illegible]
47)	Yash. Mayakar	FE	AI/AS	ymayekar.
48)	Ayush. Mayekar	FE	AI (DS)	[illegible]
49)	AFNAN PATHAN	FE	AI(DS)	AfnanPathan.
50)	Dnyanesh Panchal	FE	AI (DS)	DBP
51)	Lavanya Murudkar	FE	AI (DS)	Lmurudkar.
52	Krithik Pandey	FE	AI & DS	KRITHIK
53	Ketan. N. Mahadik	F.E	AI/DS	Kmahadik.
54	Tarun P. Pathak	F.E	AI/DS	Tarun
55.	Mitantsh R. Rosalia	F.E.	AI/DS	Rosalia
56	Chaitanya. R. pimple	D.S.E	CIVIL	[illegible]
57	Prathmesh Pandey	~~[illegible]~~ F.E	Comps	[illegible]
58	Kashyap Jetnya	FE	comps	KJetnya
59)	Piyush Kushe	F.F	Comps	Piyush
60	Krish Vaity	TE	MECH	[illegible]
61	Naman Annadate	TE	Mech	Naman
62	Aditya A. Lawate	SE	COMPS	aditya
63	Shrushti Rane	TE	EXTC	Srane
62	Heramb Shinde	D.S.E	MECH	Heramb
63	Reuben Noronha	DSE	MECH	Reuben
64	Shruty. Nirgun	DSE	MECH	Nirgun
65	Kiran Uman Vyas	TE	AI	K.Vyas

Dr. Ashish Chaudhari

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Website: www.vcet.edu.in

Report of
National Energy Conservation Week
16th Dec.2022

Objective: To inculcate the importance of energy and its consumption among society

About the Speaker: The guest speaker for the session

1. Dr. Megha Trivedi
   Associate Professor, Computer Engineering Department
2. Mr. Swapnil Mane,
   Energy Auditor, Mechanical Engineering Department
3. Mr. Vishwas Palve
   Energy Manager, Mechanical Engineering Department

Brief introduction of Event

Institute Innovation Council in association with IQAC Vidyavardhini's College of Engineering and Technology organizes a Bicycle Rally with banners for awareness about energy saving and methods to generate energy from renewable sources for Ingrid power generation.

Dr.Trivedi and Mr. Swapnil Mane along with students were designed the banners for energy conservation and manufacture the hoardings that could be fixed to the bicycle. The banners of size 60 cm by 30 cm and wooden frame with handle for fixing it to the handle bar of the bicycle.

All participants arranged bicycles from thir own or from friends or relatives and participated in the event. The bicycle rally was started from institute campus at 10.30 am. Dr.Megha Trivedi shows the flag for starting the rally.

Starting from institute the participant follows the track to Ganapati mandir- panchavati- 100 feet road- suncity-grass road- bhuigaon. Return along the same track. Total travel of the bicycle rally is 15 kms.

The banners are

a. National Energy Conservation Week
b. Clean Energy renewable fuels
c. Energy is Life save it
d. BIS standards for energy saving
e. Solar panel grid power generation
f. Saving Energy methods

Dr. Ashish Chaudhary

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The students and faculty members were seen enthusiastic and communicated to the peoples on the road and tried to create awareness among them.

The Bicycle rally was successfully completed, and 13 students and 5 faculty members were involved in the rally.

Thank you,

Dr. Ashish Chaudhari

Dr.Ashish Chaudhari

President, IIC

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Report of
National Energy Conservation Week
16th Dec.2022

Glimpses of the Event

Dr. Ashish Chaudhari

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Vidyavardhini's College of Engineering & Technology

Academic Year 2020-21

Report on Energy Conservation Day 2021

Program	Energy Conservation Day 2021
Date	14/12/2021
Mode	Online
Description	Every year, Department of Mechanical Engineering, Vidyavardhini`s College of Engineering and Technology (VCET), Vasai (west), organizes "Energy Conservation Week". The event is organised on the occasion of "World Energy Conservation Day" i.e 14th December to highlight the importance of energy consumption and its use in our day-today life. On this occasion, an Expert session on "Application of IOT and ML in Management of Energy Utilities" was scheduled at 10:30am to 11:45 am on 14th December 2021 through Online mode by Dr Hemant Wamburkar.
Organizing Committee	Coordinators: Dr. Uday Aswalekar, HOD Mechanical Engineering Mr Swapnil R Mane, Assistant Professor, Mechanical Engineering Mr Vishwas Palve, Assistant Professor, Mechanical Engineering Chief Guest: Dr Hemant Wamburkar, Director, Innovative Digital Energy Applications & Solutions, Pune
Participation Details	63 participants from and across various colleges participated in this online session and certificates were provided for those who actively participated in the workshop
Total Number of Participants	**63**
Google Meet link	https://meet.google.com/iid-oyyx-ihe
Whatsapp link	https://chat.whatsapp.com/EJHFNybNVDiD8Pvxm6lEh9
Description of Event	**Topics Covered** Energy optimisation in smart manufacturing Automated Energy Meter Reading: - Smart Alerting System for Proactive Response: - Automated Reporting System for Routine Analysis: - Analytical Tools for Diagnostics and Optimization: Visibility for Improved Productivity: -

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	2) Use of IOT (AI and ML) for Energy Data. Going beyond EMS with Plant connect. The guest explained about how Internet of Things and concepts of AI and ML can help data managers acquire useful information with Energy Management system. 3)Digital Utilities Using continuous data obtained from IoT and from Big Data provide inputs for optimizing energy, water and asset performance from energy signature of machines and systems at part loads (Continuous re-commissioning) This uses the dynamic modelling of fluid (Liquids/Gases) systems from energy, and derive fluid and thermal energy flows and efficiencies So data of parameters like Energy, Power, Electrical, Temp, Pressure, RH, vibration provide useful insights for altering the operating machines at part loads for maximizing their energy performance.
Feedback	Feedback and constructive comments were given by students and the events was successfully organized with certificates being presented to successful students.

Prepared by
Mr Swapnil Mane
Co-ordinator, ECW 2021

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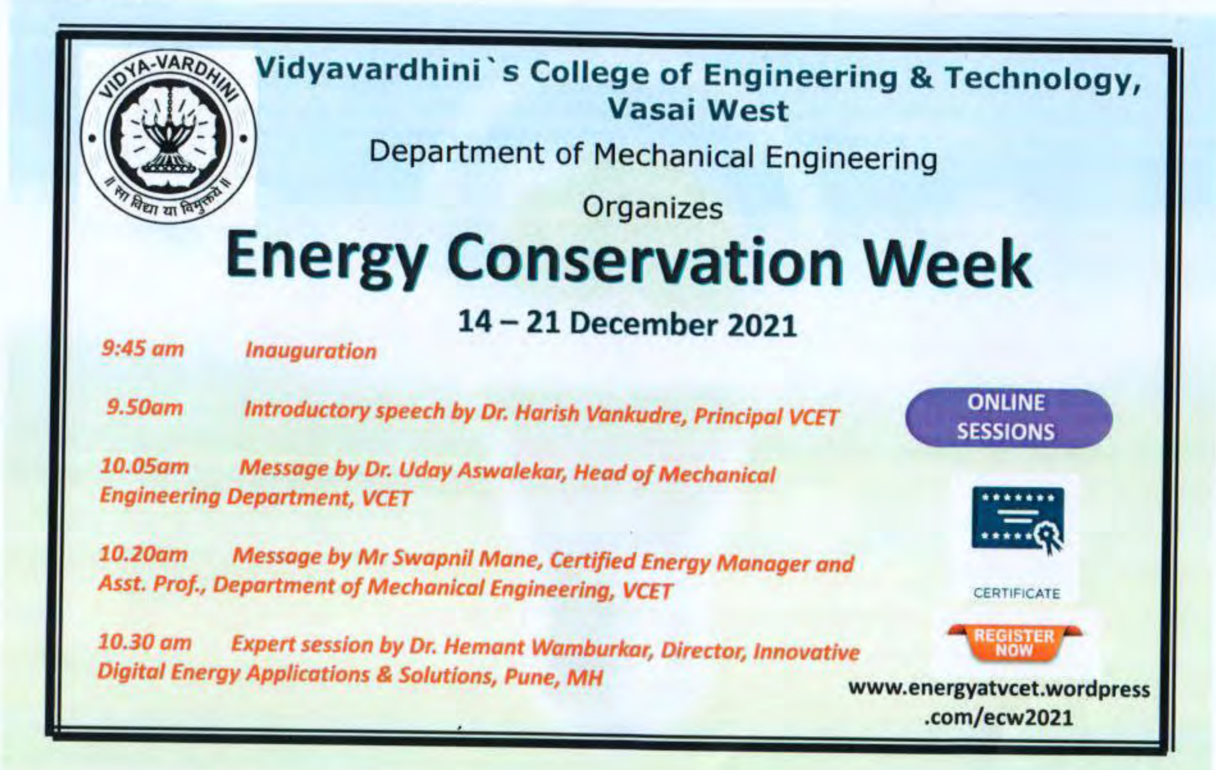
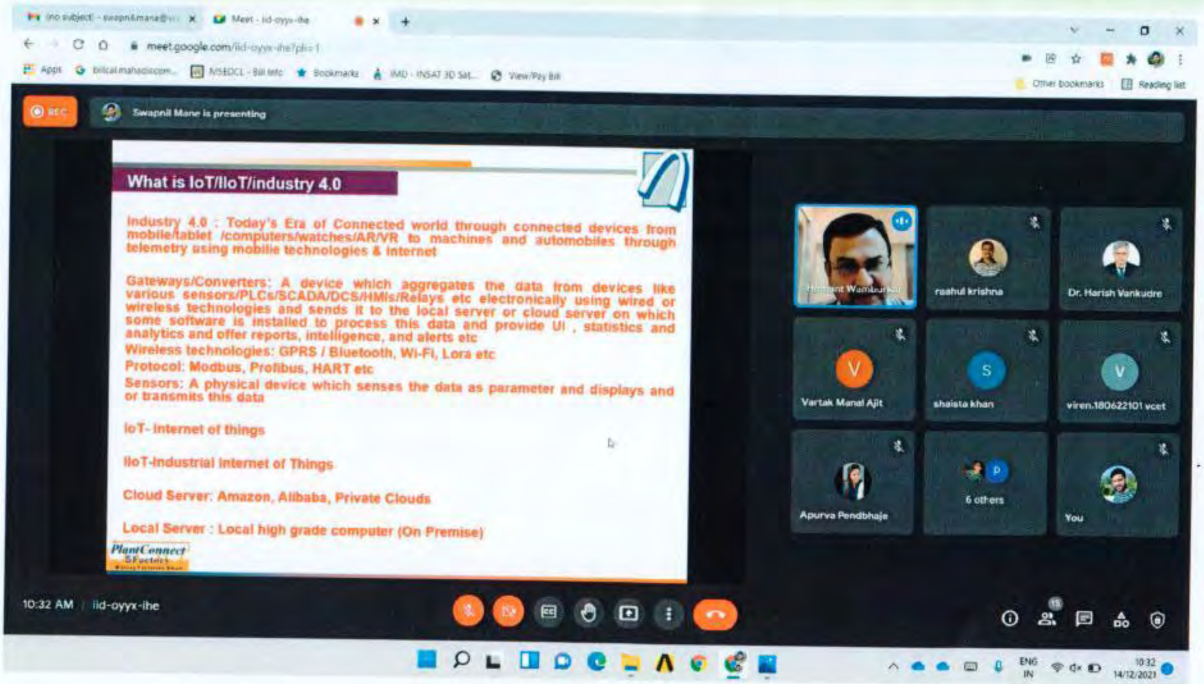
ANNEXURES





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Vidyavardhini's College of Engineering & Technology

Academic Year 2019-20

Report on Energy Conservation Week 2020

Program Energy Conservation Week 2020

Date 14/12/2020 to 21/12/2020

Description Every year, Department of Mechanical Engineering, Vidyavardhini's College of Engineering and Technology (VCET), Vasai (west), organizes "Energy Conservation Week". The event is organised on "World Energy Conservation Day" i.e 14th December to highlight the importance of energy consumption and its use in our day-today life.

The following activities are planned.

Day 1 *9:30am Inauguration*
1:30pm Guest Lecture on Fuel cells by Dr. Amit Bhosale, IIT Roorkee

Day 2 *1:30pm "Solar Energy for Sustainable Lifestyle"*
(Design your own solar system) by S. R. Mane

Day 3 *2:00pm ECO-NIWAS by D. J. Choudhari*

Day 4 *9:30am Bicycle rally*

Day 5 *2:00pm "Bio-fuels- Need of an hour" by Dr. Ashish Chaudhary*
3:00pm Valedictory and Certificate distribution

Organizing Committee
Coordinators: Dr. Uday Aswalekar, HOD Mechanical Engineering
Mr Swapnil R Mane, Assistant Professor, Mechanical Engineering
Mr Vishwas Palve, Assistant Professor, Mechanical Engineering
Chief Guest: Dr. Amit Bhosale, Assistant Professor, Department of Hydrogen Energy, IIT Roorkee

Participation Details 110 participants from and across various colleges participated in this online session and certificates were provided for those who actively participated in the workshop

Total Number of Participants 110

Google Meet

Description of Event **Topics Covered**

1) Dr. Amit Bhosale: Fuel Cell and its Application. The use of Fuel cell as electrolysers. Challenges in implementing the technology of Fuel Cell in daily life.

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2) Mr. Swapnil Mane: Solar Energy for Sustainable Lifestyle. How to install solar system for a residential purpose. He explained that as a renewable source of power, solar energy has an important role in reducing greenhouse gas emissions and mitigating climate change, which is critical to protecting humans, wildlife, and ecosystems. Solar energy can also improve air quality and reduce water use from energy production.

3) Mr. Dipak Choudhari: Indian rapid urbanization is creating an unprecedented demand for buildings, which already account for nearly 35 percent of India's total electricity consumption. The guest explained that energy efficiency is one of the world's largest energy resources and we are just beginning to tap its potential. India is at a unique crossroads where two-thirds of the commercial and high-rise residential structures that will exist in 2030 are yet to be built. Thus, implementing energy efficiency in buildings that will be constructed in the next decade offers an opportunity to significantly reduce the energy use and imparts cost savings for the next generation.

4) Bicycle Rally:

The initiative was to spread awareness against the depletion of non-renewable resources and to save energy. They spread messages such as, saving energy means decreasing the amount of energy used while achieving a similar outcome of end use, using less energy has lots of

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of energy used while achieving a similar outcome of end use, using less energy has lots of benefits – you can save money and help the environment, generating energy requires precious natural resources, for instance coal, oil or gas. Therefore, using less energy helps us to preserve these resources and make them last longer in the future, instead of driving to work or school, take the bus, carpool, walk, or ride your bike to cut down on greenhouse gas emissions. Consider investing in appropriate technology like clean power (solar or wind), if not for your home maybe for a community centre.

Feedback	Feedback and constructive comments were given by students and the events was successfully organized with certificates being presented to successful students.

https://docs.google.com/spreadsheets/d/1JtRQpvNM3AwJgXhDr3YXpGLJv_Qxnpuu3ekxw0qjfHs/edit?usp=sharing

Prepared by
Mr Swapnil Mane
Co-ordinator, ECW 2020

S.R.Mane

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Vidyavardhini`s College of Engineering & Technology, Vasai West
Department of Mechanical Engineering

Energy Conservation Week 2018

Introduction

World Energy Conservation Day is celebrated on 14th December globally to highlight the importance of energy consumption and its use in our day-to-day life.

It is a day for building up awareness regarding need for energy conservation, Energy efficiency and carefulness in energy use.

The Program

OBJECTIVE: TO CREATE AWARENESS AMONG CITIZENS ABOUT THE CONSERVATION OF ENERGY.

ACTIVITY:
Around 100 Faculty members will participate in the awareness program who will create awareness about Energy Conservation in their locality.
Approximately 15 faculties from Mechanical Department will address 25 Societies to follow ENCON measures.
5 Faculties from PAT will decipher the best practices followed for Energy Conservation to approx 10 designated consumers (Utilities/Industries).

PROCEDURE:
Explain the need for Energy Conservation.
Explain how Electricity flows from Power plant to household. [1 Unit saved = 2 Units Produced]
Take a note of various equipment in the house such as Lights, Fans, AC, Refrigerators, Water Heaters, etc.
Give Energy Conservation opportunities. (Conveyed during Lecture session)
Discuss various policies framed by government towards energy utilization and development.
Take Feedback.

CONCLUSION:
At the end of the week (21st December 2018) we will analyse the usage pattern of household and understand the practices followed by these households. Comment on general suggestions made by the participants of this campaign.

S.R.More

HEAD
Dept. of Mechanical Engg.
Vidyavardhini's College of
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Vasai Road-401202.

Photos

S. R. Mane
ECW Cordinator

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Dept. of Mechanical Engg.
Vidyavardhini's College of
Engineering & Technology
Vasai Road-401202.

Click here for summary page

Vidyavardhini's College of Engineering and Technology ,Vasai

NSS- Residential Camp Activity Report

(25 February 2020 to 2 March 2020)

The NSS unit of Vidhyavardhini's College Of Engineering & Technology arranged a residential camp of 7 Days from 25th February to 3rd March 2020 at Kelthan village near Vajreshwari. The Induction Ceremony was held at the college campus and inaugurated by our principal Dr. Harish Vankudre with a brain storming session on 'Importance of Social Service in Education Sector'. The volunteers were instructed, guided & accompanied by Programme officer Dr. Pradip Gulbhile , and other staff members Prof.Vikrant Agaskar , Prof.Sandhya Supalkar Prof.Ekta Naik. Mr.Sachin Kadu ,Mr.Dhanesh Patil.

Post that, the inauguration ceremony was conducted at Kelthan village. The chief guests for the function were Shri Ajay Raut Saheb, Mr. Yashwant Kangane Saheb, Sarpanch Mr. Chaturya, Dr. Arun Malli and Mr. Datta Patil. The inaugural function was chaired by Prof. Arun Mali G.G. College Vasai along with 33 NSS volunteers. The function began with the tradition of lighting of lamp by the dignitaries. The chief guests welcomed all and emphasized the importance of selfless service to be rendered by NSS volunteers and their duties and responsibilities towards the society. They also highlighted the various initiatives to be taken up by the NSS unit of the college during the academic year 2020. We were humbled to witness Sarpanch Shri. Rajesh Chaturya and Upasarpanch Shri Dattarya Patil's words of wisdom adding value to the program.

Post inauguration, Dr. Ramdas Tonday delivered a heartwarming speech on how to make a community better, the hardships of social service, the determination and passion needed for the alteration of public happiness, the need to expand our outreach to educational settings, the impact of doing social service on ourselves, and most importantly the satisfaction that we get from helping others. These delicate yet very important topics were addressed to the NSS unit to help them with a positive beginning and to serve the community.

The very first activity of day 2- 26th February, 2020 was the morning exercise conducted by Mr. Ritik Singhvi (NSS Volunteer), which included Aerobics and Zumba. It was quite a good start to the day which induced lot of energy and strength in students.

Later, a rally was conducted across Kelthan village with 33 volunteers & faculty to spread the message "Save Girl Child". The rally was quite useful in imparting important values into villagers. Faculty in-charge of our college were kind enough to guide us throughout the whole rally. The motto of rally was successfully delivered by reciting slogans like "Beti Bachao Beti Padhao", "Mulgi Shikli Pragati Zhali", "Beti ko Adhikar do, Bete jaisa pyaar do" and attractive banners and posters on the way. The next activity which was carried out was 'Socio-economic Survey', in which the NSS team consisting of 30 participants went door to door and conducted the survey, gathering information of the villager's social and economical status, literacy amongst the family, transport and farming information. Villagers were kind enough to spare time and answer all the questions asked by the NSS Unit. At times, villagers not having the knowledge about certain documents and their importance were explained by NSS unit, encouraging them to issue those documents as soon as possible. NSS team then also went to the schools and interacted with the students and informed them about the agenda and events of the camp concerned with them.

Day 3- 27th February, 2020 started at 7am with routine exercise and meditation. The entire NSS batch was then divided into 2 groups and various activities in the school for std.1st to 4th and for std. 5th to 7th were conducted in "Jilha Parishad Kendrashala, Kheltan".

Events like passing the parcel game, drawing and handwriting competition for std.1st to 4th were conducted and drawing and handwriting competition were conducted for std. 5th to 7th. One group of NSS volunteers handled primary section of the school and the other group handled secondary section of school. In primary section, drawing and handwriting competitions were conducted with great enthusiasm to which school students responded in huge numbers. Also, Passing the Parcel game was played with school students which entertained them and kept their interest intact. This event was a success with 170 school student's active participation.

Later a video demonstration was done on rain harvesting technique and their effective utilization for household and irrigation purposes, with Shri Ajay Raut Saheb as the event guest. With the count of viewers from various villages well above 500 people, the overall program's main aim was successfully achieved. Post this, a Street Play on 'Hygiene and Cleanliness' was arranged by a team of 20 NSS volunteers that proved helpful for promoting basic virtues in local civilians. The main focus was on the importance of keeping our surroundings clean through an amazing act and were able to grab the attention of an audience of nearly 600 villagers. At around 7 p.m., a religious 'Feast Ceremony' was arranged wherein NSS Unit helped out with the crowd management. NSS volunteers organized a food distribution event in which food was served by them to the common public. The event took place smoothly with a team of 30 NSS volunteers, effectively managing a crowd of 1500+ villagers to maintain discipline.

The 4th Day- 28th February, 2020 started with various exercises conducted by Prof. Ganesh Ambekar at 7am which included basic warm ups, suryanamaskar, yoga and cardio exercises.

The NSS team was then divided into two groups, of which, one batch was assigned to secondary section along with the Women Development Cell Team of Vidyavardhini's College of Engineering and Technology, who visited students of 8th and 9th grade to conduct a seminar on 'Hygiene, Menstruation and its related problems' imparting knowledge to the students and a workshop on 'Self Defense' wherein a few self-defense techniques were taught to all the girls for their safety, with around 50+ student's active participation. Later, the WDC conducted various games for girls to outgrow their confidence and presentation skills. WDC also focused on gender equality and boosted confidence in girls to achieve their dreams and hopes with firm determination and conviction. It was an interactive event wherein all female students actively participated.

The second NSS team, assigned to secondary school, conducted the 'Tech Crack Quiz', a technical quiz and cricket and kho-kho matches for students of class 8th and 9th, to groom and display their skills and to enhance their physical health and team spirit. This activity was received quite well with nearly 60 student's enthusiastic participation. The skipping program was led by Mr. Sanil Jain (NSS Volunteer) for the students of Primary as well as Secondary section who were familiar with skipping,. and were keen to learn new skills and improve themselves. It was an interactive event wherein 20+ students who were familiar with skipping actively participated.

Day 5- 29th February, 2020 commenced at around 7am with routine exercises wherein students performed Aerobics and Zumba. The entire batch was then divided into groups to carry out surveys and to collect water samples of drinking water from various households around the village.

A 'Socio-Economics' survey was conducted which consisted of filling of forms prepared for the villagers regarding their Social, Economic and Cultural details. This survey was conducted in the village which included gathering information of the villager's social and economic status, their knowledge of important legal documentation, literacy amongst the family, transport and farming information. This event proved to be indeed a success with 20 active participants and the villagers, as the guests of the event. Another crucial event was conducted under the guidance of Programme Officer Dr. Pradip Gulbhile. The NSS volunteers, divided into 3 groups. 200 water samples were collected from various places throughout the village to check the quality of water utilized by the village people. These were then taken to laboratories to check water quality and determine the 'Ph' value and other constituents present in the water. The objective of this event was to check drinking water quality of the village, which was indeed achieved by the determination and hard work of all the participants.

A 'Career Guidance Seminar' for the secondary school students of standard 8th and 9th was then conducted, wherein they were informed about the different considerable educational options pursuable right after grade 10th. A MS-CIT Workshop, a basic computer program (MS-CIT BASIC) for the students of 7th was also conducted in order to enhance and sharpen their skills on basic knowledge of computer software and hardware. Volunteers gave them an overview of all the content taught in MS-CIT

Course. Later, a seminar on "Basics of Computer Hardware & Software" was conducted which provided the knowledge about computers to the students.

Day 6- 1st March, 2020 started with morning exercises conducted by Mr. Ritik Singhvi and Mr. Gokul Kunchumuthu (NSS volunteers) which included warm-up and Aerobic exercises. Mr. Jai Harsora (NSS volunteer) conducted Zumba moves which was a power start to the day.

'Solar Ambassador Program' was conducted by NSS, which was attended by Trustee Mr. Yashwant kangane, Guest of Honor Mr. Ajay Raut along with Sarpanch and Upa-Sarpanch of Village and around 20+ villagers. The aim of the program was to introduce the concept of 'Usage of Solar Energy'. Prof. Swapnil Mane and Prof. Vishwas Palve, with the help of the NSS volunteers, were kind enough to guide the villagers through the seminar, with Professor Swapnil Mane briefing Solar Energy and its Statistics and Prof. Vishwas Palwe explained the architecture and making of solar power plant and how new devices, useful to them, running on solar energy, could be invented.

A 'Soil Sampling Survey' was then conducted by the members of NSS wherein soil samples were collected from the area near the campsite, that is from the surrounding areas like primary school, secondary school, temple, offspring, village entrance and many more for its testing.The testing would be then carried out to gain ph, water contents, type and other such parameters. The Roadway of the Village was also surveyed by 4 Civil NSS Volunteers for the quality and requirements to improve the road.

Lastly, the Valedictory ceremony was held on 2nd March 2020. The faculty members of NSS gathered to give a warm farewell to all the NSS members.

With this, the journey thus ended on a jovial note with a heartwarming speech from Dr. Pradip Gulbhile who, on behalf of all the faculty members, appreciated student's hard work and their efforts, congratulating the students and motivated them to provide service to all the community.

Devbrat Singh

Student Leader ,NSS ,VCET.

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY
★ VASAI ROAD ★

Vidyavardhini's College of Engineering and Technology, Vasai
विद्यावर्धिनीचे अभियांत्रिकी आणि तंत्रज्ञान महाविद्यालय, वसई
Affiliated to the University of Mumbai.

NSS- RESIDENTIAL CAMP ACTIVITES

25 February 2020 to 2 March 2020

Sr. No	NAME OF THE EVENT		No of Students participated	PERIOD
1	• Camp Inauguration • Seminar on Pathway to success • Food preparation	Kelthan ,Akloli, Vajreshwari	60	25/02/2020
2	• Rally-save girl child (50) • Yoga activities • Socio-Economic survey • School Interaction • Lunch and dinner preparation	Kelthan ,Akloli, Vajreshwari	102	26/02/2020
3	• Meditation and yoga • School competition: Drawing (125) 80 Handwriting and passing the parcel • Street play on waste management 160 • Rain water harvesting awareness (50) 150 • Food distribution to villagers • Career Guidance Seminar • Personality Development Seminar	130 Kelthan Akloli, Vajreshwari	204	27/02/2020
4	• Aerobics and Zumba/Meditation /yoga 123 • Self-defense workshop — 115 • Women hygiene seminar - 122 • Sports competition for secondary school 123 117 • Talent hunt for students (50)	Kelthan Akloli, Vajreshwari	186	28/02/2020
5	• Aerobics and Zumba/Meditation /yoga Water quality survey — (50) • Career guidance in secondary school (50) • Socio-Economic survey • MS-CIT computer workshop 130	Kelthan Akloli, Vajreshwari	325	29/02/2020
6	• Aerobics and Zumba/Meditation /yoga Solar ambassador workshop - (50) • Water quality survey • Socio-Economic survey	Kelthan Akloli, Vajreshwari	165	01/03/2020
7	• Aerobics and Zumba/Meditation /yoga • Valedictory session and group photo	Kelthan Akloli, Vajreshwari	113	02/03/2020

N.S.S. P.O.

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY * VASAI ROAD *

SHLS

College Code No:________

NAH

PROFORMA - III

UNIVERSITY OF MUMBAI, NATIONAL SERVICE SCHEME

CONSOLIDATED REPORT OF THE ENROLLMENT

DURING THE YEAR 2019 -2020

Name of the College:- Vidyavardhini's College of Engineering and Technology.

Total no. of Students in Degree College :- Male 32 Female 18 Total 50

Number of allocated NSS Unit(s) :- 50 The Enrolment list displayed on the notice board on (Date)________

Name of the NSS Programme Officer/s-1. Dr. Pradip Gulbhile.

Sr. No.	Class	FEMALE				MALE				TOTAL			
		S.C	OBC	GENERAL	TOTAL	S.C	OBC	GENERAL	TOTAL	S.C	OBC	GENERAL	TOTAL
1	BE COMPS						1		1		1		1
2	TE COMPS	1		2	3			1	1	1		3	4
3	BE IT			1	1							1	1
4	TE IT			3	3	1			1	1		3	4
5	BE INST		1	2	3			8	8		1	10	11
6	TE INST			5	5		2	3	5		2	8	10
7	BE MECH		1	1	2	2	1	2	5	2	2	3	7
8	TE MECH					1	2	5	8	1	2	5	8
9	TE CIVIL					1		1	2	1		1	2
10	TE EXTC			1	1		1		1		1	1	2
	TOTAL	1	2	15	18	5	7	20	32	6	9	35	50

CLASSIFICATION OF STUDENTS

	S.C	OBC	GENERAL	TOTAL
FEMALE	1	2	15	18
MALE	5	7	20	32
TOTAL	6	9	35	50

old list returned to the college.

Recieved 3/12/19

DATE : 11/12/2019

PLACE : Vasai

Signature of the Programme Officer(s)

By hand 11-12-19

(Seal of the College)

Signature of the Principal

PRINCIPAL
VIDYAVARDHINI'S COLLEGE
OF
ENGINEERING & TECHNOLOGY
VASAI ROAD 401 202.

PROFORMA- IV –

NSS ENROLLEMENT LIST OF THE COLLEGE NSS UNIT.

NAME OF THE COLLEGE : VIDYAVARDHINI'S COLLEGE OF ENGG. & TECHNOLOGY, VASAI ROAD CLASS :BE COMPS YEAR : 2019-2020

NO. OF STUDENTS ENROLLED IN THIS CLASS: S.C 0 S.T 0 O.B.C 1 MINORITY 0 GENERAL 0 TOTAL 1

ENROLLEMENT LIST WAS DISPLAYED ON NOTICE BOARD: (DATE) :- ________

S.R NO	Gender	Caste	Surname	First Name	Father's Name	Mother's Name	Contact Number	Email id	Blood Group	Branch	Class
1	Male	OBC	PANJRI	JUNEETH	NITIN	JUDY	9821492674	juneethp@gmail.com	O+	Computer Science	BE

Signature of the Programme Officer /s

(COLLEGE SEAL)

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY ★ VASAI ROAD ★

Signature of the Principal

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PROFORMA- IV –

NSS ENROLLEMENT LIST OF THE COLLEGE NSS UNIT.

NAME OF THE COLLEGE : VIDYAVARDHINI'S COLLEGE OF ENGG. & TECHNOLOGY, VASAI ROAD CLASS :TE COMPS YEAR : 2019-2020

NO. OF STUDENTS ENROLLED IN THIS CLASS: S.C 1 S.T 0 O.B.C 0 MINORITY 0 GENERAL 3 TOTAL 4

ENROLLEMENT LIST WAS DISPLAYED ON NOTICE BOARD: (DATE) :- ____________

S.R NO	Gender	Caste	Surname	First Name	Father's Name	Mother's Name	Contact Number	Email id	Blood Group	Branch	Class
1	Female	GENERAL	SINGH	DIVYA	VED PRAKASH	GEETA	8793242938	divyasingh7219@gmail.com	B+	Computer Science	TE
2	Female	GENERAL	VALA	ZEAL	DEEPAK	ANITA	9773072018	zealvala72@gmail.com	O+	Computer Science	TE
3	Female	SC	DHAKE	ROMA	SUNIL	HEMA	9987606841	romadhake45@gmail.com	AB	Computer Science	TE
4	Male	GENERAL	KATARIA	SAGAR	VASANT	ARUNA	8390140685	sagar123katariya@gmail.com	AB+	Computer Science	TE

Signature of the Programme Officer /s

(COLLEGE SEAL)

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY ★ VASAI ROAD ★

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PROFORMA- IV –

NSS ENROLLEMENT LIST OF THE COLLEGE NSS UNIT.

NAME OF THE COLLEGE : VIDYAVARDHINI'S COLLEGE OF ENGG. & TECHNOLOGY, VASAI ROAD CLASS : BE IT YEAR : 2019-2020

NO. OF STUDENTS ENROLLED IN THIS CLASS: S.C – S.T – O.B.C – MINORITY – GENERAL 1 TOTAL 1

ENROLLEMENT LIST WAS DISPLAYED ON NOTICE BOARD: (DATE) :- ________

S.R NO	Gender	Caste	Surname	First Name	Father's Name	Mother's Name	Contact Number	Email id	Blood Group	Branch	Class
1	Female	GENERAL	THETHI	JASPREET KAUR	AWTAR SINGH	JASBIR KAUR	8097985130	jkaurt99@gmail.com	B+	Information Technology	BE

Signature of the Programme Officer /s

(COLLEGE SEAL)

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY ★ VASAI ROAD ★

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PROFORMA- IV –

NSS ENROLLEMENT LIST OF THE COLLEGE NSS UNIT.

NAME OF THE COLLEGE : VIDYAVARDHINI'S COLLEGE OF ENGG. & TECHNOLOGY, VASAI ROAD CLASS : TE IT YEAR : 2019-2020

NO. OF STUDENTS ENROLLED IN THIS CLASS: S.C 1 S.T – O.B.C – MINORITY – GENERAL 3 TOTAL 4

ENROLLEMENT LIST WAS DISPLAYED ON NOTICE BOARD: (DATE) :- ____________

S.R NO	Gender	Caste	Surname	First Name	Father's Name	Mother's Name	Contact Number	Email id	Blood Group	Branch	Class
1	Female	GENERAL	MANAVE	PRATIKSHA	PRAKASH	LATA	7498705236	pratikshamanave@gmail.com	B+	Information Technology	TE
2	Female	GENERAL	SINGH	AKANKSHA	NARENDRA KUMAR	BABLI	9284597455	singhakshi90@gmail.com	A+	Information Technology	TE
3	Female	GENERAL	SAVE	HEEMALI	NIKHILESH	SUCHITA	9723717569	heemalisaave@gmail.com	AB+	Information Technology	TE
4	Male	SC	POL	SAMIR	SATISH	SANDHYA	9820738904	samirpol123@gmail.com	B+	Information Technology	TE

Signature of the Programme Officer /s

(COLLEGE SEAL)

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY ★ VASAI ROAD ★

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PROFORMA- IV –

NSS ENROLLEMENT LIST OF THE COLLEGE NSS UNIT.

NAME OF THE COLLEGE : VIDYAVARDHINI'S COLLEGE OF ENGG. & TECHNOLOGY, VASAI ROAD CLASS :BE INST YEAR : 2019-2020

NO. OF STUDENTS ENROLLED IN THIS CLASS: S.C - S.T - O.B.C 1 MINORITY - GENERAL 10 TOTAL 11

ENROLLEMENT LIST WAS DISPLAYED ON NOTICE BOARD: (DATE) :-

S.R NO	Gender	Caste	Surname	First Name	Father's Name	Mother's Name	Contact Number	Email id	Blood Group	Branch	Class
1	Female	GENERAL	PATIL	JUI	VIJAY	MRUDULA	9552661929	juipatil1998@gmail.com	A+	Instrumentation	BE
2	Female	GENERAL	SWAIN	KOMAL	DILLIP	DEBAJANI	9930980661	komalswain123@gmail.com	B+	Instrumentation	BE
3	Female	OBC	SONAR	ADITI	RAMKRISHNA	SANGITA	9930189975	sonaraditi1999@gmail.com	A+	Instrumentation	BE
4	Male	GENERAL	SINGH	DEVBRAT	VINOD	SUMAN	9561625169	devsingh7875@gmail.com	B+	Instrumentation	BE
5	Male	GENERAL	REDDY	DWIJ	MUKESH	SAMATA	9757147300	dwij.reddy@gmail.com	B+	Instrumentation	BE
6	Male	GENERAL	MISTRY	BHAVIK	BHARATKUMAR	REENA	8983384893	Bmistry99@gmail.com	B+	Instrumentation	BE
7	Male	GENERAL	AGNIHOTRI	JITESH	VINOD	SEEMA	9082769018	jagnihotri84@gmail.com	A-	Instrumentation	BE
8	Male	GENERAL	JAIN	SANIL	RAJEEV	GEETA	8826599109	jain.sanil20@gmail.com	O+	Instrumentation	BE
9	Male	GENERAL	MULLA	AFRID	ABDUL SATTAR	PARVEEN	8983669946	afridmulla3107@gmail.com	O+	Instrumentation	BE
10	Male	GENERAL	JADHAV	SAHIL	GANPAT	SUREKHA	8108301909	Sahiljadhav2497@gmail.com	AB+	Instrumentation	BE
11	Male	GENERAL	SHINDE	ASHUTOSH	SANDEEP	SUCHITA	8976466447	ashutoshshinde047@gmail.com	A+	Instrumentation	BE

Signature of the Programme Officer /s (COLLEGE SEAL) Signature of the Principal

PRINCIPAL
VIDYAVARDHINI'S COLLEGE
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VASAI ROAD 401 202.

PROFORMA- IV –

NSS ENROLLEMENT LIST OF THE COLLEGE NSS UNIT.

NAME OF THE COLLEGE : VIDYAVARDHINI'S COLLEGE OF ENGG. & TECHNOLOGY, VASAI ROAD CLASS :TE INST YEAR : 2019-2020

NO. OF STUDENTS ENROLLED IN THIS CLASS: S.C — S.T — O.B.C 2 MINORITY — GENERAL 8 TOTAL 10

ENROLLEMENT LIST WAS DISPLAYED ON NOTICE BOARD: (DATE) :- ___________

S.R NO	Gender	Caste	Surname	First Name	Father's Name	Mother's Name	Contact Number	Email id	Blood Grp	Branch	Class
1	Female	GEN	RANE	PIYUSHA	RAVINDRA	PUSHPA	8806796266	piyusharane@gmail.com	A+	Instrumentation	TE
2	Female	GEN	WARANG	NEHAL	RATNAKAR	RAJASHREE	8450922293	nehal.warang3@gmail.com	A+	Instrumentation	TE
3	Female	GEN	SHIRKE	ADITI	JAYANT	DHANASHREE	8355819853	adi250199@gmail.com	B+	Instrumentation	TE
4	Female	GEN	RAMISETTY	HARIPRIYA	SARVESWARARAO	JYOTHI	9029452411	haripriyaramisetty@gmail.com	O+	Instrumentation	TE
5	Female	GEN	SAKPAL	SRUSHTI	SURESH	CHITRA	9967704858	srushtisak9931@gmail.com	O+	Instrumentation	TE
6	Male	GEN	BHONDE	RHISHIKESH	CHANDRAKANT	VANITA	8692893622	Rhishikesh27@gmail.com	O+	Instrumentation	TE
7	Male	GEN	JANGAM	ABHISHEK	SADASHIV	RASHMI	9765424193	jangamabhishek3@gmail.com	B+	Instrumentation	TE
8	Male	GEN	GOLE	DHIRAJ	VITTHAL	SANDHYA	9892254987	dhirajgole8001@gmail.com	O+	Instrumentation	TE
9	Male	OBC	DEVRUKHKAR	PRATHAMESH	PRAKASH	PRANITA	9511795996	Pd2741999@gmail.com	A+	Instrumentation	TE
10	Male	OBC	RATNAPARAKHEE	VISHNU	SANJAY	ASHWINI	9664602902	vratnaparakhee@gmail.com	B+	Instrumentation	TE

Signature of the Programme Officer /s

(COLLEGE SEAL)

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY ★ VASAI ROAD ★

Signature of the Principal

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PROFORMA- IV –

NSS ENROLLEMENT LIST OF THE COLLEGE NSS UNIT.

NAME OF THE COLLEGE : VIDYAVARDHINI'S COLLEGE OF ENGG. & TECHNOLOGY, VASAI ROAD CLASS :BE MECH YEAR : 2019-2020

NO. OF STUDENTS ENROLLED IN THIS CLASS: S.C 2 S.T – O.B.C 2 MINORITY – GENERAL 3 TOTAL 7

ENROLLEMENT LIST WAS DISPLAYED ON NOTICE BOARD: (DATE) :- ________

S.R NO	Gender	Caste	Surname	First Name	Father's Name	Mother's Name	Contact Number	Email id	Blood Grp	Branch	Class
1	Female	GENERAL	PRABHU	PRASEEDA	RAMMOHAN	SASIKALA	8097328910	praseedaprabhu98@gmail.com	B+	Mechanical	BE
2	Female	OBC	PEDNEKAR	KARUNA	KALIDAS	KAVITA	9969795146	karunapednekar@yahoo.in	A+	Mechanical	BE
3	Male	GENERAL	KUNCHUMUTHU	GOKUL	-	KANCHANA	7028170925	gokulk1731@gmail.com	B+	Mechanical	BE
4	Male	GENERAL	DESHMUKH	ABHISHEK	KALYAN	BHAGYASHREE	8369913819	abhishekdeshmukh336@gmail.com	A+	Mechanical	BE
5	Male	OBC	KHEUR	CHITRESH	SANJAY	SAMIDA	9702122541	kheurchitresh@gmail.com	AB+	Mechanical	BE
6	Male	SC	SUNERIA	NEIL	RAJAN	VARSHA	9967519737	neilcool1996@gmail.com	A+	Mechanical	BE
7	Male	SC	AMBOKAR	PRANAY	RAJAN	RASIKA	9930391261	pranayambokar99@gmail.com	B+	Mechanical	BE

Signature of the Programme Officer /s

(COLLEGE SEAL)

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY ★ VASAI ROAD ★

Signature of the Principal

PRINCIPAL
VIDYAVARDHINI'S COLLEGE
OF
ENGINEERING & TECHNOLOGY
VASAI ROAD 401 202.

PROFORMA- IV –

NSS ENROLLEMENT LIST OF THE COLLEGE NSS UNIT.

NAME OF THE COLLEGE : VIDYAVARDHINI'S COLLEGE OF ENGG. & TECHNOLOGY, VASAI ROAD CLASS :TE MECH YEAR : 2019-2020

NO. OF STUDENTS ENROLLED IN THIS CLASS: S.C 1 S.T – O.B.C 2 MINORITY – GENERAL 5 TOTAL 8

ENROLLEMENT LIST WAS DISPLAYED ON NOTICE BOARD: (DATE) :- ________

S.R NO	Gender	Caste	Surname	First Name	Father's Name	Mother's Name	Contact Number	Email id	Blood Group	Branch	Class
1	Male	GEN	BIRJE	MANAV	VILAS	VINITA	9029362675	manavbirje2324@gmail.com	O+	Mechanical	TE
2	Male	GEN	PAL	ANKIT	SHESHDHAR	SEEMA	9867622955	ankitpal9967@gmail.com	AB+	Mechanical	TE
3	Male	GEN	SHAIKH SIDDIQUI	TANZIL	IRFAN	KARIMUNNISA	9049608220	tanzilsiddiqui78692@gmail.com	O+	Mechanical	TE
4	Male	GEN	SINGHVI	RITIK	AMRUT	BHARTI	9699158208	ritiksinghvi1410.rs@gmail.com	B+	Mechanical	TE
5	Male	GEN	MANE	AJIT	SHANKAR	SAPANA	8425042160	Ajitmane0402@ gmail.com	O+	Mechanical	TE
6	Male	OBC	DHAMECHA	DEVESH	CHETAN	SEEMA	9594804940	deveshdhamecha@gmail.com	B+	Mechanical	TE
7	Male	OBC	HARSORA	JAY	SHAILESH	RAMA	7666376777	jayharsora12121999@gmail.com	O+	Mechanical	TE
8	Male	SC	SHINDE	SARVESH	DAYANAND	SMITA	9372473279	sarveshshinde001@gmail.com	B+	Mechanical	TE

Signature of the Programme Officer /s

(COLLEGE SEAL)

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY ★ VASAI ROAD ★

Signature of the Principal

PRINCIPAL
VIDYAVARDHINI'S COLLEGE
OF
ENGINEERING & TECHNOLOGY
VASAI ROAD 401 202.

PROFORMA- IV –

NSS ENROLLEMENT LIST OF THE COLLEGE NSS UNIT.

NAME OF THE COLLEGE : VIDYAVARDHINI'S COLLEGE OF ENGG. & TECHNOLOGY, VASAI ROAD CLASS :TE CIVIL YEAR : 2019-2020

NO. OF STUDENTS ENROLLED IN THIS CLASS: S.C 1 S.T – O.B.C – MINORITY – GENERAL 1 TOTAL 2

ENROLLEMENT LIST WAS DISPLAYED ON NOTICE BOARD: (DATE) :- ______

S.R NO	Gender	Caste	Surname	First Name	Father's Name	Mother's Name	Contact Number	Email id	Blood Group	Branch	Class
1	Male	GENERAL	SHARMA	RISHABH	PANKAJ	KAVITA	7261912701	rishabhsharma2k@gmail.com	AB+	Civil	TE
2	Male	SC	KHANDERAO	PREM	ASHOK	PANCHFULA	7410798069	PREMKHANDERAO@GMAIL.COM	A+	Civil	TE

Signature of the Programme Officer /s

(COLLEGE SEAL)

Signature of the Principal

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VIDYAVARDHINI'S COLLEGE
OF
ENGINEERING & TECHNOLOGY
VASAI ROAD 401 202.

PROFORMA- IV –

NSS ENROLLEMENT LIST OF THE COLLEGE NSS UNIT.

NAME OF THE COLLEGE : VIDYAVARDHINI'S COLLEGE OF ENGG. & TECHNOLOGY, VASAI ROAD CLASS :TE EXTC YEAR : 2019-2020

NO. OF STUDENTS ENROLLED IN THIS CLASS: S.C – S.T – O.B.C 1 MINORITY – GENERAL 1 TOTAL 2

ENROLLEMENT LIST WAS DISPLAYED ON NOTICE BOARD: (DATE) :- ________

S.R NO	Gender	Caste	Surname	First Name	Father's Name	Mother's Name	Contact Number	Email id	Blood Group	Branch	Class
1	Female	GENERAL	BHALALA	YUNIKA	ASHOKBHAI	KAILASBEN	9004650898	yunikabhalala2910@gmail.com	B-	EXTC	TE
2	Male	OBC	CHAUDHARI	OMKAR	KANCHAN	PADMAJA	8381016061	omkar.k.chaudhari@gmail.com	O+	EXTC	TE

Signature of the Programme Officer /s

(COLLEGE SEAL)

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY ★ VASAI ROAD ★

Signature of the Principal

PRINCIPAL
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OF
ENGINEERING & TECHNOLOGY
VASAI ROAD 401 202.

Click here for summary page

NSS Residential Camp – Palghar
Campsite – Prati Shirdi Saibaba Mandir, Village – kheltan, Taluka - Bhiwandi
25th February 2020 – 2 March 2020

Daily Schedule

Day & Date	Time	Activities
DAY-I Tuesday 25.02.20	9am sharp	Assembling at College Campus
	12 noon to 2pm	1)Induction Ceremony held in College Campus. 2) Reaching campsite, getting familiar with accommodation and facilities available 3)Do's and Don'ts inside the campus 4)Hanging banners at various locations 5) Group photo with banner at campsite
	2pm to 2:30pm	Group making & distribution of work
	2:30pm to 3pm	Prayer n Lunch
	3pm to 5pm	Inauguration of camp followed by address of Shri Ajay raut Saheb, Kheltan.
	5pm to 6pm	Seminar on "Pathway to Successful Living"
	6pm to 6:30pm	Tea break
	6:30pm to 8pm	Dinner preparation by kitchen team
	8pm to 9pm	Dinner and cleaning
	9pm to 9:30pm	Mobile phone allowed
	10pm	Lights off

P. O. N.S.S.

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY ★ VASAI ROAD ★

NSS Residential Camp – Palghar
Campsite – Prati Shirdi Saibaba Mandir, Village – kheltan, Taluka - Bhiwandi
25th February 2020 – 2 March 2020

Daily Schedule

Day & Date	Time	Activities
DAY-II Wednesday 26.02.20	6am to 7am	Wake up and freshen up
	7am to 8am	**Aerobics & Zumba on the ground**
	8am to 9am	Breakfast
	9am to 10am	**Poster Making and Rally Preparation**
	10am to 1pm	**Rally on theme "Save Girl Child" around Village**
	1pm to 2pm	Prayer and Lunch Preparation
	2pm to 3pm	Lunch
	3pm to 6:30pm	**Social Economic Survey & School Interaction**
	6:30pm to 7pm	Tea break
	7pm to 8pm	Dinner Preparation & Cooking
	8pm to 9pm	Dinner time
	10pm	**Lights off**

Day & Date	Time	Activities
DAY-III Thursday 27.02.2020	6am to 7am	Wake up and freshen up
	7am to 8am	Meditation on Ground
	8am to 9am	Breakfast
	9am to 1pm	**Primary School Competitions (Drawing & Handwriting)**
	1pm to 2pm	Prayer and Lunch Preparation
	2pm to 3pm	Lunch
	3pm to 5pm	**"Passing the Parcel" game & Result declaration to School students.**
	5pm to 5:30pm	Tea break
	5pm to 6pm	**Street Play on "Waste Management"**
	6pm to 6:30pm	Prayer in Prati Shirdi Saibaba mandir
	6:30pm to 10pm	**1. Rainwater Harvesting Awareness to Villagers.** **2. Food Preparation & Distribution to Villagers.**
	10pm to 11pm	Dinner time
	11pm to 12pm	**Wind Up Food Distribution**
	12pm	Lights off

VASAI ROAD

P.O. - N.S.S.

NSS Residential Camp – Palghar
Campsite – Prati Shirdi Saibaba Mandir, Village – kheltan, Taluka - Bhiwandi
25th February 2020 – 2 March 2020

Daily Schedule

Day & Date	Time	Activities
DAY-IV **Friday 28.02.2020**	6am to 7am	Wake up and freshen up
	7am to 8am	Excercise and yoga on the ground
	8am to 9am	Breakfast
	9am to 1pm	**1. WDC "Self Defense Workshop"** **2. WDC "Women Hygiene Seminar"** **3. Sports Competition for Seconday School.**
	1pm to 2pm	Prayer and Lunch Preparation
	2pm to 3pm	Lunch
	3pm to 5:30pm	**1. Talent Hunt For students** **2. Skipping Program** **3. Sports Competition Result Declaration & Prize Distribution**
	5:30pm to 6pm	Tea break
	6pm to 8pm	Dinner Preparation & Cooking
	8pm to 9pm	Dinner time
	10pm	**Lights off**

Day & Date	Time	Activities
DAY-V **Saturday 29.02.2020**	6am to 7am	Wake up and freshen up
	7am to 8am	Aerobics & Zumba on the ground
	8am to 9am	Breakfast
	9am to 1pm	**1. Water Quality Survey (Drinking Water Sampling)** **2. Career Guidance (8th & 9th Grade)** **3. Social Economic Survey**
	1pm to 2pm	Prayer and Lunch Preparation
	2pm to 3pm	Lunch
	3pm to 6pm	**1. Water Quality Survey (Drinking Water Sampling)** **2. MS-CIT Basic Computer Workshop (7th Grade)** **3. Social Economic Survey**
	6pm to 6:30pm	Tea break
	6:30pm to 7:30pm	Dinner Preparation & Cooking
	8pm to 9pm	Dinner time
	10pm	**Lights off**

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY ★ VASAI ROAD

P.O. N.S.S.

NSS Residential Camp – Palghar
Campsite – Prati Shirdi Saibaba Mandir, Village – kheltan, Taluka - Bhiwandi
25th February 2020 – 2 March 2020

Daily Schedule

Day & Date	Time	Activities
DAY-VI **Sunday 01.03.2020**	6am to 7am	Wake up and freshen up
	7am to 8am	Aerobics & Zumba on the ground
	8am to 9am	Breakfast
	9am to 1pm	**1. Solar Ambassador Workshop for Villagers** **2. Water Quality Survey (Drinking Water Sampling)**
	1pm to 2pm	Prayer and Lunch Preparation
	2pm to 3pm	Lunch
	3pm to 6pm	**1. Soil Quality Sampling** **2. Roadway to Village Survey** **3. Social Economic Survey**
	6pm to 6:30pm	Tea break
	6:30pm to 7:30pm	Dinner Preparation & Cooking
	8pm to 9pm	Dinner time
	10pm	**Lights off**

Day & Date	Time	Activities
DAY-VII **Monday 02.03.2020**	5am to 6am	Wake up and freshen up
	6am to 8am	Meditation
	8am to 9am	Breakfast
	9am to 12noon	**Valedictory session and Group photo**
	12 noon to 1pm	Departure from Camp Site
	3pm	**Arrival At College Campus**
	3pm to 3:30pm	Conclusion Ceremony by Programme Officer
	4pm	**Home sweet home**

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY ★ VASAI ROAD ★

P.O. - N.S.S.

Water quality Testing Report 19-20

Vidyavardhini's College of Engineering & Technology

K. T. Marg, Near Railway Station, Vasai Road(W), Dist. Palghar, Pin. 401202

Activity Report

Academic Year	2019-20
Title of the activity	water quality survey
Date of the activity	29-02-2020
Description of the activity	Volunteers divided into 3 groups, & did water sampling
Venue of the event	kelthan
Organizing committee	NSS - VCET
Number of participants	55

Dr. Pradip Gulbhile
Programme Officer, NSS
VCET, Vasai

Vidyavardhini's College of Engineering & Technology

K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2019-20)

Date - 29th Feb, 2020

To,

The Principal

VCET

Subject: Report on Water Quality Survey Village, Kelthan

Respected Sir,

NSS VCET organized an NSS Residential Camp from February 26th, 2024, to March 1st, 2024.

A water quality survey was conducted on the fourth day of the NSS Residential Camp in Kelthan village.

NSS volunteers were divided into 3 groups. 200 water samples were collected from various places throughout the village to check the quality of water utilized by people.

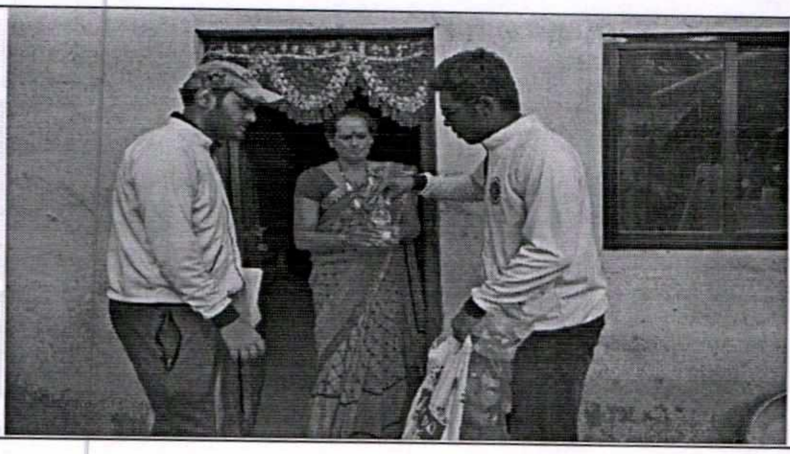
The objective of this event is to check the drinking water quality of the village. All the participants worked hard to collect samples across the village.

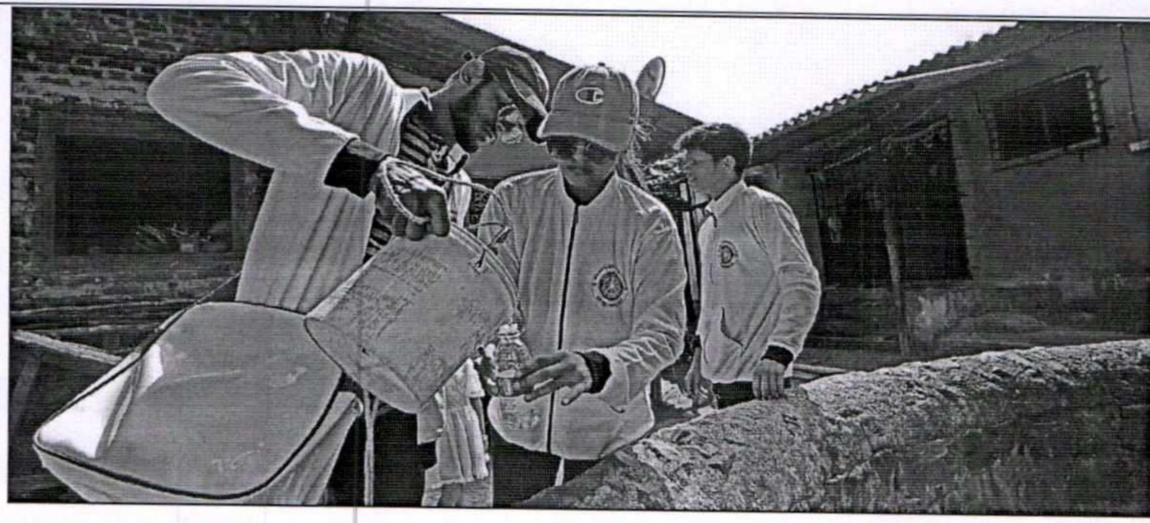
Thank you.

Dr. Pradip Gulbhile,

Programme Officer,

NSS





Report on Water Quality Testing of Kelthan Village, Wajreshwari

A Residential Camp of 07 days from 25/02/22020 to 02/03/2020 was arranged by NSS group of Vidyvardhinis College of Engineering and Technology, Vasai at Saibaba Temple, Shree Eshwardham Trust, village- Kelthan near Wajreshwari. Along with the Programme Officer, Dr. Pradip Gulbhile, 36 students and few faculty members were part of this Camp.

In view of Development of the village , water samples from village were collected on 01/03/2020 for testing their quality. The different sources from which water samples were collected were Tap water, Bore well, Well and Hand Pump and these samples were tested in Environmental Engineering Laboratory of the College. The samples were tested by the students of T.E. Civil namely Rishabh Sharma, Dhammadip Kamble, Prem Khanderao and Aniket Agavane under the guidance of Staff and Lab Incharge Asst.Prof. Puja Kadam.

The Observations and Conclusions made on testing of Water Samples are as follows:

1. Determination of pH of water sample:

a. Tap water

Sr. No.	Temperature	P
1	28°C	8.7
2	28°C	8.6
3	28°C	8.5

The average Ph of Tap water Sample is 8.60

b. **Well**

Sr. No.	Temperature	pH
1	28⁰C	8.46
2	28⁰C	8.31
3	28⁰C	8.27
4	28⁰C	8.46
5	28⁰C	8.46

The average Ph of Well water Sample is 8.39

c. **Bore Well**

Sr. No.	Temperature	pH
1	28⁰C	8.55
2	28⁰C	8.72
3	28⁰C	8.62
4	28⁰C	8.50
5	28⁰C	8.56

The average Ph of Bore Well water Sample is 8.59

d. **Hand Pump**

Sr. No.	Temperature	Ph
1	28°C	8.79
2	28°C	8.54
3	28°C	8.33
4	28°C	8.98
5	28°C	8.56

The average Ph of Hand Pump water Sample is 8.64

2. Determination of Dissolved Oxygen (D.O.) of Water Sample:

a. **Tap water**

Sr. No.	Temperature	D.O. (mg/l)
1	28°C	6
2	28°C	5.4
3	28°C	5.6

The average D.O. of Tap water Sample is 5.67mg/l

b. **Well**

Sr. No.	Temperature	D.O. (mg/l)
1	28°C	8.4
2	28°C	7.7

3	28°C	6.6
4	28°C	6.4
5	28°C	8.4

The average D.O. of Well water Sample is 7.5 mg/l

c. **Bore Well**

Sr. No.	Temperature	D.O. (mg/l)
1	28°C	3.0
2	28°C	3.8
3	28°C	4.2
4	28°C	3.3
5	28°C	3.6

The average D.O. of Bore Well water Sample is 3.58 mg/l

d. **Hand Pump**

Sr. No.	Temperature	D.O. (mg/l)
1	28°C	5.8
2	28°C	4.4
3	28°C	5.1
4	28°C	6.1
5	28°C	4.2

The average D.O. of Hand Pump water Sample is 5.12 mg/l

3. Determination of Turbidity of Water Sample:

Turbidty is a measure of the degree to which the water loses its transparency due to the presence of suspended particulate matter.

a. Tap Water

Sr. No.	Turbidity (NTU)
1	8
2	11
3	10

The average Turbidity of Tap Water water Sample is 9.6 NTU

b. Well

Sr. No.	Turbidity (NTU)
1	16
2	10
3	14
4	15
5	15

The average Turbidity of Well Water water Sample is 14 NTU

c. Bore Well

Sr. No.	Turbidity (NTU)

1	12
2	11
3	11
4	11
5	11

The average Turbidity of Bore Well Water Sample is 11.2 NTU

d. **Hand Pump**

Sr. No.	Turbidity (NTU)
1	10
2	12
3	13
4	15
5	11

The average Turbidity of Tap Water Sample is 12.2 NTU

4. Determination of Hardness of Water Sample:

a. **Tap Water**

Sr. No.	Volume of Sample (ml)	Burette Reading (ml)		Volume of EDTA (ml)
		Initial	Final	
1	20	1	4.5	3.5
2	20	4.5	8.5	4
3	20	8.5	11.5	3
4	20	11.5	15.4	3.9
Average Volume of EDTA used				**3.6**

Calculation:

Normality of EDTA = N= 0.02 N

Equivalent weight of $CaCO_3$ = 50

Volume of Sample Taken = 20ml

Volume of EDTA used= 3.6 ml

Total Hardness in mg/l of $CaCO_3$ =[(Volume of EDTA used X N X 50) / (Volume of Sample taken)] X 1000

= [(3.6 X 0.02 X 50)/ 20] X 1000

= **180 mg/l**

b. **Well**

Sr. No.	Volume of Sample (ml)	Burette Reading (ml)		Volume of EDTA (ml)
		Initial	Final	
1	20	15.4	18.5	3.1
2	20	21.5	26.8	5.3
3	20	26.8	31.5	4.7
4	20	31.5	35.4	3.9
5	20	35.4	39.2	3.8
Average Volume of EDTA used				**4.16**

Calculation:

Normality of EDTA = N= 0.02 N

Equivalent weight of $CaCO_3$ = 50

Volume of Sample Taken = 20ml

Volume of EDTA used= 4.16 ml

Total Hardness in mg/l of $CaCO_3$ =[(Volume of EDTA used X N X 50) / (Volume of Sample taken)] X 1000

= [(4.16 X 0.02 X 50)/ 20] X 1000

= **208 mg/l**

c. **Bore Well**

Sr. No.	Volume of Sample (ml)	Burette Reading (ml)		Volume of EDTA (ml)
		Initial	Final	
1	20	39.2	42.5	3.3
2	20	42.5	46.6	4.1
3	20	1	5.5	4.5
4	20	9.5	12.4	2.9
5	20	12.4	16.2	3.8
Average Volume of EDTA used				**3.72**

Calculation:

Normality of EDTA = N= 0.02 N

Equivalent weight of $CaCO_3$ = 50

Volume of Sample Taken = 20ml

Volume of EDTA used= 3.72 ml

Total Hardness in mg/l of $CaCO_3$ =[(Volume of EDTA used X N X 50) / (Volume of Sample taken)] X 1000

= [(3.72 X 0.02 X 50)/ 20] X 1000

= **186 mg/l**

d. **Hand Pump**

Sr. No.	Volume of Sample (ml)	Burette Reading (ml)		Volume of EDTA (ml)
		Initial	Final	
1	20	16.2	20	3.8
2	20	20	22.5	2.5
3	20	22.5	26.1	3.6
4	20	31.1	35	3.9
5	20	35	38.8	3.8
Average Volume of EDTA used				**3.52**

Calculation:

Normality of EDTA = N= 0.02 N

Equivalent weight of $CaCO_3$ = 50

Volume of Sample Taken = 20ml

Volume of EDTA used= 3.52 ml

Total Hardness in mg/l of $CaCO_3$ =[(Volume of EDTA used X N X 50) / (Volume of Sample taken)] X 1000

= [(3.52 X 0.02 X 50)/ 20] X 1000

= **176 mg/l**

5. Determination of Chlorides in water sample:

a. **Tap Water**

Sr. No.	Volume of Sample (ml)	Burette Reading (ml)		Volume of $AgNO_3$ (ml)
		Initial	Final	
1	20	0.4	0.8	0.4
2	20	0.8	1.2	0.4
3	20	1.2	1.7	0.5
Blank	20	0	0.4	0.4
Average Volume of $AgNO_3$ used				**0.43**

Calculation:

Normality of $AgNO_3$ = N= 0.0282 N

Equivalent weight of Chlorine= 35.45

Volume of Sample Taken = 20ml

Volume of $AgNO_3$ used= 0.43 ml

Chlorides in mg/l =[(Volume of $AgNO_3$ used X N X 35.45) / (Volume of Sample taken)] X 1000

= [(0.43 X 0.0282 X 35.45)/ 20] X 1000

= 21.49 mg/l

b. **Well**

Sr. No.	Volume of Sample (ml)	Burette Reading (ml)		Volume of $AgNO_3$ (ml)
		Initial	Final	
1	20	1.7	2.5	0.8
2	20	2.5	3.5	1.0
3	20	3.5	3.7	0.2
4	20	3.7	4.3	0.6
5	20	4.3	5.4	1.1
Average Volume of $AgNO_3$ used				**0.74**

Calculation:

Normality of $AgNO_3$ = N= 0.0282 N

Equivalent weight of Chlorine= 35.45

Volume of Sample Taken = 20ml

Volume of $AgNO_3$ used= 0.74 ml

Chlorides in mg/l =[(Volume of $AgNO_3$ used X N X 35.45) / (Volume of Sample taken)] X 1000

= [(0.74 X 0.0282 X 35.45)/ 20] X 1000

= 36.98 mg/l

c. **Bore Well**

Sr. No.	Volume of Sample (ml)	Burette Reading (ml)		Volume of $AgNO_3$ (ml)
		Initial	Final	
1	20	5.4	7.2	1.8
2	20	7.2	8.3	1.1
3	20	8.3	9.1	0.8
4	20	9.1	9.7	0.6
5	20	9.7	12.5	2.8
Average Volume of $AgNO_3$ used				**1.42**

Calculation:

Normality of $AgNO_3$ = N= 0.0282 N

Equivalent weight of Chlorine= 35.45

Volume of Sample Taken = 20ml

Volume of $AgNO_3$ used= 1.42 ml

Chlorides in mg/l =[(Volume of $AgNO_3$ used X N X 35.45) / (Volume of Sample taken)] X 1000

= [(1.42 X 0.0282 X 35.45)/ 20] X 1000

= 70.97 mg/l

d. Hand Pump

Sr. No.	Volume of Sample (ml)	Burette Reading (ml)		Volume of $AgNO_3$ (ml)
		Initial	Final	
1	20	12.5	14.9	2.4
2	20	14.9	17.1	2.2
3	20	17.1	17.9	0.8
4	20	17.9	18.8	0.9
5	20	18.8	19.4	0.6
Average Volume of $AgNO_3$ used				**1.38**

Calculation:

Normality of $AgNO_3$ = N= 0.0282 N

Equivalent weight of Chlorine= 35.45

Volume of Sample Taken = 20ml

Volume of $AgNO_3$ used= 1.38 ml

Chlorides in mg/l =[(Volume of $AgNO_3$ used X N X 35.45) / (Volume of Sample taken)] X 1000

= [(1.38 X 0.0282 X 35.45)/ 20] X 1000

= 68.97 mg/l

Conclusion:

Characteristic	Types of Water Sample`	B.I.S Limits for Drinking

s of Water					Water	
	Tap Water	Well Water	Bore Well	Hand Pump	Requirement (Acceptable Limit)	Permissible limit in absence of Alternate Source
pH	8.60	8.39	8.59	8.64	**6.5-8.5**	**No Relaxation**
D.O. (mg/l)	5.67	7.5	3.58	5.12	**> 5**	-
Turbidity (N.T.U)	9.6	14	11.2	12.2	**1**	**5**
Hardness (mg/l)	180	208	186	176	**200**	**600**
Chlorides (mg/l)	21.49	36.98	70.97	68.97	**250**	**1000**

Classification of Water on the basis of Total Hardness

Total Hardness (mg/l)	Nature
0-60	Soft
61-120	Moderate
121-180	Hard
>181	Very Hard

Conclusion : From the above tables, it thus concludes :

- The tapwater and handpump water have pH on higher level on alkaline side and hence not safe for drinking in terms of pH

- D.O. Level of Borewell is very low and hence not safe for dinking in terms of D.O
- The turbidity of Well water, Bore Well and Hand pump water is very high and not safe for drinking in terms of turbidity
- The hardness of Tap water ,Well water, Bore Well and Hand pump water is high and it indicates very hard water

Students of T.E. Civil who tested the Water Quality

COLLEGE OF ENGINEERING & TECHNOLOGY VIDYAVARDHINI'S CIVIL Engg

HEAD
DEPT OF CIVIL ENGG.
Vidyavardhini's College of Engineering & Technology
Vasai Road (W)-401202.

Asst. Professor.
Civil Engg. Dept.
Env. Engg. Lab. Incharge

Vidyavardhini's College Of Engineering & Technology, Vasai (W).

WATER QUALITY SURVEY

Sampling, Testing & Analysis.

NSS UNIT

Bottle No.	Householder's Name	Source of Water	Health Issues (If Any)	No. of Family Members
1	Namdev Jadhav	Well	Joint Problem	6
2	Ramchandra Shivam Patil	Bore Well	-	5
3	Sandip Ganpat Patil.	Bore Well	Knee Problem	4
4	Santosh Madavi	Well	-	6
5	Pandurang Patil	Hand Pump	-	6
6	Jagan Patil	Hand Pump	Joint Problem	5
7	Anita Pandurang Tumbra	Hand Pump	-	10
8	Karuna Bhoir	Well	-	5
9	Anil Chaturya	Hand Pump	Kidney Problem	4
10	Sunita Gharat	Well	Respiratory issue	11
11	Mahesh Jadhav	Well	-	4
12	Karishma Patil	Well	BP/Diabeties	5
13	Harishchandra Kanna Jadhav	Bore Well	Diabeties	3
14	Bhagyashree Patil	Well	-	10
15	Barku Bhuyal	Hand Pump	-	5
16	Anatita Patil.	Well	-	5
17	Ankush Bhuyal.	Hand Pump	Back pain/Joint	7
18	Ramchandra Patil.	Bore Well	BP.	5
19	MohanBhau Jadhav	Bore Well	-	3
20	Mahesh Baban Tumbada	Well	-	3
21	Raigovind Kachare	Hand Pump	-	6
22	Kasturi Chatury	Well	-	6
23	Suresh Jadhav	Well	-	4
24	Kaveri Patil	Well	Joint/Backpain.	3
25	Anant Patil	Well	-	9
26	Mohan Patil	Bore Well	-	4
27	Savita Girane	Well	Joint Problem	4
28	Dayanand Chature	Well	-	4
29	Sanjay Patil.	Well	BP	10
30	Nakul Bhuyal.	Well	BP/Diabetes.	5

Borewell (GW) Muncipal Supply (MS) Well (W) - Mention if any other source of water supply.

Vidyavardhini's College Of Engineering & Technology, Vasai (W).

WATER QUALITY SURVEY

Sampling, Testing & Analysis.

NSS UNIT

Bottle No.	Householder's Name	Source of Water	Health Issues (If Any)	No. of Family Members
31	Ramchandra Ambo Jadhav	Bore well		5
32	Sumanta Navsu Raut	Bore well		1
33	Akshay Ananta Jadhav	Well		5
34	Avanti Ajit Tumbda	Bore well		6
35	Vasant Sadanand Zhate	Bore well		7
36	Goma Bhagya Tumbda	Bore well		3
37	Ramesh Shankar Jadhav	Bore well		5
38	Gurunath Shivram Zhate	Bore well		10
39	Toluram Chima Jadhav	Bore well		6
40	Dayanand Ananta Jadhav	Hand Pump		4
41	Ananta Chima Jadhav	Hand Pump		6
42	Haresh Ramchandra Bhopi	Hand Pump		3
43	Naresh Nathu Padosa	Hand Pump		6
44	Dhau Bhagya Tumbda	Bore well		6
45	Yashwant Ganpat Jadhav	Bore well		6
46	Nanaji Jhipru Patil	Bore well		3
47	Kalpana Raghunath Jadhav	Bore well		3
48	Ramesh Govind Farad	Well		5
49	Narmada Naresh Pawar	Well		3
50	Haribhau Mithu Patil	Well		5
51	Vishram Bhidu Thakrey	Bore well		2
52	Hemant Ramachandra Bhopi	Bore well		3
53	Vithal Bapu Padosa	Bore well		6
54	Chandrakant Shivram Jadhav	Bore well		6
55	Ganesh Namdev Patil	Bore well		8
56	Damodar Gopal Patil	Hand Pump		2
57	Jaywant Gopal Pandav	Bore well		6
58	Suresh L. Pawar	Bore well		4
59	Meena Dhau Tumbda	Bore well		6
60	Ranjana Raghunath Zhate	Bore well.		7

Borewell (GW) Muncipal Supply (MS) Well (W) - Mention if any other source of water supply.

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Vidyavardhini's College Of Engineering & Technology, Vasai (W).

WATER QUALITY SURVEY

Sampling, Testing & Analysis.

NSS UNIT

Bottle No.	Householder's Name	Source of Water	Health Issues (If Any)	No. of Family Members
61	Balu Maruti Boswat	W	N. –	7
62	Shyam Narayan Pavar	W	Diarrhea	7
63	Sanjay Amrut Padosa	W	Viral Fever	6
64	Narendra Jadhav	GW	–	4
65	Anita Santosh Dagle	W	Viral Fever	6
66	Yogesh Baban Tumbda	GW	–	4
67	Mangesh N. Ganeshkar	T	–	6
68	Pramod Bhaskar Raut	GW	Diarrhea	3
69	Josna Jagdish Patil	GW	–	5
70	Hemant Dhau Maskar	T	–	5
71	SURESH PANDU PAWAR	W	–	4
72	Sharmila Shashikant Yadav	GW	–	4
73	Sharmila Shreedhar wanghale	GW	Viral Fever	2
74	Sachin Manze	GW	–	4
75	Kathoad Tumbada	GW	–	4
76	RAMCHANDRA BAPO	GW	–	4
77	Budhaj Shivram Zhate	GW	–	5
78	Ashok Raghanath Salunkhe	GW	–	2
79	Suresh Baghya Padhusa	GW	Viral Fever	8
80	Yogini Yogesh Kachre	GW	–	6
81	Ranjana Raghunath Patil	GW	–	6
82	Ganesh Gopal Patil	GW	–	3
83	Ritik Atul Kamle	GW	–	2
84	Yogesh Chandra Jadhav	W	–	5
85	More Rakesh Patil	W	–	3
86	Mahesh Jeepru Patil	W	Diarrhea	2
87	Nakul Sanket Kamath	T	Viral Fever	4
88	Ravindr Sarthak Jadhav	GW	–	5
89	Rakesh Nakul Kahadane	W	–	3
90.	Ajay Nitin Kamle	GW	–	4

Borewell (GW) Muncipal Supply (MS) Well (W) - Mention if any other source of water supply.

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Vidyavardhini's College Of Engineering & Technology, Vasai (W).

WATER QUALITY SURVEY

Sampling, Testing & Analysis.

NSS UNIT

Bottle No.	Householder's Name	Source of Water	Health Issues (If Any)	No. of Family Members
91	Sunita Sunil Bhopi	Borewell		5
92	Prakash Nashik Garesthkar	Borewell		6
93	Bharat Ravindra Garesnkar	Borewell		6
94	Potya Nago Garesthkar	Borewell		6
95	Harishchandra Gangaram Jadhav.	Well	BP/Diabetes	4
96	Subhash Tukaram Gharat.	Borewell	-	2
97	Santosh Desle	Hand pump	-	4
98	Sadu Tumbara.	Hand pump.	BP/Joint pain	5
99	Bharat Khursange	well	-	3
100	Ramdas Kadam	Bore well	-	7

Borewell (GW) Muncipal Supply (MS) Well (W) - Mention if any other source of water supply.

group 1

Vidyavardhini's College Of Engineering & Technology, Vasai (W).

WATER QUALITY SURVEY

Sampling, Testing & Analysis.

NSS UNIT

Bottle No.	Householder's Name	Source of Water	Health Issues (If Any)	No. of Family Members
101	Krutika Gharat	well	joint pain	6
102	Gurudev Solkar	Hand-pump	-	5
103	Ramu Bhasm	Hand-pump	-	4
104	Krishna Tumbara.	Hand-pump	-	3
105	Magesh. Edne	Borewell	-	5
106	Suresh Tumbara	Well	Joint problem	4
107	Tukaram Kadam	Tap	-	6
108	Dhondiba Kasare	Borewell	-	4
109	Santosh Eyedne	well	Backpain	5
110	Mangesh Charan	Borewell	-	7
111	Aniket Patil	Borewell	-	3
112	Premraj Patil	well	-	4
113	Kondiram Patil	Handpump	BP / Diabetes	7
114	Sakharam Jadhav.	Well	-	5
115	Shekhar Kelkar	Handpump	-	6
116	Anil Patil.	Well	Paralysis	3
117	Avinash Tumbara.	Borewell	-	6
118	Tulsiram Patil	Hand pump	-	5
119	Sharad Jadhav	Borewell	Sugar	4
120	Ramesh Jadhav	Hand pump	Joint pain	4
121	Akshay Jadhav	Well	-	6
122	Dhananjay Kelkar	Handpump	-	7
123	Santoba Kale	Handpump	-	3
124	Mahadev Sonavane	Borewell/Well	BP	6
125	Uttam Raut	Borewell	-	5
126	Manohar Kamble	well	Aakdi (आकडी)	3
127	Kushal Kamble	Tap	-	6
128	Bhagvan Gharat	Borewell	-	4
129	Tanaji Gharat	Hand pump.	Joint problem	5
130	Chandrakant Shinde.	Well	Knee / Back/ Joint	7

Borewell (GW) Muncipal Supply (MS) Well (W) - Mention if any other source of water supply.

GROUP - 2

Vidyavardhini's College Of Engineering & Technology, Vasai (W).

WATER QUALITY SURVEY

Sampling, Testing & Analysis.

NSS UNIT

Bottle No.	Householder's Name	Source of Water	Health Issues (If Any)	No. of Family Members
131	Dayanand Chima Bhopi	W	Jaundice	5
132	Akash Krishna Tumbda	GW	-	6
133	Jagdish Kanu Zhate	GW	-	6
134	Kavita Shivram Jadhav	GW	Diahoria	7
135	Vanita Atish Zhate	GW	-	5
136	Bharat Bhagya Tumbda	HP	-	10
137	Balu Nago Ganeshkar	HP	-	4
138	Mahesh Nathu Tumbda	HP	Jaundice	6
139	Hari Ramu Padosa	HP	-	7
140	Hema Govind Jadhav	HP	-	6
141	Shivram Ramchandra Bhopi	HP	Stomatch ache	6
142	Rachna Anant Jadhav	W	-	6
143	Prakash Shivu Jadhav	W	-	8
144	Samanta V. Maskar	W	Jaundice	3
145	Naresh Shivu Jadhav	HP	Stomatch ache	5
146	Ananta Raju Padosa	HP	-	6
147	Rakesh Suresh Padosa	HP	-	7
148	Hitesh Arjun Manvi	HP	-	6
149	Amol Prakash Bhuyal	W	Diarrhoria	6
150	Abhishek Sushant Patil	W	-	5
151	Dinesh Krishna Kothavna	W	-	7
152	Abhijit Manohar Gore	W	-	8
153	Prathmesh Toluram Patil	W	Diarrhea	6
154	Ajay Balu Atkari	GW	-	6
155	Arun Hitesh Patil	GW	-	5
156	Vishal Dinesh Raut	GW	-	5
157	Raghu Potya Padosa	GW	-	7
158	Kisan Dattaram Zhate	HP	-	10
159	Deva Manohar Jadhav	HP	-	3
160	Jagdish Balu Raut	HP	-	4
~~161~~				

Borewell (GW) Muncipal Supply (MS) Well (W) - Mention if any other source of water supply.

Hand Pump (HP)

Group-3 1/3/20

Vidyavardhini's College Of Engineering & Technology, Vasai (W).

WATER QUALITY SURVEY

Sampling, Testing & Analysis.

NSS UNIT

Bottle No.	Householder's Name	Source of Water	Health Issues (If Any)	No. of Family Members
161	Priyanka Patil	GW	–	4
162	Anusaya Jadhav	GW	Cough	3
163	Pandhari Bhuyal	GW	–	4
164	Ramesh Afrari	GW	Joint Pain	5
165	Vijay Mali	GW	–	3
166	Ajit Patil	GW	–	4
167	Reshma Jadhav	GW	–	6
168	Rajat Sutar	W	–	7
169	Hari Manvi	W	–	8
170	Prathamesh Kothavna	W	–	4
171	Manohar Mysterig	W	–	4
172	Dattaram Jadhav.	W	–	4
173	Amol Patil	W	–	3
174	Dayanand Afrari	W	Viral Fever	2
175	Vishal Zhate.	W	–	4
176	Balu Bhuyal.	W	–	3
177	Jagdish Kale.	GW	–	3
178	Nathu Padosa	W	–	5
179	Shiva Rane.	GW	–	6
180	Tukaram Raut.	GW	–	5
181	Bala Kokane.	W	–	5
182	Raja Mali	W	Stomach Ache.	4
183	Rajaram Gole.	W	Viral Fever	3
184	Vijyakant Bhole	GW	–	3
185	Ramesh Bhoye.	GW	–	4
186	Anish Patil	W	Cough	3
187	Suresh Kokane.	W	Cough	3
188	Rachna Maskar	W	–	3
189	Radhabai Jadhav	W	Viral Fever.	4
190	Tanvi Patil.	GW	–	4
191	Deva. Shinde	GW	–	6
192	Baburam Mali	GW	–	5

Borewell (GW) Muncipal Supply (MS) Well (W) - Mention if any other source of water supply.

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Vidyavardhini's College Of Engineering & Technology, Vasai (W).

WATER QUALITY SURVEY

Sampling, Testing & Analysis.

NSS UNIT

Bottle No.	Householder's Name	Source of Water	Health Issues (If Any)	No. of Family Members
191	Krishna Jadhav	GW	–	7
192	Mahesh Kelkar	GW	–	10
193	Hitesh Sonavane	GW	Jaundice	6
194	Jagdish Yedne	W	–	6
195	Tukaram Ganeshkar	W	Stomatch ache	6
196	Shivram Bhasm	HP	–	5
197	Kisan Gharat	HP	–	3
198	Naresh Gharat	HP	Jaundice	5
199	Mangesh Maskar	HP	–	5
200	Nathu Patil	W	–	5

Borewell (GW) Muncipal Supply (MS) Well (W) - Mention if any other source of water supply.

Hand Pump (HP)

Vidyavardhini's College of Engineering & Technology

K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2019-20)

Sr. No	Name	Year
1	Vipul Bhoir	BE
2	Vaibhav Rai	BE
3	Shravan Tawde	BE
4	Aryan Parab	BE
5	Sanjana Tiwari	BE
6	Aniket Jha	BE
7	Prachi Shah	BE
8	Tanzil Irfan Shaikh	BE
9	Roma Dhake	BE
10	Dhrumil Bhatt	BE
11	Rishabh Sharma	BE
12	Sayali Gupta	BE
13	Amey Chaudhari	BE
14	Siddharth Chakravarty	BE
15	Vaishnavi Gaikwad	BE
16	Riya Raut	BE
17	Prem Khanderao	BE
18	Meet Mehta	BE
19	Gargi Betawadkar	BE
20	Umesh Jadhav	BE
21	Abhishek Deshmukh	BE
22	Dhiraj Raut	TE
23	Pratik Jadhav	TE
24	Devbhatt singh	TE
25	Nohal Warang	TE
26	Disha Pote	TE
27	Heramb Botawadkar	TE
28	Sarvesh Shinde	TE
29	Praseeda Prabhu	TE
30	Aditi Rathod	SE
31	Rithesh Shetty	TE
32	Bhavik Mistry	TE
33	Ujjwal Upadhyay	TE
34	Dinesh Ahire	TE
35	Chetan Jawale	TE
36	Rishabh Sharma	SE
37	Ankur Saha	SE
38	Tejas Chonkar	SE
39	Aryan Kore	SE
40	Komal Swain	SE

41	Sanika Patil	SE
42	Yash Doke	SE
43	Bhavesh Gosavi	SE
44	Divya Singh	SE
45	Anushka Supe	SE
46	Jitesh Agnihotri	SE
47	Pawan Patil	SE
48	Sahil Jadhav	SE
49	Anagha Francis	SE
50	Akash Mourya	SE
51	Raul Arya	SE
52	Anushka Jagtap	SE
53	Aditi Shirke	SE
54	Rahul Shah	SE
55	Bhakti Raigawali	SE

Vidyavardhini's College of Engineering & Technology

K. T. Marg, Near Railway Station, Vasai Road(W), Dist. Palghar, Pin. 401202

Activity Report

Academic Year	2021 - 22
Title of the activity	TREE PLANTATION
Date of the activity	28 - 07 - 2021
Description of the activity	Tree plantation drive on the occasion of World Nature Conservation Day between 28th July to 15th August 2021
Venue of the event	VCET
Organizing committee	NSS VCET
Number of participants	53

Dr. Pradip Gulbhile
Programme Officer, NSS
VCET, Vasai

Vidyavardhini's College of Engineering & Technology
K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2021-22)

Date:- 28 July 2021

To,
The Principal
VCET.

Subject: Report on Tree Plantation Drive, 28 July 2021

The NSS Committee of Vidyavardhini's College of Engineering and Technology, Vasai organised a Tree Plantation Drive on the occasion of World Nature Conservation Day between 28th July, 2021 and 15th August, 2021. Due to the pandemic situation, this campaign was implemented by the participants in the comfort of their home.

Since mass gatherings were not possible and were not allowed, the participants were asked to plant saplings in their respective locality and share their pictures while planting. The main objective of this campaign was to raise awareness and consciousness about the environment among the people. This is an important step of afforestation to maintain ecological balance of nature. Planting trees is especially important to protect our environment against air pollution and global warming.

This event was a huge success, empowering students with substantial knowledge of the environment and plants.

Thank You,

Dr.Pradip Gulbhile
Programme Officer
NSS

Tree Plantation, 2021-2022

Tree Plantation, 2021-2022

PO-NSS

Vidyavardhini's College of Engineering & Technology

K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2021-22)

Tree Plantation 2021-22		
Email	Name	Branch
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sanskruti.202014207@vcet.edu.in	Sanskruti Rajkumar Kokare	Information Technology
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riddhi.201884201@vcet.edu.in	Riddhi Chavda	IT
sunda11751@gmail.com	Sundar Chaudhary	Mechanical

P.O. NSS

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sahil.201012101@vcet.edu.in	Sahil Swapnil Patil	MECHANICAL

53

RAGINI NAIR
N.SS LEADER

URMIKSHA TAWADE
UDAAN PRESIDENT

Tree Plantation 2020-21

Vidyavardhini's College of Engineering & Technology

K. T. Marg, Near Railway Station, Vasai Road(W), Dist. Palghar, Pin. 401202

Activity Report

Academic Year	2020-21
Title of the activity	Tree Plantation in Society
Date of the activity	01/03/21
Description of the activity	Tree plantation programme was succesfully done in the nearby gardens and locality. Due to COVID only few people were able to participate.
Venue of the event	VCET
Organizing committee	NSS VCET
Number of participants	35

Dr. Pradip Gulbhile
Programme Officer, NSS
VCET, Vasai

Vidyavardhini's College of Engineering & Technology
K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2020-21)

Date –1st March 2021

To,
The Principal
VCET

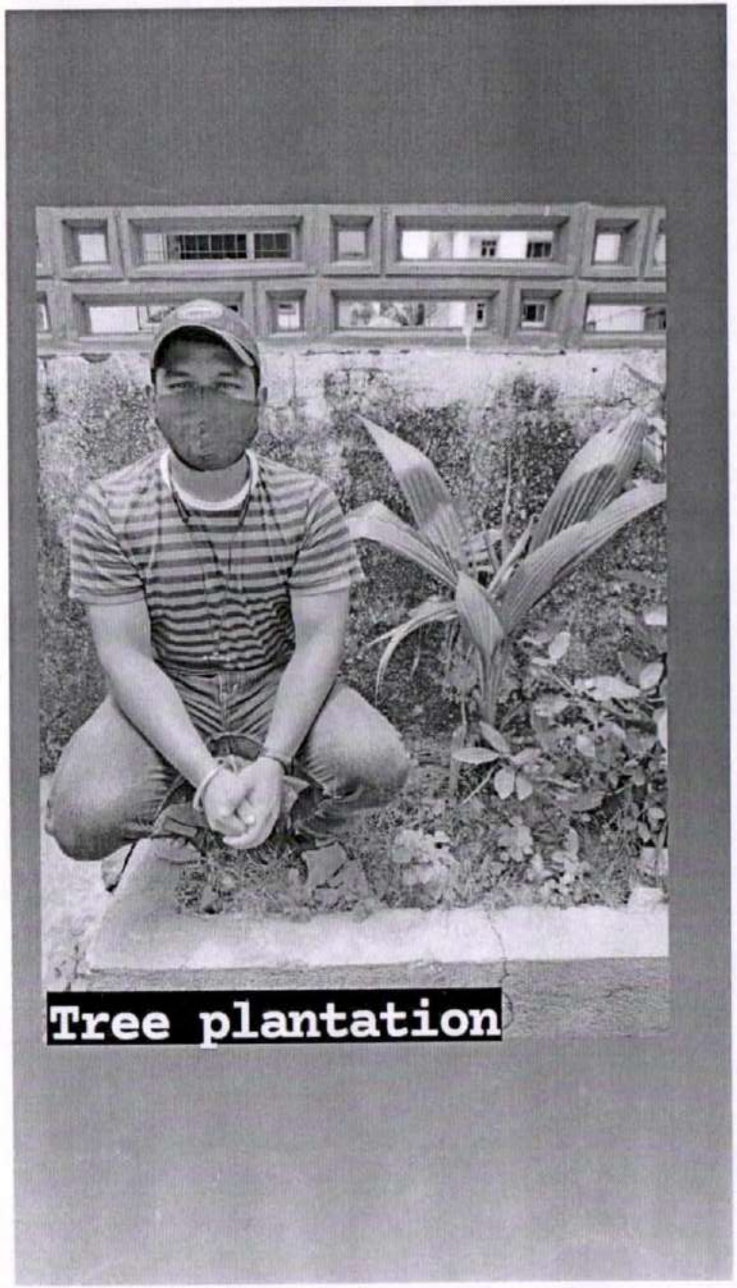
Subject: Report on Tree Plantation in Society

Dear Sir,

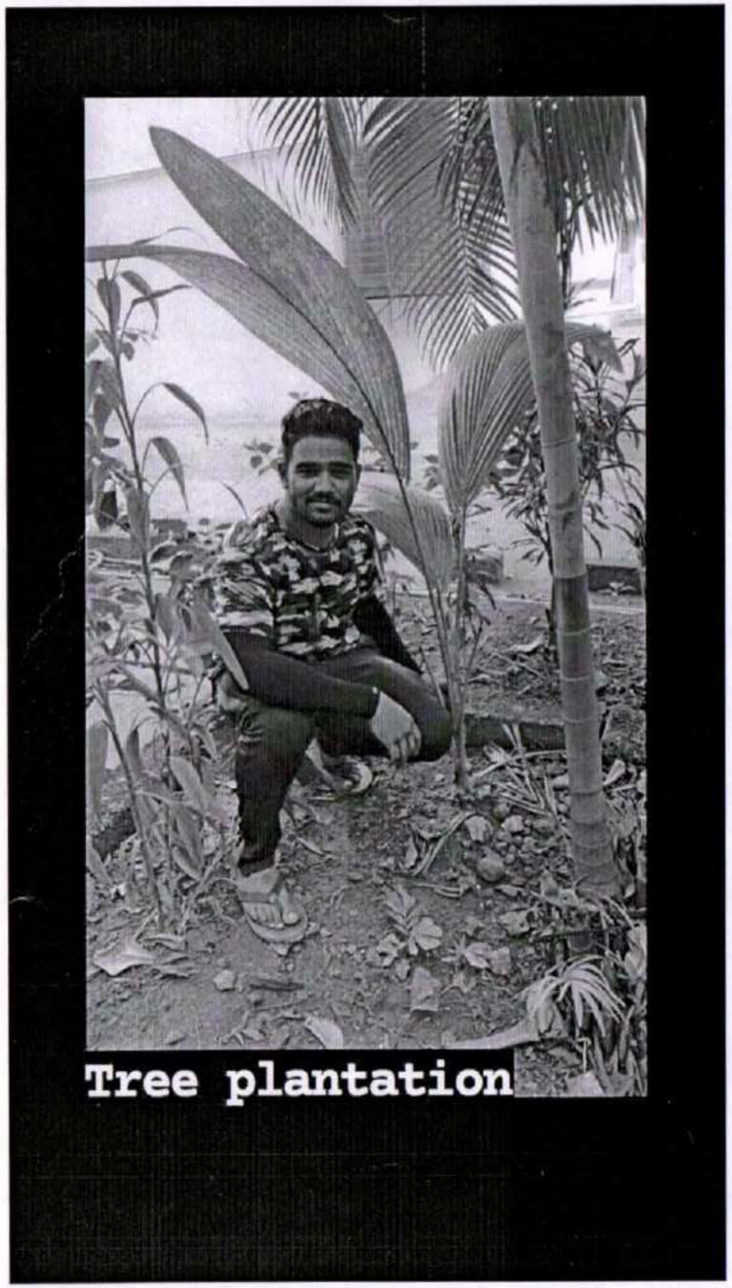
This year due to the widespread pandemic, large gatherings were not possible and also not allowed. So the NSS Committee of Vidyavardhini's college of engineering and technology had participated in tree plantation with great zeal and enthusiasm. This event was scheduled on 1st March 2021. Since mass gathering was not possible and not allowed, 35 NSS volunteers planted saplings in their respective locality and gardens to raise awareness and consciousness about the environment among the people. This is an important step of afforestation to maintain ecological balance of nature. Planting trees is especially important to protect our environment against air pollution and global warming. The volunteers first took initiative to give water and dig to plant the trees. The volunteers planted desi trees. These trees include Neem, Pimple, Tulsi and Indica. This event was a huge success, empowering students with substantial knowledge of the environment and plants.

Thank You.

Dr. Pradip Gulbhile
Program Officer,
NSS.


Tree plantation

Po. NSS



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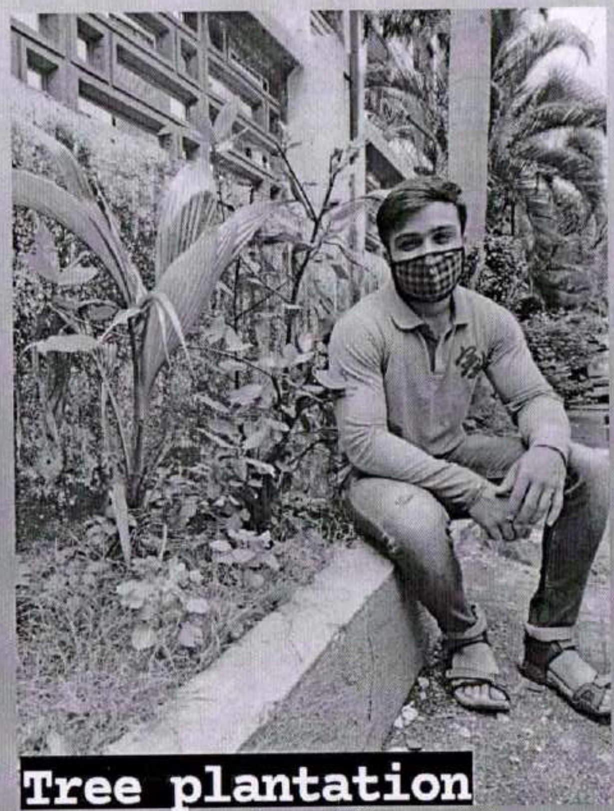
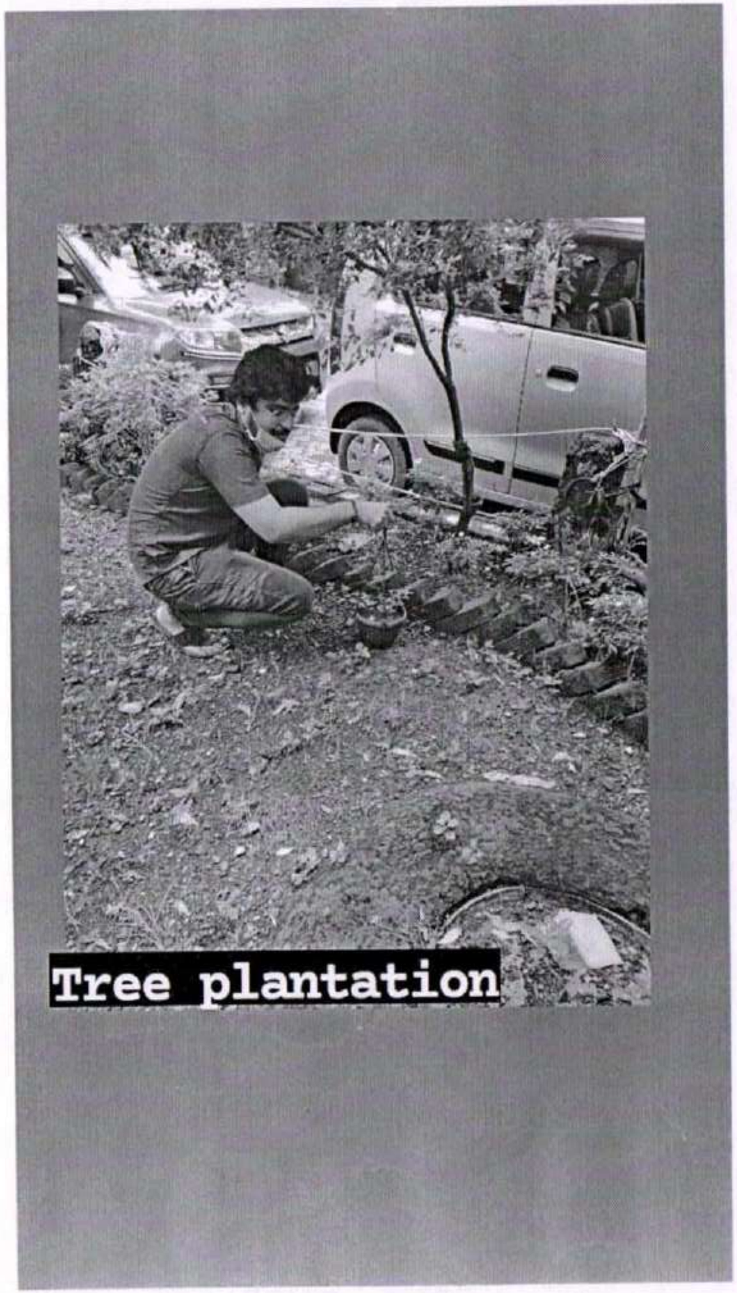


PO-NSS



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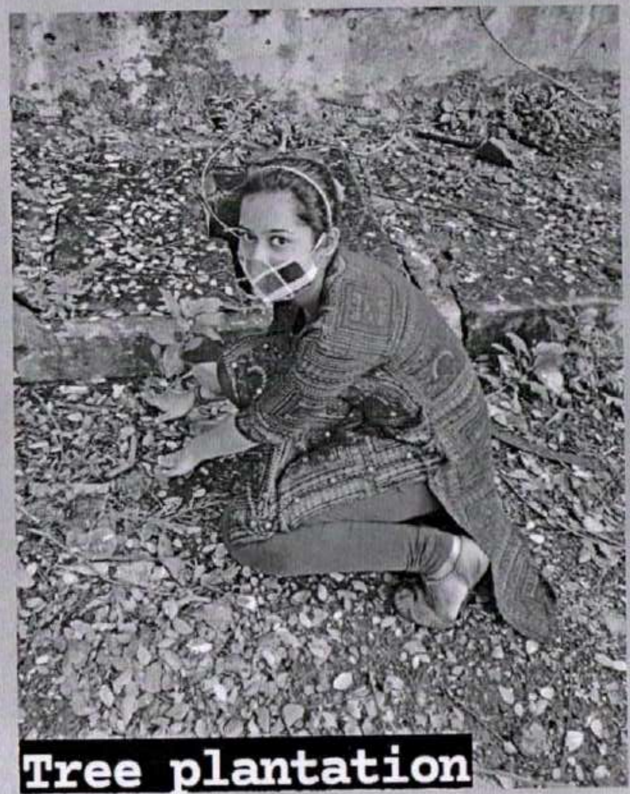
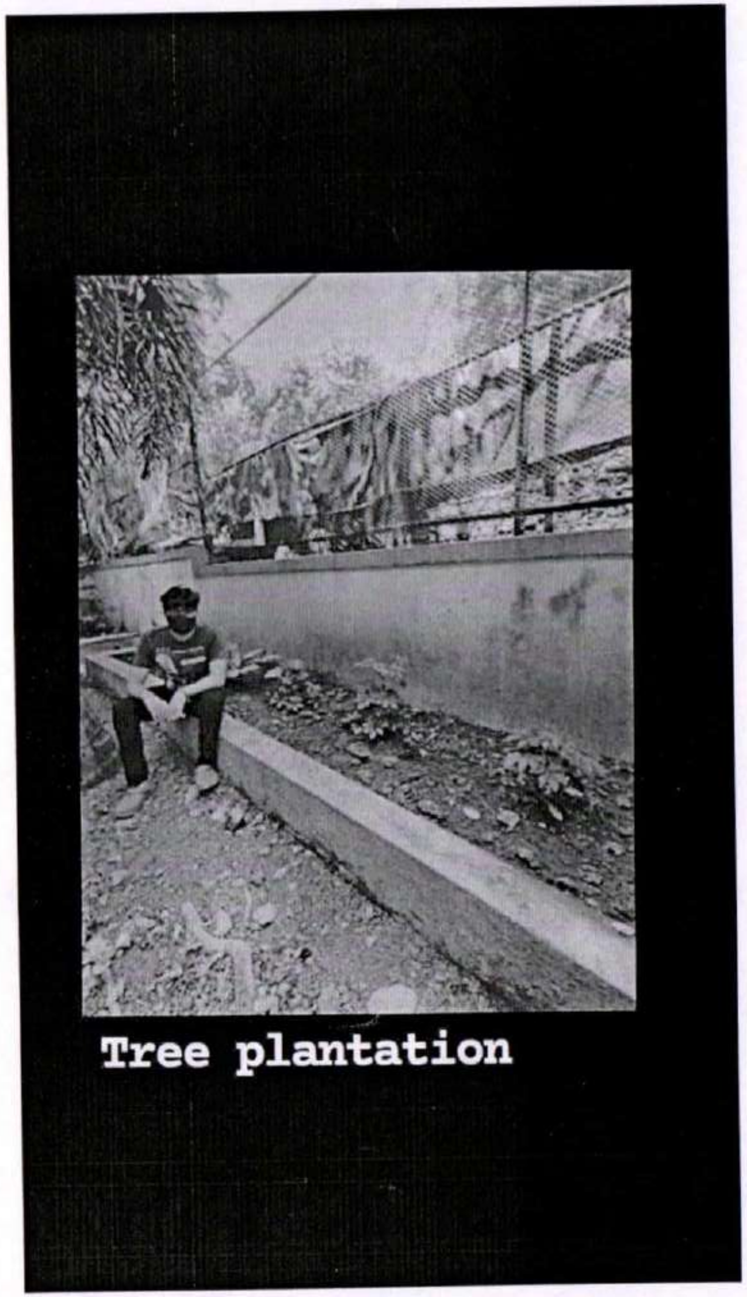


Po NSS


Tree plantation

PO NSS



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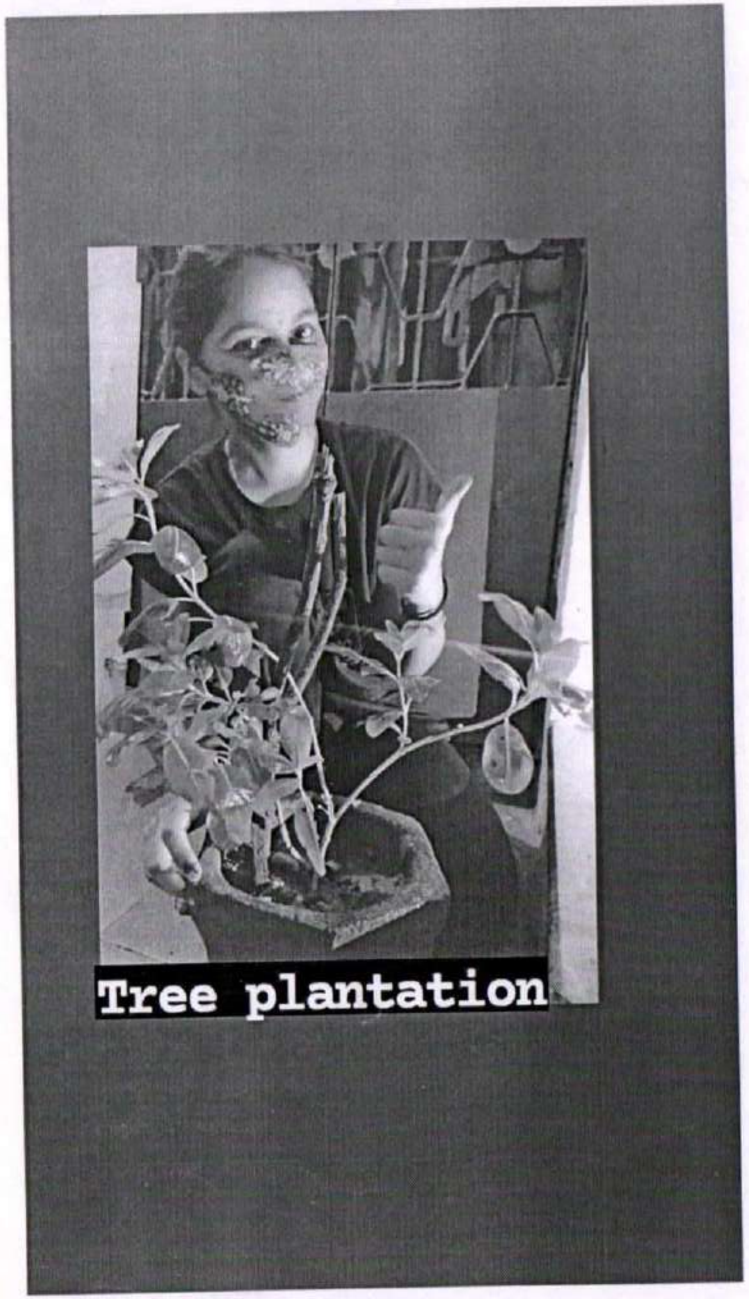

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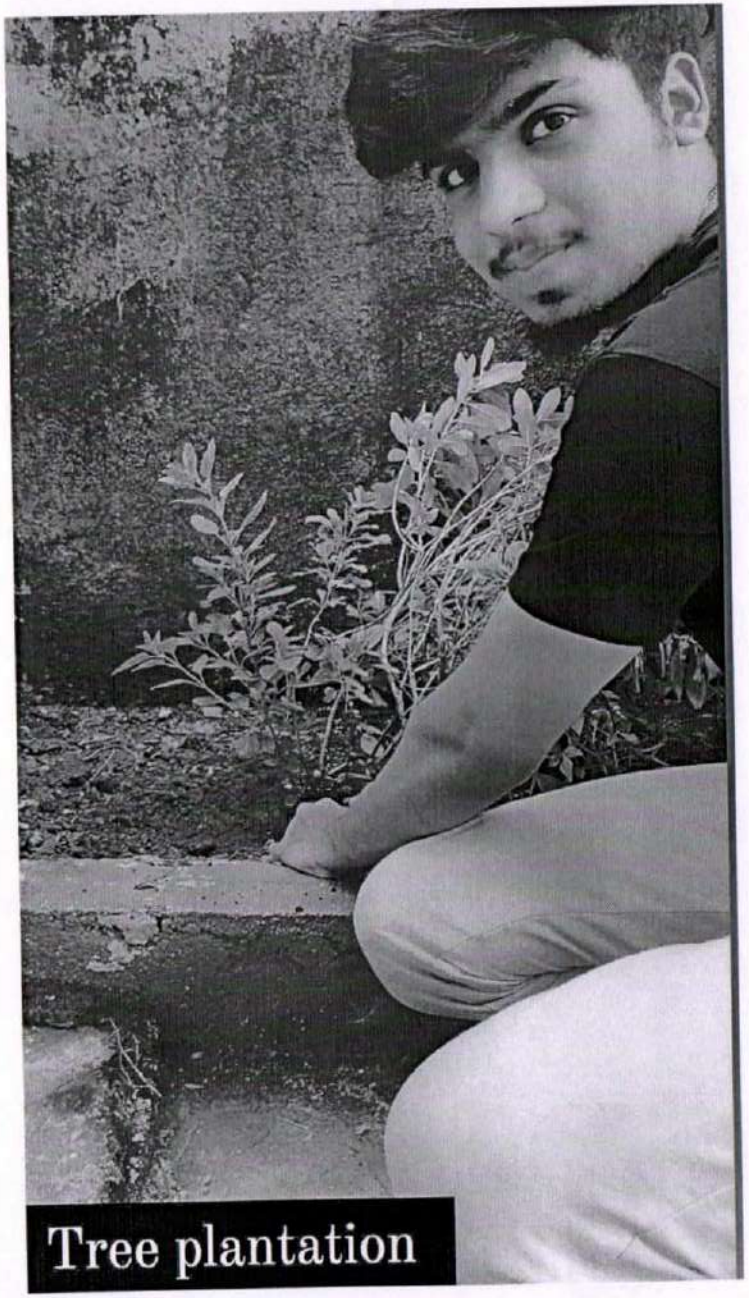

Tree plantation

Vidyavardhini's College of Engineering and Technology
NSS
Tree Plantation

Sr. No,	Name
1	Samir
2	Aditi Bhat
3	Sarvesh Shinde
4	Abhinav Mahajan
5	Vinay
6	Siddhi Kolwankar
7	Manthan Sarfare
8	Hrushikesh Shetty
9	Prerna Gawali
10	Haripriya Ramisetty
11	Prathamesh More
12	Urmiksha Tawade
13	Jayesh Sambhaji Nakashe
14	Soham Madhvani
15	Sree Lakshmi Balachandran
16	Naina Ghanshyam Roy
17	Shrushti Sakpal
18	Sarang Waghmare
19	Vaibhav Rai
20	Kaustubh Vasant Gharat
21	Omkar Jadhav
22	Adarsh Ashokan Ottupurath
23	Roma Dhake
24	Anish Patil
25	Prajakta Borse
26	Vedant Chaskar
27	Deeksha Divakar Shetty
28	Piyusha Rane
29	Ameya Late
30	Sairaaj
31	Janvi Chavan
32	Rushank Ghanshyam Sheta
33	Vishnu
34	Omkar Chaudhari
35	Aditi Bhat

P.O. NSS

Vidyavardhini's College of Engineering & Technology

K. T. Marg, Near Railway Station, Vasai Road(W), Dist. Palghar, Pin. 401202

Activity Report

Academic Year	2019-20
Title of the activity	TREE PLANTATION PROGRAMME
Date of the activity	26/08/2019
Description of the activity	planted 270+ samplings in association with "JEEVDANI TRUST" at virar.
Venue of the event	JEEVDANI TRUST, VIRAR
Organizing committee	NSS-VCET
Number of participants	50

Dr. Pradip Gulbhile
Programme Officer, NSS
VCET, Vasai

Vidyavardhini's College of Engineering & Technology

K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2019-20)

Date - 26th August, 2019

To,

The Principal

VCET

Subject: Report on Tree Plantation on 26th August 2019

Respected Sir,

Recently we've acknowledged the incidence happened in amazon rain forest which is devastating! Also keeping in mind the ratio of tree and human being, the NSS Wings Committee of Vidyavardhini's College of Engineering and Technology came with an event on 26th August 2019 called "Tree Plantation". The event was carried out under the guidance of Prof. Sainath Patil, Prof. Sandhya Supalkar and myself and Mr. Rajesh Naik from Jivdani Trust Virar. Entire team of NSS wing came forward to lead students to plant trees at "The Jeevdani Trust, Virar". Altogether, students planted 270+ saplings. The event was well organized and surely a small act of kindness being a responsible citizen was carried out by NSS team as they stand by the term #GoGreen & #SupportGreen

Thank you.

Dr. Pradip Gulbhile,

Programme Officer,

NSS.

Vidyavardhini's College of Engineering & Technology
K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2019-20)

Date - 26 ऑगस्ट, 2019

प्रति,

मुख्याध्यापक

VCET

विषय: 26 ऑगस्ट 2019 रोजी करण्यात आलेल्या वृक्षारोपणाचे अहवाल.

आदरणीय प्राचार्य,

अलीकडेच अमेझॉन रेनफॉरेस्टच्या घटनेची कबुली देण्यात आली आणि ती अतिशय विध्वंसक होती. विद्यावर्धिनीच्या अभियांत्रिकी व तंत्रज्ञान महाविद्यालयाच्या 'एनएसएम विंग्स'ने 26 ऑगस्ट 2019 रोजी "वृक्षारोपण" हा कार्यक्रम आयोजित केला होता. प्रत्येक मनुष्यास 1 झाड ही कल्पना गृहीत धरून वृक्षारोपण करण्यात आले. महाविद्यालयाचे मुख्याध्यापक आणि प्रा. साईनाथ पाटील , प्रा. संध्या सुपलकर व एनएसएस विंगचे प्रमुख या नात्याने मी स्वतः , आम्हा सर्वांच्या मार्गदर्शनाखाली या कार्यक्रमाचे आयोजन केले होते. "जीवदानी ट्रस्ट, विरार" येथे श्री राजेश नाईक हे विद्यार्थ्यांचे नेतृत्व करण्यासाठी पुढे आले.विद्यार्थ्यांनी 270 + रोपे लावली.

हा कार्यक्रम यशस्वीरित्या पार पडला या कार्यक्रमाद्वारे निसर्गाबददलची कृतज्ञता दिसून आली. एक जबाबदार नागरिक असल्याची जाणीव 'एनएसएस विंग्स'च्या माध्यमातून केली गेली. कारण ते #GoGreen आणि #Support Green या संज्ञेवर टिकून आहेत.

धन्यवाद.

डॉ. प्रदिप गुळभिले
कार्यक्रम अधिकारी,
एनएसएस

सत्यमेव जयते

महाराष्ट्र वन विभाग

महाराष्ट्र शासन
वन विभाग

'महाराष्ट्र हरितसेना' सदस्यत्व प्रमाणपत्र

प्रमाणित करण्यात येते की,

श्री. / श्रीमती : Vidyavardhini College Of Engineering And Technology

रा. : Virar West

तालुका : Vasai-Virar जिल्हा : Palghar

यांना 'महाराष्ट्र हरितसेना' चे सदस्यत्व प्रदान करण्यात येत आहे.

लोकहिताच्या कार्यात सहभागी झाल्याबद्दल
हार्दिक शुभेच्छांसह !

नोंदणी क्रमांक : PL/2019/Org/166698

दिनांक महिना वर्ष
30 08 2019

प्रधान मुख्य वनसंरक्षक
सामाजिक वनीकरण,
महाराष्ट्र राज्य,
पुणे

PO. -NSS.

सत्यमेव जयते

महाराष्ट्र शासन

वन विभाग

'महाराष्ट्र हरितसेना' सदस्यत्व प्रमाणपत्र

प्रमाणित करण्यात येते की,

श्री. / श्रीमती : Vidyavardhini College Of Engineering And Technology

रा. : Virar West

तालुका : Vasai-Virar जिल्हा : Palghar

यांना 'महाराष्ट्र हरितसेना' चे सदस्यत्व प्रदान करण्यात येत आहे.

लोकहिताच्या कार्यात सहभागी झाल्याबद्दल

हार्दिक शुभेच्छांसह !

नोंदणी क्रमांक : PL/2019/Org/166698

दिनांक महिना वर्ष

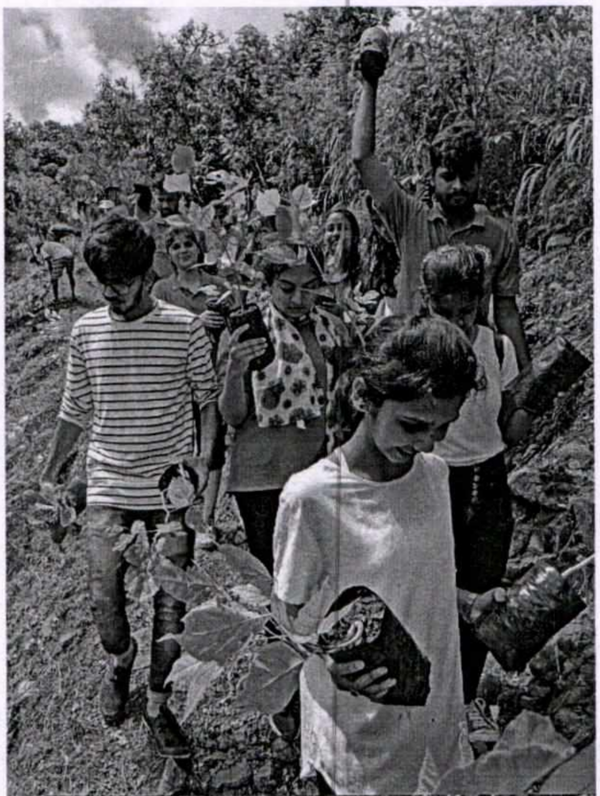
30 08 2019

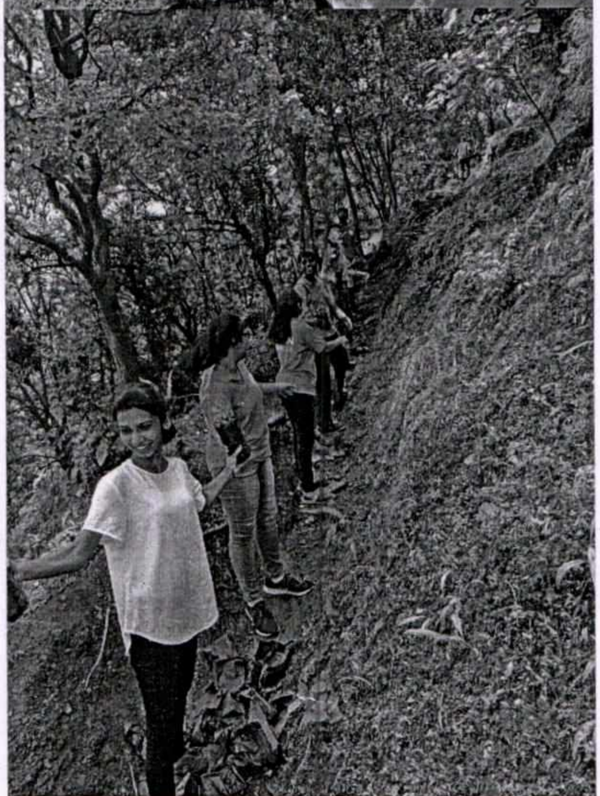
प्रधान मुख्य वनसंरक्षक

सामाजिक वनीकरण,

महाराष्ट्र राज्य,

पुणे





TREE PLANTATION

TREE PLANTATION

P.O. N.S.S.

Vidyavardhini's College of Engineering & Technology
K.T. Marg, Vasai Road (W), Palghar – 401202

N.S.S. Committee (2019-20)

Sr. No	Name	Year
1	Sarvesh Shinde	BE
2	Vrushti Sanghavi	BE
3	Vipul Bhoir	BE
4	Vaibhav Rai	BE
5	Shravan Tawde	BE
6	Aryan Parab	BE
7	Sanjana Tiwari	BE
8	Aniket Jha	BE
9	Prachi Shah	BE
10	Tanzil Irfan Shaikh Siddhiqui	BE
11	Roma Dhake	BE
12	Dhrumil Bhatt	BE
13	Rishabh Sharma	BE
14	Sayali Gupta	BE
15	Amey Chaudhari	BE
16	Siddharth Chakravarty	BE
17	Vaishnavi Gaikwad	BE
18	Riya Raut	BE
19	Siddhi Kolwankar	BE
20	Adarsh Ottupurath	BE
21	Rohit Mali	BE
22	Aniruddha Jadhav	TE
23	Vaibhav Rai	TE
24	Devbhatt singh	TE
25	Nohal Warang	TE
26	Disha Pote	TE
27	Heramb Botawadkar	TE
28	Sarvesh Shinde	TE
29	Praseeda Prabhu	TE
30	Aditi Rathod	SE
31	Rithesh Shetty	SE
32	Isha Pathak	SE
33	Sakshi Padalkar	SE
34	Shruti Pawar	SE
35	Pranay Ippakayal	SE
36	Viraj Gavali	SE
37	Rahul Shah	SE
38	Vedika Misal	SE
39	Haripriya Ramisetty	SE
40	Dhruv Purav	SE

P.O. NSS

41	Rohit Redekar	SE
42	Monalika Pingle	SE
43	Suresh Borana	SE
44	Divya Singh	SE
45	Vaishnavi Deokar	SE
46	Dhrumil Bhatt	SE
47	Durvesh Kajrekar	SE
48	Ragini Nair	SE
49	Siddhesh Thakarkar	SE
50	Vinay Patil	SE

P.O. NSS

Criteria Number: 7 Criteria Name: **Institutional Values and Best Practices**

Sub criteria Number: 7.1.3 Sub-criteria Name: **Institutional Values and Social Responsibilities**

7.1.3 Quality audits on environment and energy regularly undertaken by the Institution.

The institutional environment and energy initiatives are confirmed through the following.

1. Green audit / Environment audit
2. Energy audit
3. Clean and green campus initiatives
4. Beyond the campus environmental promotion and sustainability activities

This document contains Geo-Tagged Photographs of the above initiatives.

Expert Session On Rainwater Harvesting

Expert Session On Rainwater Harvesting

Expert Session On Rainwater Harvesting

Visit To Energy Efficient Light Manufacturers Industry

Visit To Energy Efficient Light Manufacturers Industry

Visit To Energy Efficient Light Manufacturers Industry

Visit To Energy Efficient Light Manufacturers Industry

Expert session on awareness of green building certification process

Expert session on awareness of green building certification process

Expert session on awareness of green building certification process

Energy Audit

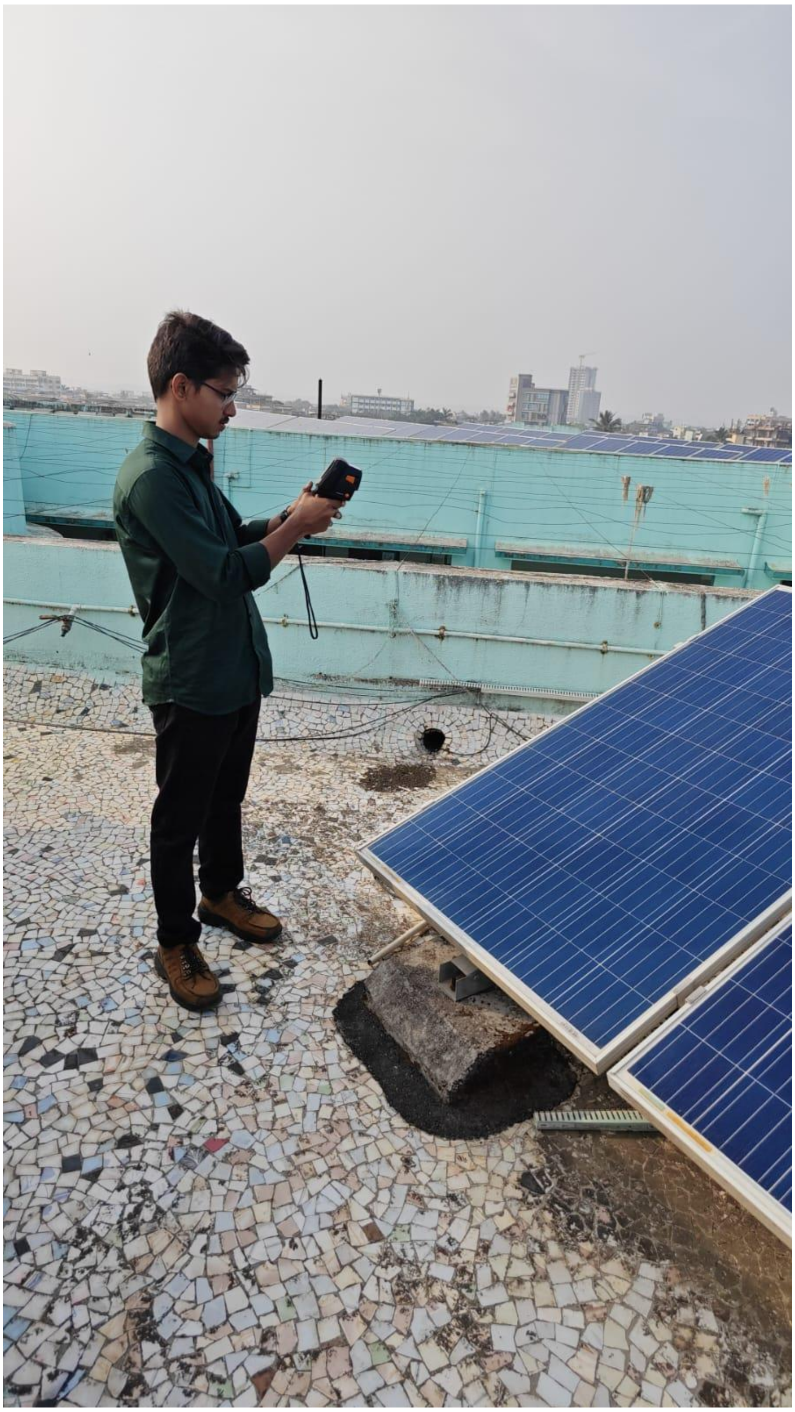
Energy Audit

Energy Audit

Energy Audit

Energy Audit

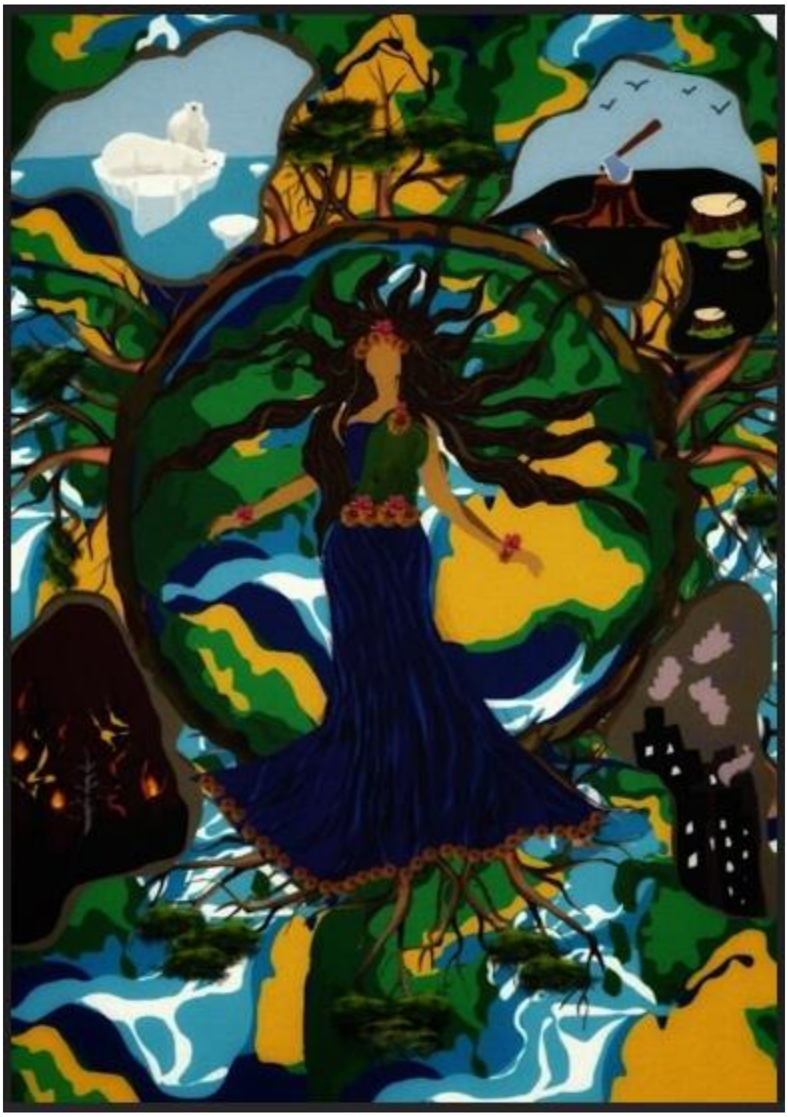
Energy Audit



Energy Audit

2022-23

Environment Day : Handmade Poster Making Competition 2022-23



Environment Day : Handmade Poster Making Competition 2022-23

Energy Conservation Week 2022-23

Energy Conservation Week 2022-23

Energy Conservation Week 2022-23

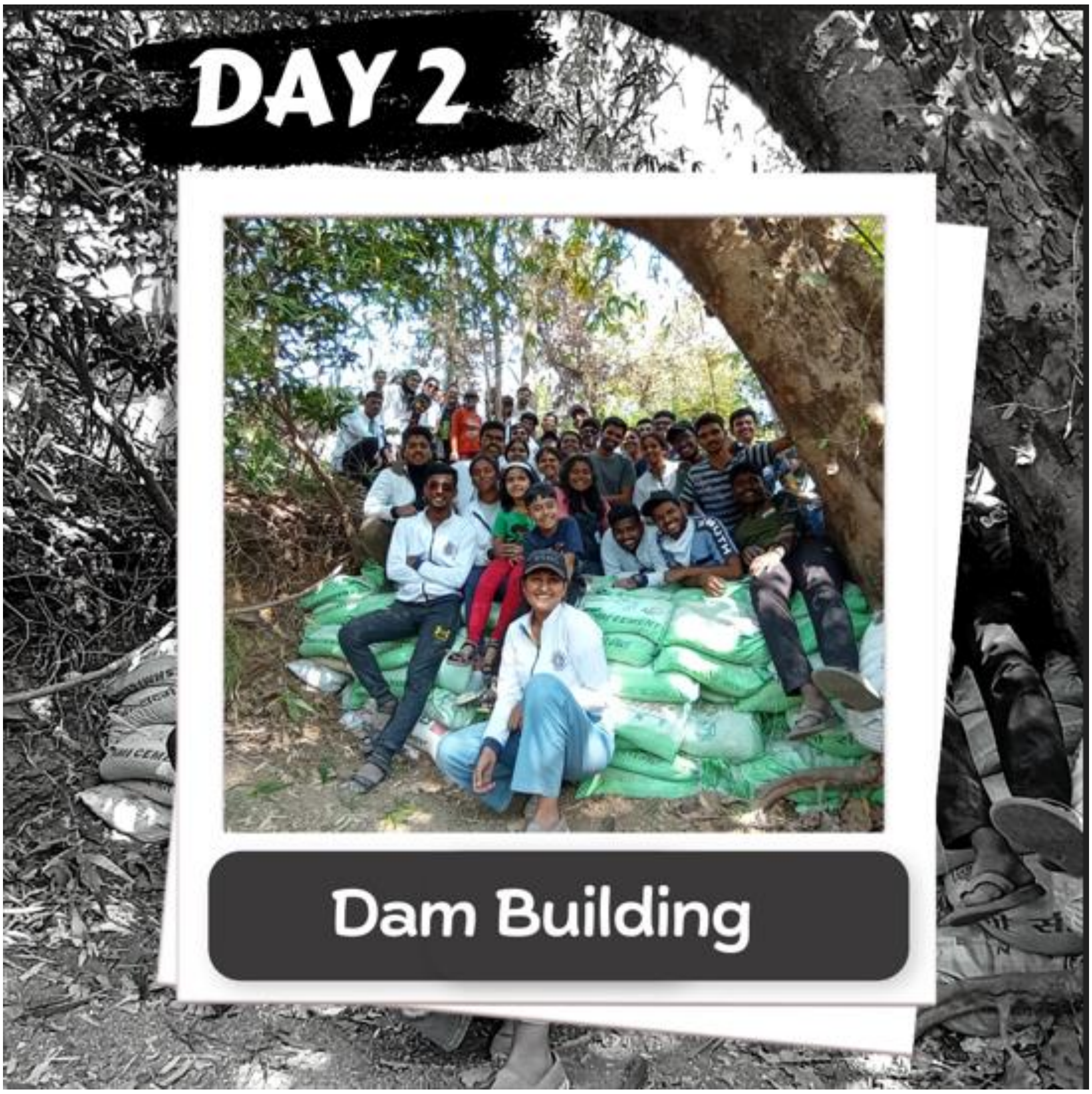
7-Days Residential Camp 2022-23

7-Days Residential Camp 2022-23

7-Days Residential Camp 2022-23 (Solar energy awareness)

Bund Dam Construction Activity 2022-23

Bund Dam Construction Activity 2022-23


DAY 2
Dam Building

Beach Cleaning


Before

Catch the rain Rally

Catch the rain Rally

Tree Plantation

Tree Plantation

Vankudre
Harish
Vasant