

ENVIRONMENTAL AUDIT REPORT
of
MIT ART, DESIGN AND TECHNOLOGY UNIVERSITY
Loni Kalbhor, Pune 412201



Year: 2021-22


Prepared by

ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society
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REGISTRATION CERTIFICATES

MAHARASHTRA ENERGY DEVELOPMENT AGENCY



Maharashtra Energy Development Agency
(Government of Maharashtra Institution)
Aundh Road, Opposite Spicer College Road, Near Commissionerate of Animal Husbandary,
Aundh, Pune, Maharashtra 411067
Ph No: 020-35000450
Email: eee@mahaurja.com, Web: www.mahaurja.com

ECN/2022-23/CR-43/1709 10th May, 2022

**CERTIFICATE OF REGISTRATION
FOR CLASS 'A'**

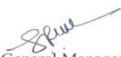
We hereby certify that, the firm having following particulars is registered with **MAHARASHTRA ENERGY DEVELOPMENT AGENCY (MEDA)** under given category as "Energy Planner & Energy Auditor" in Maharashtra for Energy Conservation Programme of MEDA.

Name and Address of the firm : M/s Engress Services
Yashshree, 26, Nirmal Bag Society,
Near Muktangan English School,
Parvati, Pune – 411 009.

Registration Category : *Empanelled Consultant for Energy Conservation Programme for Class 'A'*

Registration Number : *MEDA/ECN/2022-23/Class A/EA-32.*

- Energy Conservation Programme intends to identify areas where wasteful use of energy occurs and to evaluate the scope for Energy Conservation and take concrete steps to achieve the evaluated energy savings.
- MEDA reserves the right to visit at any time without giving prior information to verify quarterly activities performed by the firm and canceling the registration, if the information is found incorrect.
- This empanelment is valid till **09th May, 2024** from the date of registration, to carry out energy audits under the Energy Conservation Programme
- The Director General, MEDA reserves the right to cancel the registration at any time without assigning any reasons thereof.



General Manager (EC)

MEDA REGIATRATION CERTIFICATE



ASOCHAM GEM CP CERTIFICATE

ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society,
Near Mukhtangan English School, Parvati, Pune 411 009
Tel: 09890444795 Email: engress123@gmail.com

Ref: ES/MITADT/21-22/03

Date: 19/7/2022

ENVIRONMENTAL AUDIT CERTIFICATE

This is to certify that we have conducted Environmental Audit at MIT Art, Design and Technology University, Loni Kalbhor, Pune 412 201, in the year 2021-22.

The University has adopted following Environment Friendly Practices:

- Usage of Energy Efficient LED Fittings.
- Installation of 752.95 kWp Roof Top Solar PV Plant.
- Installation of 77500 LPD Solar Thermal Water Heating System at Hostel blocks.
- Usage of BEE STAR Rated Equipment
- Segregation of Waste at source
- Installation of Organic Composting Unit
- Tree Plantation in the Campus
- Usage of Battery Operated Vehicles in the campus
- Creation of awareness about Resource Conservation by displaying Posters

We appreciate the support of Management, involvement of faculty members and students in the process of Energy Conservation & making the campus Green & Eco Friendly.

For Engress Services,

A Y Mehendale,
Certified Energy Auditor, EA-8192
ASSOCHAM GEM Certified Professional: GEM: 22/788

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ACKNOWLEDGEMENT

We Engress Services, Pune, express our sincere gratitude to the management of MIT Art, Design and Technology University, Loni Kalbhor, Pune, for awarding us the assignment of Environmental Audit of their Loni Kalbhor Campus for the Year: 2021-22.

We are thankful to all Staff members for helping us during the field study.

EXECUTIVE SUMMARY

1. MIT Art, Design and Technology University, Loni Kalbhor, Pune consumes Energy in the form of **Electrical Energy**; used for various Equipment.

2. Pollution caused by Day to Day Operation:

- **Air pollution:** Mainly CO₂ on account of Electricity & LPG Consumption
- **Solid Waste:** Bio degradable Garden Waste, Recyclable Waste and Human Waste
- **Liquid Waste:** Human liquid waste

3. Present Energy Consumption & CO₂ Emission:

| No | Parameter/ Value | Energy Purchased, kWh | CO ₂ Emissions, MT |
|----|------------------|-----------------------|-------------------------------|
| 1 | Total | 3615957 | 3254.36 |
| 2 | Maximum | 448101 | 403.29 |
| 3 | Minimum | 166305 | 149.67 |
| 4 | Average | 301329.75 | 271.20 |

4. Usage of Renewable Energy & CO₂ Emission Reduction:

- The University has installed Roof Top Solar PV Plant of Capacity **752.95 kWp**.
- Energy generated by Solar PV Plant in 21-22 is **826534 kWh**.
- Total Annual Reduction in CO₂ Emissions in 21-22 is **743.88 MT**.

5. Indoor Air Quality Parameters:

| No | Parameter/ Value | AQI | PM-2.5 | PM-10 |
|----|------------------|-----|--------|-------|
| 1 | Maximum | 66 | 39 | 49 |
| 2 | Minimum | 44 | 28 | 31 |

6. Indoor Comfort Conditions:

| No | Parameter/ Value | Temperature, °C | Humidity, % | Lux Level, | Noise Level, dB |
|----|------------------|-----------------|-------------|------------|-----------------|
| 1 | Maximum | 27 | 39.1 | 469 | 49 |
| 2 | Minimum | 24 | 37.9 | 126 | 42 |

7. Waste Management:

7.1 Segregation of Waste at Source:

The Waste is segregated at source by provision of Waste Bins at various locations.

7.2 Organic Waste Management:

The University has installed Organic Waste converting Unit, to convert the Bio degradable Waste into Bio Compost

7.3 Liquid Waste Management:

The University is constructing Sewage Treatment Plant for treatment of Black Water.

7.4 E Waste Management:

It is recommended to dispose of the E Waste through Authorized Agency

8. Rain Water Management:

The University is in process of installation of Rain Water Management Project

9. Eco Friendly Practices:

- The University has well maintained lawn and landscaped garden.
- There are about **4000 plus** Trees in the campus
- Usage of Battery operated vehicles for transportation within the campus.
- Creation of awareness on Resource Conservation, by Display of Posters

10. Assumption:

- **1 kWh** of Electrical Energy releases **0.9 Kg of CO₂** into atmosphere.

11. Reference:

1. For Computation of CO₂ Emissions: www.tatapower.com
2. For Indoor Air Quality: www.cpcb.com
3. For Indoor Comfort Parameters: www.ishrae.com
4. For Energy Generated by Solar PV Plant: www.solarroftop.gov.in

ABBREVIATIONS

| | |
|--------|--|
| ADT | : Art, Design and Technology |
| MANET | : Maharashtra Academy of Naval Education & Training |
| CPCB | : Central Pollution Control Board |
| ISHARE | : The Indian Society of Heating & Refrigerating & Air Conditioning Engineers |
| AQI | : Air Quality Index |
| PM2.5 | : Particulate Matter of Size 2.5 microns |
| PM 10 | : Particulate Matter of Size 10 microns |
| kWh | : kilo-Watt Hour |
| kWp | : Kilo Watt Peak |
| Qty | : Quantity |
| W | : Watt |
| kW | : Kilo Watt |
| MT | : Metric Ton |
| LPD | : Liters Per Day |
| LPG | : Liquefied Petroleum Gas |

CHAPTER-I INTRODUCTION

1.1 Important Definitions:

1.1.1 Environment: Definition as per environment Protection Act: 1986

Environment includes water, air and land and the inter-relationship which exists among and between Water, Air, Land and Human beings, other living creatures, plants microorganism and property

1.1.2. Environmental Audit: Definition:

An audit which aims at verification and validation to ensure that various environmental laws are compiled with and adequate care has been taken towards environmental protection and preservation. *According to UNEP, 1990, "Environmental audit can be defined as a management tool comprising systematic, documented and periodic evaluation of how well environmental organization management and equipment are performing with an aim of helping to regularize the environment"*

1.1.3. Environmental Pollutant: means any solid, liquid and gaseous substance present in the concentration as may be, or tend to be, injurious to Environment.

Table No-1: Relevant Environmental Laws in India:

| | |
|------|--|
| 1927 | The Indian Forest Act |
| 1972 | The Wildlife Protection Act |
| 1974 | The Water (Prevention and Control of Pollution) Act |
| 1977 | The Water (Prevention & Control of Pollution) Cess Act |
| 1980 | The Forest (Conservation) Act |
| 1981 | The Air (Prevention and Control of Pollution) Act |
| 1986 | The Environment Protection Act |
| 1991 | The Public Liability Insurance Act |
| 2002 | The Biological Diversity Act |
| 2010 | The National Green Tribunal Act |

Table No-2: Some Important Environmental Rules in India:

| | |
|------|---|
| 1989 | Hazardous Waste (Management and Handling) Rules |
| 1989 | Manufacture, Storage and Import of Hazardous Chemical Rules |
| 2000 | Municipal Solid Waste (Management and Handling) Rules |
| 1998 | The Biomedical Waste (Management and Handling) Rules |
| 1999 | The Environment (Siting for Industrial Projects) Rules |
| 2000 | Noise Pollution (Regulation and Control) Rules |
| 2000 | Ozone Depleting Substances (Regulation and Control) Rules |
| 2011 | E-waste (Management and Handling) Rules |
| 2011 | National Green Tribunal (Practices and Procedure) Rules |
| 2011 | Plastic Waste (Management and Handling) Rules |

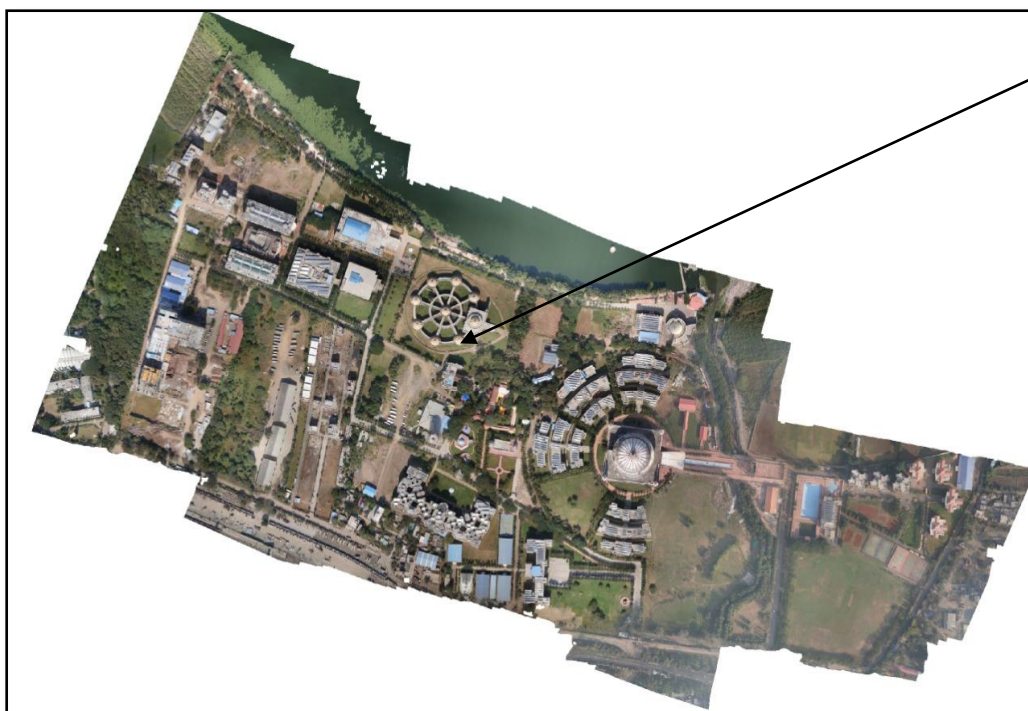
Table No-3: National Environmental Plans & Policy Documents:

| | |
|-----|--|
| 1. | National Forest Policy, 1988 |
| 2. | National Water Policy, 2002 |
| 3. | National Environment Policy or NEP (2006) |
| 4. | National Conservation Strategy and Policy Statement on Environment and Development, 1992 |
| 5. | Policy Statement for Abatement of Pollution (1992) |
| 6. | National Action Plan on Climate Change |
| 7. | Vision Statement on Environment and Human Health |
| 8. | Technology Vision 2030 (The Energy Research Institute) |
| 9. | Addressing Energy Security and Climate Change (MoEF and Bureau of Energy Efficiency) |
| 10. | The Road to Copenhagen; India's Position on Climate Change Issues (MoEF) |

1.2 Objectives:

1. To study Consumption of various Resources & CO₂ Emissions
2. To Study Usage of Renewable Energy & CO₂ Emission Reduction
3. To Study Indoor Air Quality
4. To Study Indoor Comfort Condition Parameters
5. To Study Waste Management Practices
6. To Study Rain Water Harvesting
7. To study Eco Friendly & Sustainable Initiatives

1.3 Google Earth Image of the University:



University
Campus

1.4 Table No 4: General Details of University:

| No | Head | Particulars |
|-----------|----------------------|--|
| 1 | Name of Institution | MIT Art Design and Technology University |
| 2 | Address | Loni Kalbhor, Pune 412 201 |
| 3 | Latitude / Longitude | 18.49 ⁰ / 74.02 ⁰ |

CHAPTER-II STUDY OF RESOURCE CONSUMPTION & CO₂ EMISSION

2.1 The University consumes following Natural/derived Resources:

1. Air
2. Water
3. Electrical Energy

We try to draw a schematic diagram for the Institute System & Environment as under.

2.2 Representation of University as a System:

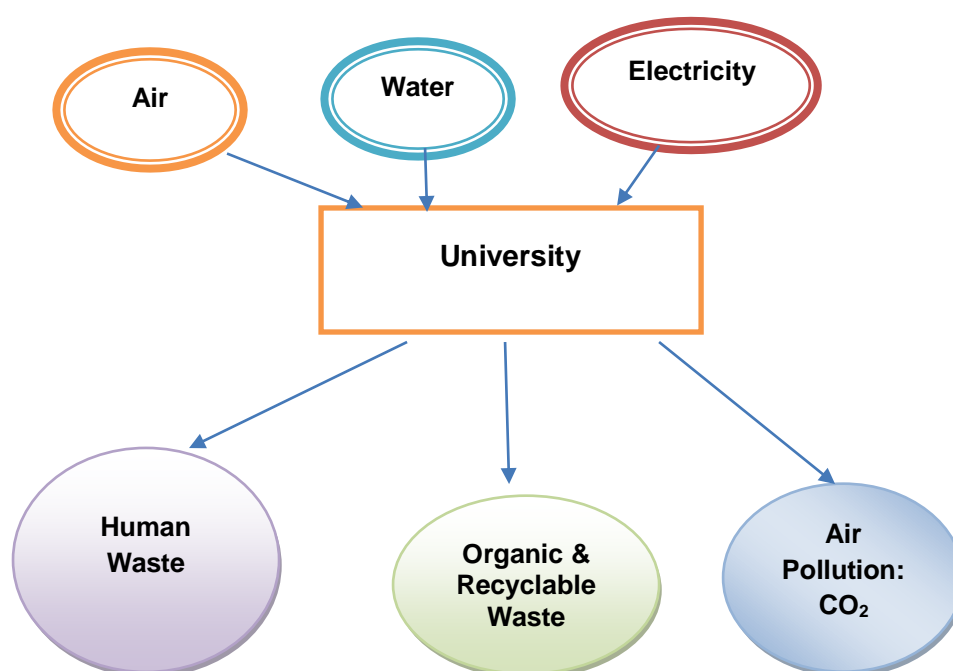


Chart No 1: Representation of University as a System & Environment

2.3 **Computation of CO₂ Emissions: A Carbon Foot print** is defined as the Total Greenhouse Gas Emissions, emitted due to various activities. In this we compute the emissions of Carbon-Di-Oxide, by usage of the various forms of Energy used by the University for performing its day to day activities. The University uses Electrical Energy for day to day activities.

Basis for computation of CO₂ Emissions: 1 kWh of Electrical Energy releases 0.9 Kg of CO₂ into atmosphere

Table No 5: Month wise CO₂ Emissions:

| No | Month | Energy Purchased- Meter-1, kWh | Energy Purchased, Meter-2, kWh | Total Energy Purchased, kWh | CO ₂ Emissions, MT |
|----|--------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------------------|
| 1 | Jul-21 | 92001 | 74304 | 166305 | 149.67 |

| | | | | | |
|----|---------|-------------|-----------|-----------|---------|
| 2 | Aug-21 | 97300 | 76268 | 173568 | 156.21 |
| 3 | Sep-21 | 109147 | 90151 | 199298 | 179.37 |
| 4 | Oct-21 | 126712 | 113742 | 240454 | 216.41 |
| 5 | Nov-21 | 137671 | 143775 | 281446 | 253.30 |
| 6 | Dec-21 | 160813 | 172813 | 333626 | 300.26 |
| 7 | Jan-22 | 171943 | 146826 | 318769 | 286.89 |
| 8 | Feb-22 | 121060 | 142599 | 263659 | 237.29 |
| 9 | Mar-22 | 193201 | 216964 | 410165 | 369.15 |
| 10 | Apr-22 | 184975 | 245146 | 430121 | 387.11 |
| 11 | May-22 | 223056 | 225045 | 448101 | 403.29 |
| 12 | Jun-22 | 164420 | 186025 | 350445 | 315.40 |
| 13 | Total | 1782299 | 1833658 | 3615957 | 3254.36 |
| 14 | Maximum | 223056 | 245146 | 448101 | 403.29 |
| 15 | Minimum | 92001 | 74304 | 166305 | 149.67 |
| 16 | Average | 148524.9167 | 152804.83 | 301329.75 | 271.20 |

Chart No 2: Representation of Month wise CO₂ Emissions:

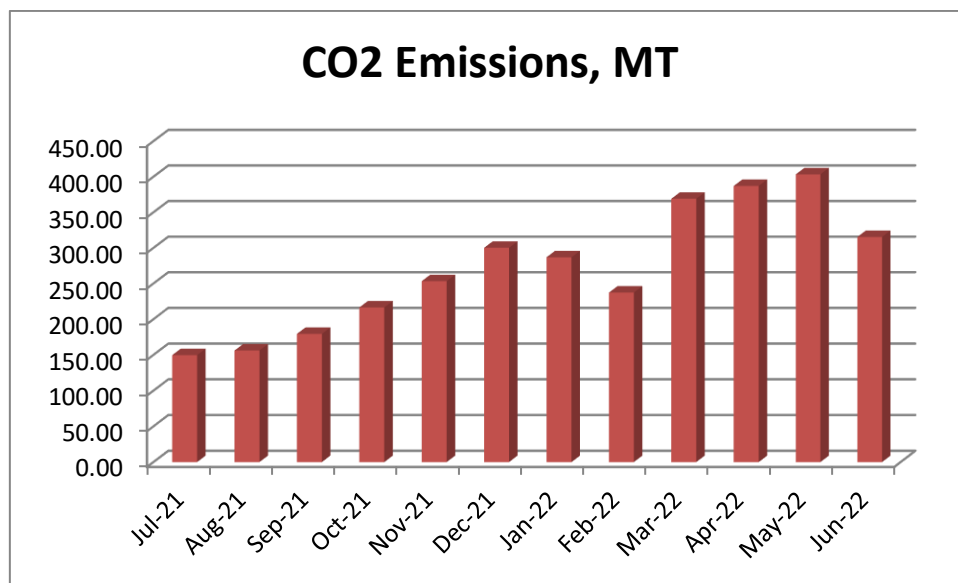


Table No 6: Various Important Parameters:

| No | Parameter/ Value | Energy Purchased, kWh | CO ₂ Emissions, MT |
|----|------------------|-----------------------|-------------------------------|
| 1 | Total | 3615957 | 3254.36 |
| 2 | Maximum | 448101 | 403.29 |
| 3 | Minimum | 166305 | 149.67 |
| 4 | Average | 301329.75 | 271.20 |

CHAPTER-III

STUDY OF USAGE OF RENEWABLE ENERGY

The University has installed Roof Top Solar PV Plant, on various buildings as well as Solar Water Heating System on Hostel Blocks. In the following Table, we present the details of Building wise Solar PV Plants installed and Solar Thermal Water Heating Systems installed.

Table No 7: Details of Building wise Roof Top Solar PV Plant:

| No. | Building Name | Installed Capacity, kW | Average Energy Generation, (Per year) KWh |
|--------------|--|------------------------|---|
| 1 | MANET Administration Building | 108.0 | 118,389.60 |
| 2 | MANET Hostel Building (ABC Block) | 80.8 | 88,740.00 |
| | MANET Hostel Building (DEF Block) | 80.8 | 88,740.00 |
| 4 | MITSOER Building | 54.0 | 59,194.80 |
| 5 | Boat club Building | 54.0 | 59,194.80 |
| 6 | Carpenter Shed | 27.0 | 29,649.60 |
| 7 | Health Club or Sports Complex | 54.0 | 59,194.80 |
| 8 | Raj Auditorium or Amphi Theatre | 54.0 | 59,194.80 |
| 9 | School of Film and Television Building (1st Floor & 2nd Floor) | 66.5 | 73,080.00 |
| | MIT ISBJ (3rd Floor & 4th Floor) | 66.5 | 73,080.00 |
| 10 | IT Establishment SOE (Gr to 6th | 35.2 | 38,628.00 |
| | MIT COM (7 & 8 Floor) | 8.6 | 9,500.40 |
| 10 | Bakery Shade | 47.5 | 52,200.00 |
| 11 | Staff Quarter Loni | 16.2 | 17,748.00 |
| Total | | 752.95 | 826,534.80 |

Table No 8: Details of Solar Thermal Water Heating Systems installed:

| No | Location | Capacity in LPD |
|----------|------------------------------|-----------------|
| 1 | MANET-Hostel- G | 6000 |
| 2 | MANET-Hostel- E | 5000 |
| 3 | MANET-Hostel- F | 5000 |
| 4 | Guest House Building | 2500 |
| 5 | Staff Quarter-1 | 5000 |
| 6 | Design College- Girls Hostel | 36000 |
| 7 | Design College- Boys Hostel | 18000 |
| 8 | Total | 77500 |

In the following Table, we present the reduction in Annual CO₂ Emissions due to Solar Energy.

Table No 9: Computation of Reduction in CO₂ Emissions:

| No | Particulars | Value | Unit |
|----|---|---------------|-----------------------------|
| 1 | Installed Solar PV Plant Capacity | 752.95 | kWp |
| 2 | Annual Electrical Energy generated by Solar PV Plant | 826534 | kWh |
| 3 | 1 kWh of Electrical Energy is equivalent to | 0.9 | Kg of CO₂ |
| 4 | Reduction in CO₂ Emissions = (2)*(3)/1000 | 743.88 | MT |

Photograph of Solar PV Plant & Solar Thermal Water Heating System:



CHAPTER IV

STUDY OF INDOOR AIR QUALITY PARAMETERS

4.1 Importance of Air Quality:

Air: The common name given to the atmospheric gases used in breathing and photosynthesis.

By volume, Dry Air contains 78.09% Nitrogen, 20.95% Oxygen, 0.93% Argon, 0.039% carbon dioxide, and small amounts of other gases.

On average, a person inhales about **14,000 liters** of air every day. Therefore, poor air quality may affect the quality of life now and for future generations by affecting the health, the environment, the economy and the city's livability.

Rapid urbanization and industrialization has added other elements/compounds to the pure air and thus caused the increase in pollution. In order to prevent, control and abate air pollution, the Air (Prevention and Control of Pollution) Act was enacted in 1981.

Air quality is a measure of the suitability of air for breathing by people, plants and animals.

According to Section 2(b) of Air (Prevention and control of pollution) Act, 1981 '**air pollution**' has been defined as '**the presence in the atmosphere of any air pollutant.**'

As per Section 2(a) of Air (Prevention and control of pollution) Act, 1981 '**air pollutant**' has been defined as '**any solid, liquid or gaseous substance [(including noise)] present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment**

4.2 Air Quality Index:

An **Air Quality Index (AQI)** is a number used by government agencies to measure the **air pollution** levels and communicate it to the population. As the AQI increases, it means that a large percentage of the population will experience severe adverse health effects. The measurement of the **AQI** requires an **air monitor** and an **air pollutant** concentration over a specified **averaging period**.

We present herewith following important Parameters.

1. AQI- Air Quality Index
2. PM-2.5- Particulate Matter of Size 2.5 micron
3. PM-10- Particulate Matter of Size 10micron

Table No10: Indoor Air Quality Parameters:

| No | Location | A Q I | PM-2.5 | PM-10 |
|----|--------------------|-------|--------|-------|
| 1 | Computer Lab-MANET | 65 | 39 | 44 |
| 2 | MANET Workshop-1 | 60 | 34 | 38 |

| | | | | |
|----|----------------------------------|-----------|-----------|-----------|
| 3 | MANET-Workshop-2 | 55 | 31 | 34 |
| 4 | Bio Engineering | 31 | 19 | 20 |
| 5 | Design, Architecture & Fine Arts | 65 | 38 | 48 |
| 6 | School of Film & Television | 50 | 31 | 32 |
| 7 | Sangeet | 45 | 28 | 31 |
| 8 | Vedic Science | 95 | 54 | 66 |
| 9 | Engineering & I T Building | 60 | 36 | 38 |
| 10 | Workshop-Engineering | 56 | 34 | 36 |
| | Maximum | 66 | 39 | 49 |
| | Minimum | 44 | 28 | 31 |

CHAPTER V

STUDY OF INDOOR COMFORT CONDITION

In this Chapter, we present the various Indoor Comfort Parameters measured during the Audit.

The Parameters include:

1. Temperature
2. Humidity
3. Lux Level
4. Noise Level.

Table No11: Study of Indoor Comfort Parameters:

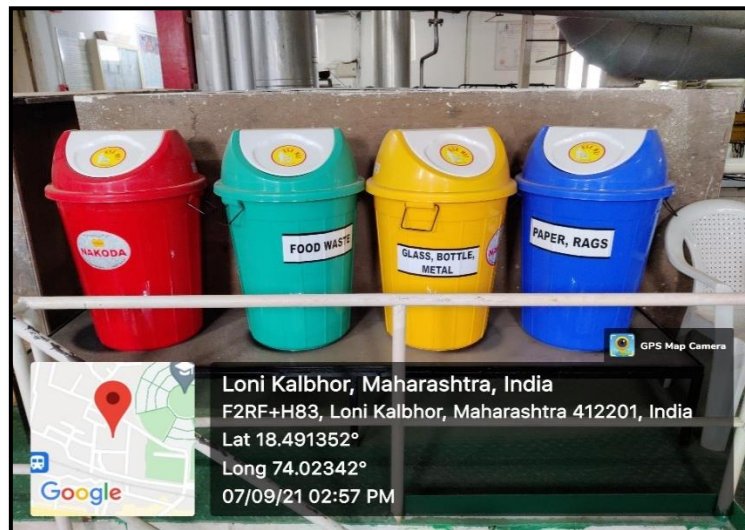
| No | Location | Temperature, °C | Humidity, % | Lux Level | Noise Level, dB |
|-----------|----------------------------------|----------------------------|------------------------|----------------------|----------------------------|
| 1 | Computer Lab-MANET | 24 | 39 | 469 | 45 |
| 2 | MANET Workshop-1 | 24.1 | 39 | 325 | 44 |
| 3 | MANET-Workshop-2 | 24.9 | 39.1 | 227 | 42 |
| 4 | Bio Engineering | 24 | 39 | 126 | 42 |
| 5 | Design, Architecture & Fine Arts | 24.3 | 38.1 | 169 | 46 |
| 6 | School of Film & Television | 24.5 | 38 | 175 | 49 |
| 7 | Sangeet | 24.6 | 37.9 | 165 | 47 |
| 8 | Vedic Science | 25 | 38.1 | 196 | 46 |
| 9 | Engineering & I T Building | 25.1 | 38.2 | 201 | 48 |
| 10 | Workshop-Engineering | 27 | 38.4 | 221 | 47 |
| | Maximum | 27 | 39.1 | 469 | 49 |
| | Minimum | 24 | 37.9 | 126 | 42 |

CHAPTER VI STUDY OF WASTE MANAGEMENT

6.1 Segregation of Waste at Source:

At important locations, Waste collections Bins are placed in order to segregate the Waste at source. The University has dedicated House Keeping Department.

Photograph of Waste Collection Bins:



6.2 Organic Waste Management:

The University has installed Organic Waste Converter to convert the Bio Degradable / Organic Waste into Bio fertilizer. This is either sold to adjacent farmers and or used in the own garden.

Photograph of Organic Waste Converter Unit:



6.3 Liquid Waste Management:

The University is in a process of installing Sewage Treatment Plant near the Staff Quarter.

6.4 E-Waste Management:

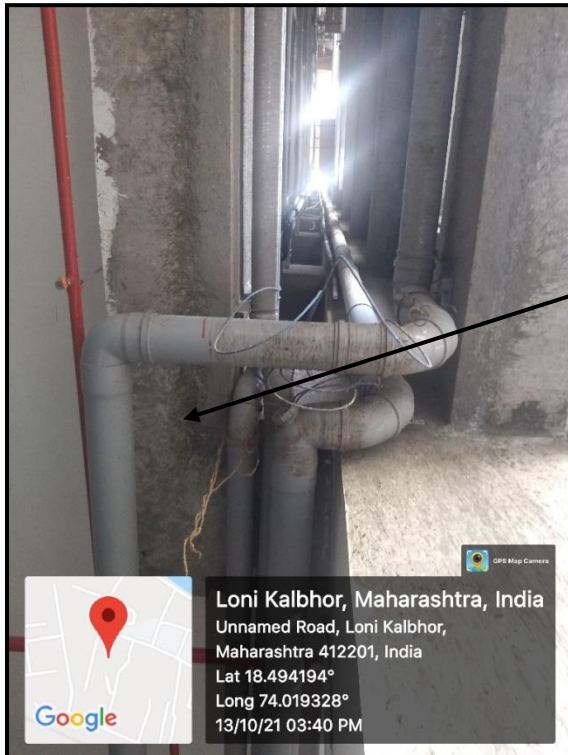
It is recommended to dispose of the E-Waste generated through Authorized Vendors.

:

CHAPTER VII STUDY OF RAIN WATER HARVESTING

The University is installing Rain Water management project at the Engineering & I T Building.

Photograph of Rain Water Collecting Pipe at I T Building:



Rain Water Collecting
Pipe under installation

CHAPTER VIII

STUDY OF ENVIRONMENT FRIENDLY INITIATIVES

8.1 Internal Lawn & Tree Plantation:

The University has well maintained Lawn & internal Tree Plantation. There are about 4000 Plus Trees in the Campus.

Photograph of Lawn & Tree Plantation:



8.2 Usage of Battery Operated Vehicles:

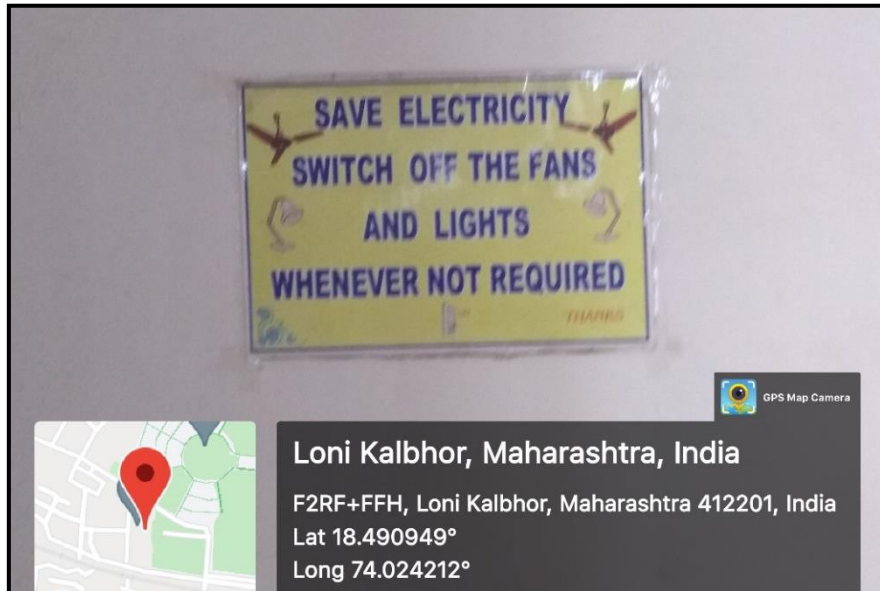
The University is making use of Battery Operated Vehicles for transportation in the campus.



8.3 Creation of Awareness about Importance of Resource Conservation:

In order to create awareness among the stake holders about the Conservation of various resources like Electricity, posters are displayed at various locations.

Photograph of Poster on Energy Conservation:



**ANNEXURE-I:
AIR QUALITY, WATER QUALITY, NOISE & INDOOR COMFORT
STANDARDS:**

1. Category Wise Air Quality Index Values & Concentration of PM 2.5 & PM10:

| No | Category | AQI Value | Concentration Range, PM 2.5 | Concentration Range, PM 10 |
|----|---------------------|------------|-----------------------------|----------------------------|
| 1 | Good | 0 to 50 | 0 to 30 | 0 to 50 |
| 2 | Satisfactory | 51 to 100 | 31 to 60 | 51 to 100 |
| 3 | Moderately Polluted | 101 to 200 | 61 to 90 | 101 to 250 |
| 4 | Poor | 201 to 300 | 91 to 120 | 251 to 350 |
| 5 | Very Poor | 301 to 400 | 121 to 250 | 351 to 430 |
| 6 | Severe | 401 to 500 | 250 + | 430 + |

2. Recommended Water Quality Standards:

| No | Designated Best Use | Criteria |
|----|---|--|
| 1 | Drinking Water Source without conventional Treatment but after disinfection | pH between 6.5 to 8.5 Dissolved Oxygen 6 mg/l or more |
| 2 | Drinking water source after conventional treatment and disinfection | pH between 6 to 9 Dissolved Oxygen 4 mg/l or more |
| 3 | Outdoor Bathing (Organized) | pH between 6.5 to 8.5 Dissolved Oxygen 5 mg/l or more |
| 4 | Controlled Waste Disposal | pH between 6 to 8.5 |


3. Recommended Noise Level Standards:

| No | Location | Noise Level dB |
|----|------------------------|----------------|
| 1 | Auditoriums | 20-25 |
| 2 | Outdoor Playground | 55 |
| 3 | Occupied Class Room | 40-45 |
| 4 | Un occupied Class Room | 35 |
| 5 | Apartment, Homes | 35-40 |
| 6 | Offices | 45-50 |
| 7 | Libraries | 35-40 |
| 8 | Restaurants | 50-55 |

4. Thermal Comfort Conditions: For Non-conditioned Buildings:

| No | Parameter | Value |
|----|-------------|----------------|
| 1 | Temperature | Less Than 33°C |
| 2 | Humidity | Less Than 70% |

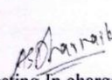
ANNEXURE- II WATER ANALYSIS REPORT

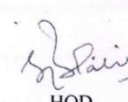
| | |
|--|---|
| MIT SCHOOL OF ENGINEERING DEPARTMENT OF CIVIL ENGINEERING |  MIT-ADT UNIVERSITY <small>PUNE, INDIA</small> <small>Art, Design and Technology University</small> |
| Outward No.- MITSOE/CED/MTC/2021-22/08/11 | 23/08/2021 |
| To, The Principal, MIT School of Engineering, Pune | |
| Ref: Subject: Testing of Drinking Water Sample Name of Work: Testing of Cooler Water of IT building. Name of Agency/Contractor: MIT SOE, MIT ADT University, Pune | |
| Date of Sampling: | 30/07/2021 |
| Start Date of Analysis: | 02/08/2021 |
| End Date of Analysis: | 20/08/2021 |
| Sample Detail: | Fourth Floor Cooler Water |
| Nature of sample: | Liquid |

| Water Analysis Report | | | | | |
|-----------------------|------------------------------------|-----------|--------|-----------------------------|----------------------------|
| Sr. No. | Parameter | Unit | Result | Limits as per IS 10500:2012 | Analysis Method |
| 1 | Colour | Hezen | Clear | 5.00 | IS: 3025 (part 4) |
| 2 | pH | -- | 6.90 | 6.5-8.5 | IS: 3025 (part 11) |
| 3 | TDS | mg/lit | 31.00 | <500 | IS: 3025 (part 16) |
| 4 | Turbidity | NTU | 0 | <1.00 | IS: 3025 (part 10) |
| 5 | BOD ₅ | mg/lit | 0 | Not Specified | IS: 3025 (part 44) |
| 6 | TSS | mg/lit | 0 | Not Specified | IS: 3025 (part 17) |
| 7 | Total Hardness a CaCo ₃ | mg/lit | 32.00 | <200.00 | IS: 3025 (part 21) |
| 8 | Chloride as Cl ⁻ | mg/lit | 7.50 | <250.00 | IS: 3025 (part 32) |
| 9 | Fluorides as F ⁻ | mg/lit | 1.00 | 1.00 | IS: 3025 (part 60) |
| 10 | Iron as Fe | mg/lit | 0 | <0.30 | IS: 3025 (part 53) |
| 11 | Total Coli form | No./100ml | Absent | Absent | IS: 1622 (Rev.1, R.A:2014) |

Terms & Conditions

- The report is refer only to the sample tested and not applied to the bulk
- The results shown in this test report may differ based on various factor including temperature, humidity, pressure, retention time etc.
- Testing charges deposited through challan/receipt no. _____


 Testing In charge
 Prof. Amit S. Dharnaik


 HOD
 Prof. Dr. Satish B. Patil

--End of Report--

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