

GREEN AUDIT REPORT
of
Shri Sharda Bhavan Education Society's
INSTITUTE OF TECHNOLOGY & MANAGEMENT
VIP ROAD, NANDED

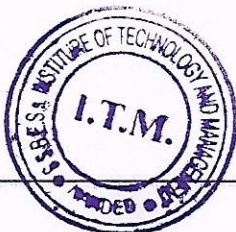



Year: 2022-23

Prepared by:

ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society
Near Mukhtangan English School, Parvati, Pune 411009
Phone: 09890444795 Email: engress123@gmail.com




Director
Shri Sharda Bhavan Education Society's
Institute of Technology and Management,
NANDED.

ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society, Near Mukhtangan English School,
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MEDA Registration No: ECN/2022-23/CR-43/1709
ISO: 9001-2015 Certified (Cert No: 23EQKC13),
ISO: 14001-2015 Certified (Cert No: 23EEKW20)

GREEN AUDIT CERTIFICATE

Certificate No: ES/ITM/22-23/02

Date: 19/06/2023

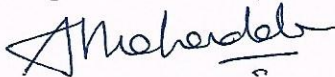
This is to certify that we have conducted Green Audit at Shri Sharda Bhavan Education Society's Institute of Technology & Management, Nanded, in the Year 2022-23.

The Institute has adopted following Energy Efficient & Green Practices:

- Usage of Energy Efficient LED Light Fitting
- Installation of 60 kWp Roof Top Solar PV Plant
- Segregation of Waste at Source
- Installation of Bio Composting Pit
- Institute has installed septic tanks and it cleans periodically
- Installation of Sanitary Waste Incinerator
- Installation of Rain Water Management Project
- Maintenance of good Internal Road
- Tree Plantation in the campus
- Provision of Ramp for Divyangajan
- Creation of awareness by display of Posters on Resource Conservation

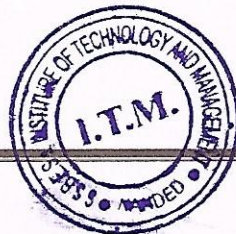
We appreciate the support of Management, involvement of faculty members and students in the process of Energy Conservation & making the campus Green.

For Engress Services,

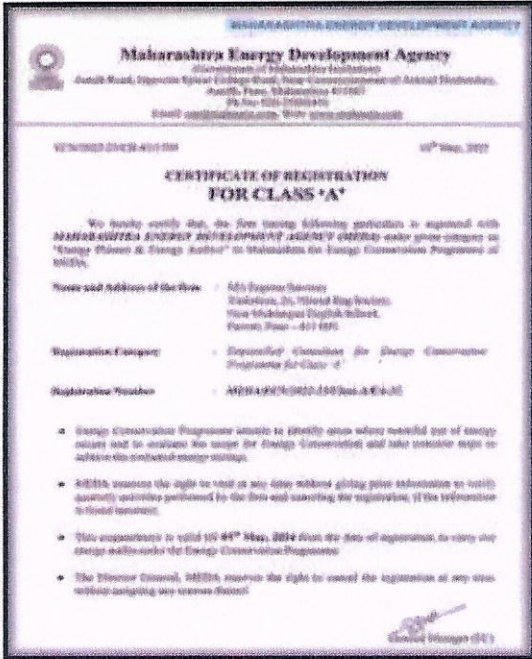


A Y Mehendale,

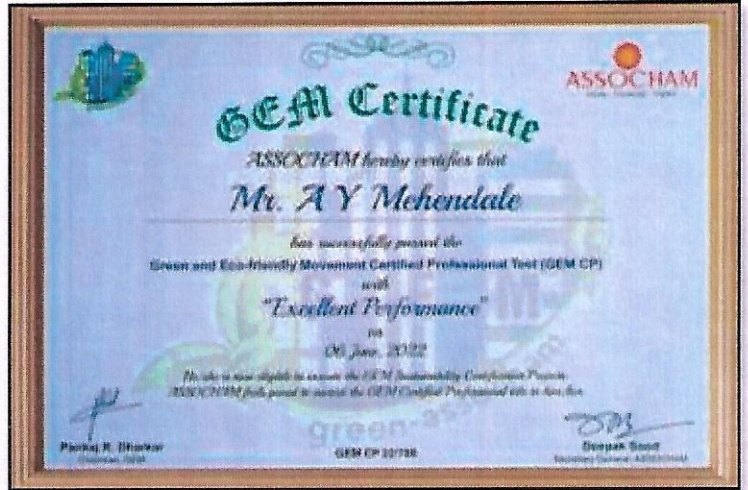
B E- Mech, M Tech-Energy, Certified Energy Auditor, EA-8192
ASSOCHAM GEM Certified Professional: GEM: 22/788



REGISTRATION CERTIFICATES



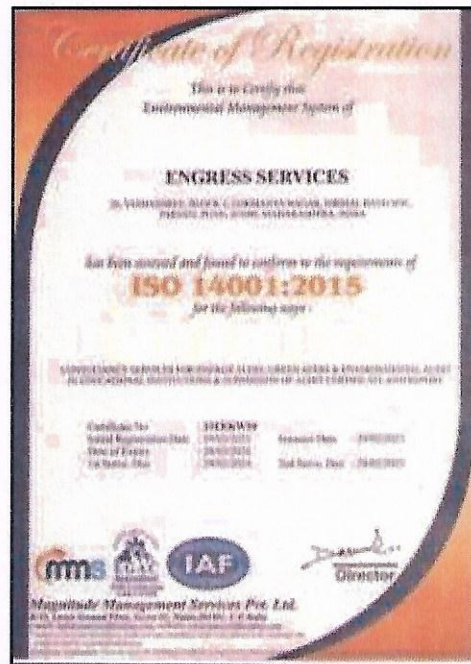
MEDA Registration Certificate



GEM Certified Professional Certificate



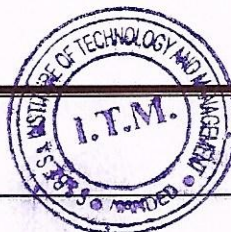
ISO: 9001-2015 Certificate



ISO: 14001-2015 Certificate

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ACKNOWLEDGEMENT

We Engress Services, Pune, express our sincere gratitude to the management of Shri Sharda Bhavan Education Society's Institute of Technology & Management, Nanded for awarding us the assignment of Green Audit of their Campus for the Year: 2022-23.

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



EXECUTIVE SUMMARY

1. Institute of Technology & Management, Nanded, consumes Energy in the form of Electrical Energy; used for various Electrical Equipment, office & other facilities.

2. Present Energy Consumption & CO₂ Emission:

No	Particulars	Value	Unit
1	Annual Energy Consumption	96290	kWh
2	Annual CO ₂ Emissions	86.66	MT

3. Renewable Energy & Energy Efficiency Projects:

- Usage of Energy Efficient LED Fittings
- Usage of Energy Efficient BEE STAR Rated equipment
- Maximum usage of Day Lighting
- Installation of 60 kWp Roof Top Solar PV Plant

4. Waste Management:

5.1 Segregation of Waste at Source:

The Waste is segregated at source in separate Waste Bins & is handed over for further action.

5.2 Bio Composting Pit:

The Institute has a Bio Composting Pit, to convert the Leafy Waste into Bio Compost.

5.3 Liquid Waste Management:

The Institute has installed Septic Tank and it cleans periodically.

5.4 Sanitary Waste Management:

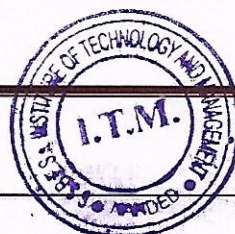
The Institute has installed Sanitary Waste Incinerator, for disposal of the Sanitary Waste.

5.6 E Waste Management:

The E Waste is disposed through Authorized Agency by institution.

6. Rain Water Management:

The Institute has installed the Rainwater Management project; the rain water falling on the terrace is collected through pipes and is used for recharging bore-well.



7. Green & Sustainable Practices:

- Maintenance of good Internal Road
- Maintenance of Internal Garden: 100 plus Trees in the campus.
- Provision of Ramp for Divyangajan
- Creation of awareness on Resource Conservation Display of Posters

8. Assumption:

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

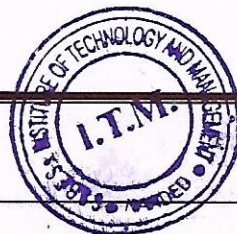
9. Reference:

- For CO₂ Emissions: www.tatapower.com



ABBREVIATIONS

BEE	Bureau of Energy Efficiency
kWh	Kilo Watt Hour
LPD	Liters Per Day
Kg	Kilo Gram
MT	Metric Ton
CO ₂	Carbon Di Oxide
Qty	Quantity

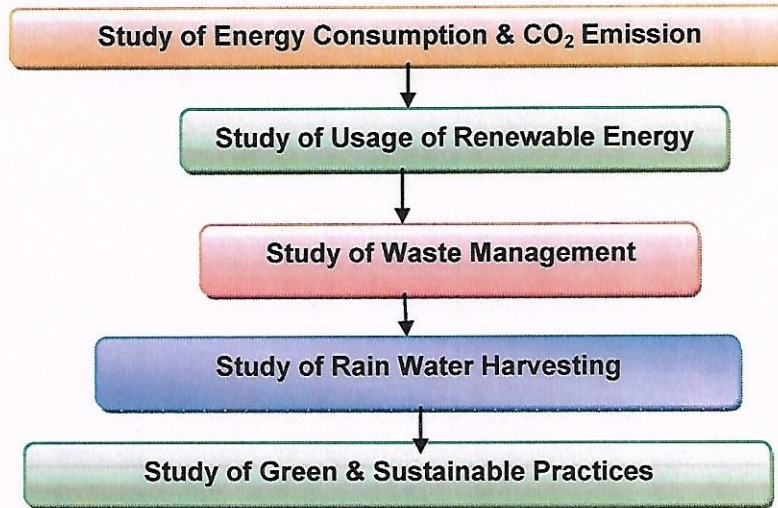


CHAPTER-I INTRODUCTION

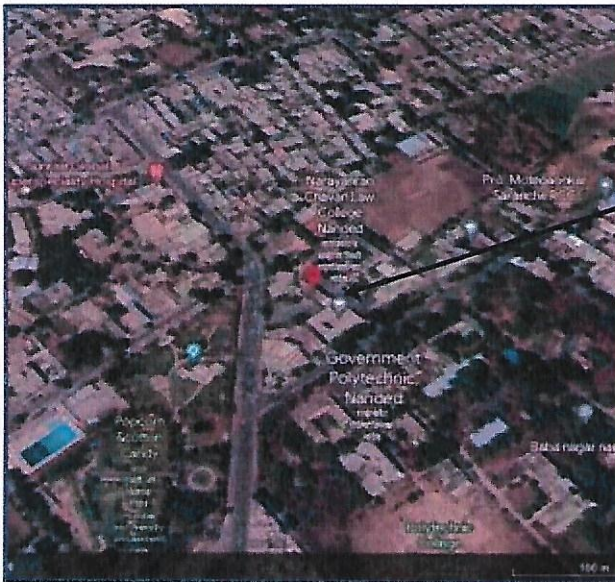
1.1 Introduction:

A Green Audit is conducted at Institute of Technology & Management, Nanded.

1.2 Audit Procedural Steps:



1.3 Institute Location Image:



Institute
Campus

CHAPTER-II STUDY OF ENERGY CONSUMPTION & CO₂ EMISSION

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 Institute for performing its day to day activities

The Institute uses Electrical Energy for various Electrical gadgets.

Basis for computation of CO₂ Emissions:

The basis of Calculation for CO₂ emissions due to Electrical Energy is as under

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

Based on the above Data we compute the CO₂ emissions which are being released in to the atmosphere by the Institute due to its Day to Day operations

Table No 1: Month wise CO₂ Emissions:

No	Month	Energy Consumed, kWh	CO2 Emissions, MT
1	Mar-22	9111	8.200
2	Apr-22	9616	8.655
3	May-22	10652	9.587
4	Jun-22	8941	8.047
5	Jul-22	7238	6.514
6	Aug-22	8261	7.434
7	Sep-22	8823	7.940
8	Oct-22	7777	6.998
9	Nov-22	4691	4.221
10	Dec-22	5718	5.145
11	Jan-23	5348	4.812
12	Feb-23	10114	9.102
13	Total	96290	86.66
14	Maximum	10652.7	9.587
15	Minimum	4690.86	4.221
16	Average	8024.19	7.221



Chart No 1: Month wise CO₂ Emissions:

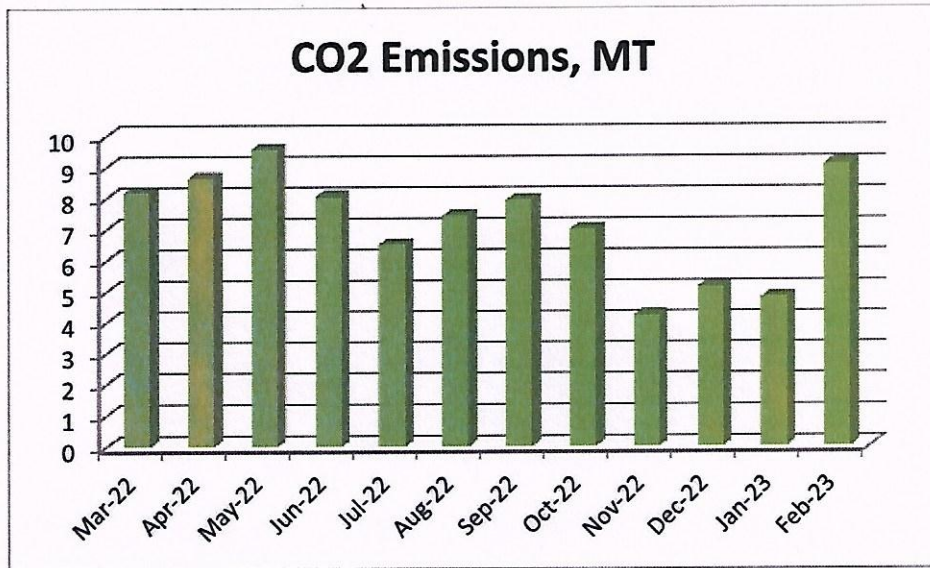


Table No 2: Important Parameters:

No	Parameter/ Variation	Energy Consumed, kWh	CO2 Emissions, MT
1	Total	96290	86.66
2	Maximum	10652.7	9.587
3	Minimum	4690.86	4.221
4	Average	8024.19	7.221

CHAPTER III STUDY OF USAGE OF RENEWABLE ENERGY

The College has installed Roof Top Solar PV Plant of Capacity **60 kWp**.

In the following Table, we compute the Annual Reduction in CO₂ Emissions due to installation of Roof TOP Solar PV Plant.

Table No6: Computation of Annual Reduction in CO₂ Emissions:

No	Particulars	Value	Unit
1	Installed Capacity of Roof Top Solar PV Plant Capacity	60	kWp
2	Energy Generated in per kWp	4	kWh/kWp
3	Annual Solar Energy generation Days	300	Nos
4	Energy Generated in the Year: 22-23	72000	kWh
5	1 kWh of Electrical Energy saves	0.9	Kg/kWh
6	Qty of CO₂ Saved by Solar PV Plant = (4)*(5) /1000	64.8	MT of CO₂



CHAPTER IV STUDY OF WASTE MANAGEMENT

4.1 Segregation of Waste at Source:

The Waste is segregated at source in separate Waste Bins & is handed over for further action.

Photograph of Waste Collection Bins:



4.2 Bio Composting Pit:

The Institute has a Bio Composting Pit, to convert the Leafy Waste into Bio Compost.

Photograph of Bio Composting Pit:



4.3 Liquid Waste Management:

The Institute has installed Septic Tanks it cleans periodically.

4.4 Sanitary Waste Management:

The Institute has installed Sanitary Waste Incinerator for disposal of the Sanitary Waste.



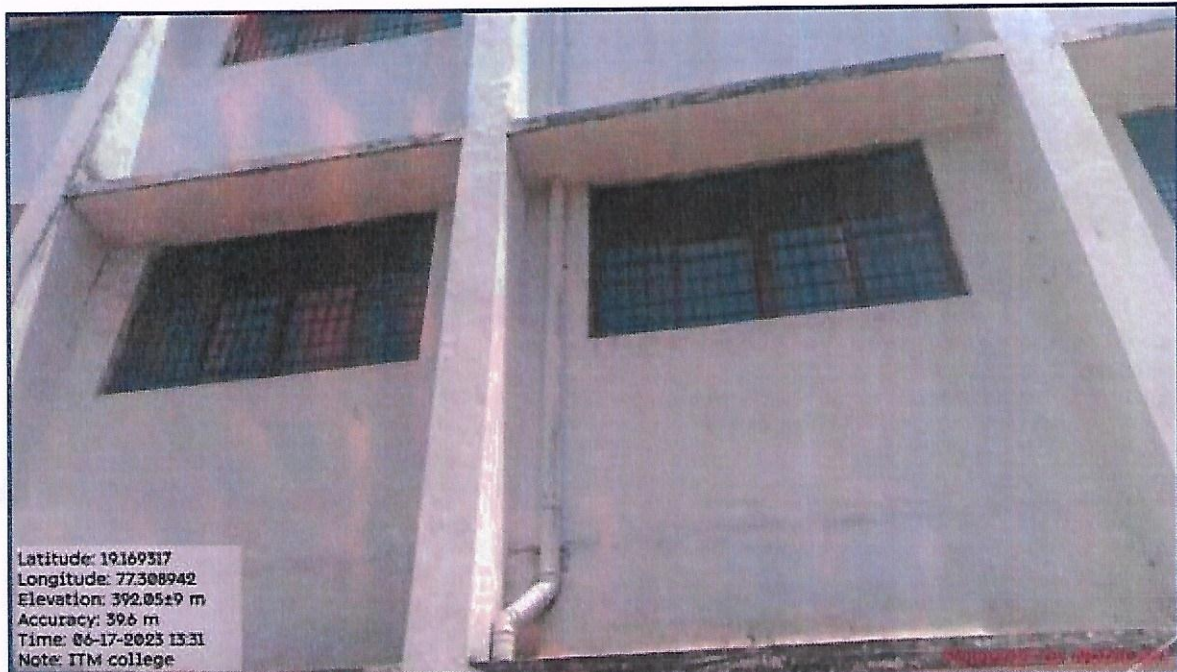
4.5 E Waste Management:

The E Waste is disposed through Authorized Agency by institution.

CHAPTER V STUDY OF RAIN WATER MANAGEMENT

The Institute has implemented the Rain Water Management Project. The Institute has installed Pipes from the terrace and the Rain water falling on the terrace is gathered and is used for recharging the bore-well.

Photograph of Rain Water Management Section:



CHAPTER VI STUDY OF GREEN & SUSTAINABLE PRACTICES

6.1 Pedestrian Friendly Road & Internal Tree Plantation:

The Institute has well maintained internal road to facilitate the easy movement of the students within the campus. The Institute has well maintained landscaped garden in the campus.

Photograph of Internal Road & Tree plantation:



6.2 Provision of Ramp for Divyangajan:

For easy movement of Divyangajan, the Institute has made provision of Ramp.

Photograph of Ramp:



6.3 Creation of Awareness about Energy Conservation:

The Institute has displayed posters emphasizing on importance of Energy Conservation.

Photograph of Poster on Energy Conservation:



6.4 Tree Plantation:

Tree plantation event was organized in the campus under NSS Unit.

Photograph of Tree Plantation in the Campus:



ANNEXURE-1:

LIST OF TREES & PLANTS IN THE CAMPUS:

Common Name of plant	Botanical Name of Plant	Quantity
Cycas	Cycas revoluta	2
Coconut	Cocos nucifera (L.)	12
Areca Palm	Dyopsis lutescens	2
Mango	Mangifera indica	4
Custard apple	Annona squamosa L.	1
Parijat	Nyctanthes arbortristis	1
Teak	Tectona grandis	8
Chafa	Plumeria alba	4
Neem	Azadirachta indica	17
Ficus	Ficus benghalensis	1
Saptaparni	Alstonia scholaris	4
Cassia	Cassia fistula	3
Tamrind	Tamarindus indica	1
Nag Chafa	Plumeria pudica	2
Gulmohar	Delonix regia	1
Kachnar	Bauhinia variegata	1
Lemon	Citrus limon	1
Guava	Psidium guajava	1
Karanj	Pongamia pinnata	1
Jatropha	Jatropha integerrima	1
Tecoma	Tecoma stans	9
Ornamental Fucus	Ficus benghalensis	3
Bougainvillia	Bauhinia variegata	1
Ficus (Umbar)	Ficus racemosa	50
Canna	Canna indica	1
Nerium	Nerium indicum	5
Ashoka	Saraca asoca	3
Agave	Agave angustifolia	2
copperieaf	Acalypha wilkesiana	4
Screw Pine	Pandanus veitchii	5
Sadaphuli	Catharanthus roseus	10
Madhumalati	Combretum indicum	1



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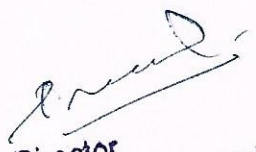
Year: 2021-22

Prepared by:

Engress Services

Yashashree, 26, Nirmal Bag Society,
Near Mukhtangan English School, Parvati, Pune 411009
Phone: 09890444795 Email: enrichcons@gmail.com




Director
Shri Sharda Bhavan Education Society's
Institute of Technology and Management,
NANDED.

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.

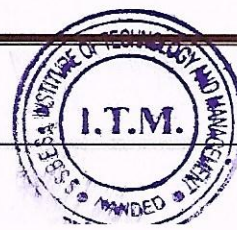
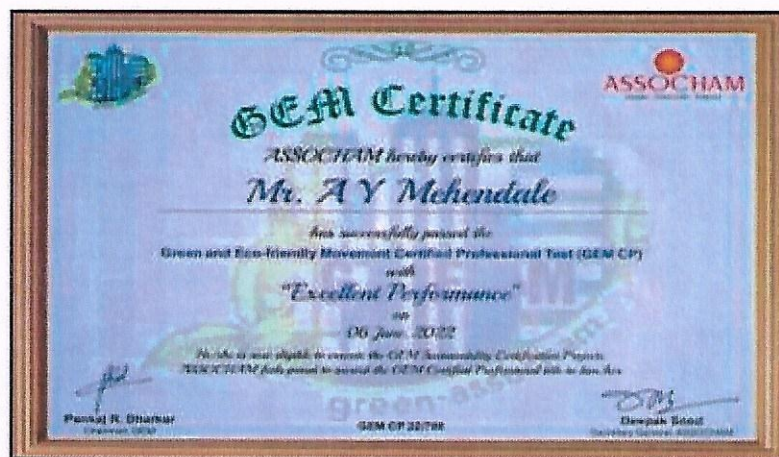
Name and Address of the firm : M/s Engress Services
Yashree, 26, Nirmal Bag Society,
Near Muktagan English School,
Parvat, Pune - 411 009.

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

Registration Number : MEDA/ECN/2022-23/Class AEA-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 cancelling 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)



ENGRESS SERVICES

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

Ref: ES/ITM/21-22/02

Date: 12/6/2022

CERTIFICATE

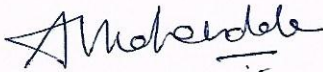
This is to certify that we have conducted Green Audit at Shri Sharda Bhavan Education Society's Institute of Technology & Management, Nanded in the Academic year 2021-22.

The Institute has adopted following Green Initiatives:

- Usage of Energy Efficient LED Light Fitting
- Maximum Usage of Day Lighting
- Provision of Separate bins for Dry & Wet Waste
- The Institute has installed Septic Tank and is cleaned periodically.
- Implementation of Rain Water Management Project
- Maintenance of good Internal Road
- Tree Plantation in the campus
- Creation of awareness by Display of Posters on Resource Conservation

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

For Engress Services,



A Y Mehendale,

Certified Energy Auditor, EA-8192

ASSOCHAM GEM Certified Professional: GEM: 22/788



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ACKNOWLEDGEMENT

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



EXECUTIVE SUMMARY

1. Institute of Technology & Management, Nanded consumes Energy in the form of Electrical Energy used for various Electrical Equipment, office & other facilities.

2. Present Energy Consumption & CO₂ Emissions:

No	Parameter/ Value	Energy Purchased, kWh	CO ₂ Emissions, MT
1	Total	92310	83.079
2	Maximum	10616	9.555
3	Minimum	5100	4.590
4	Average	7692.55	6.923

3. Various initiatives taken for Energy Conservation:

- Usage of Energy Efficient LED Lighting
- Maximum Usage of Day Lighting

4. Usage of Renewable Energy & CO₂ Emission Reduction:

- It is recommended to install roof-top solar PV Plant on college building.

5. Waste Management:

5.1 Segregation of Waste at Source:

The Waste is segregated at source and the recyclable waste, like paper, plastic waste is handed over to Authorized waste collecting agent for further recycling.

5.2 Organic Waste Management:

The Institute has a Bio Composting Pit, to convert the Leafy Waste into Bio Compost.

5.3 Liquid Waste Management:

The College has installed Septic and is cleaned periodically.

5.4 E-Waste Management:

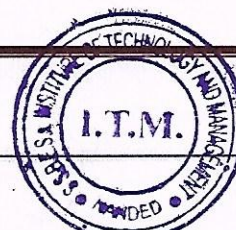
It is recommended to dispose of the E Waste through Authorized Agency.

5.5 Sanitary Waste Incinerator:

The College has not installed Sanitary Waste Incinerator, it is recommended to install Sanitary Waste Incinerator for disposal sanitary waste.

6. Rain Water Management:

The College has Rain Water Management Project. The College has installed Pipes from the terrace and the Rain water falling on the terrace is used to increase the underground water table.



7. Green & Sustainable Initiatives

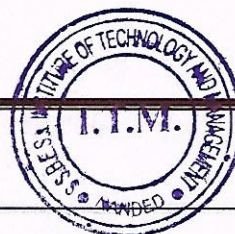
- Maintenance of good Internal Road
- Maintenance of Internal Garden
- Display of Posters on Resource Conservation
- Best Practices and Initiative for Social Awareness

8. Notes & Assumptions:

1. 1 kWh of Electrical Energy releases **0.9 Kg** of **CO₂** into atmosphere
2. Average Energy generated by **1 kWp** Solar PV Plant : **4 kWh/Day**
3. Annual Solar Energy Generation Days: **300 Nos**

9. References:

- For CO₂ Emissions: www.tatapower.com
- For Roof Top Solar Energy Generation: www.solarrooftop.gov.in
- For Various Indoor Air Parameters: www.ishrae.com
- For AQI & Water Quality Standards: www.cpcb.com



ABBREVIATIONS

BEE	Bureau of Energy Efficiency
kWh	Kilo Watt Hour
LPD	Liters Per Day
Kg	Kilo Gram
MT	Metric Ton
CO ₂	Carbon Di Oxide
Qty	Quantity



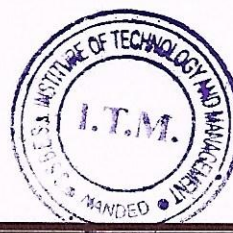
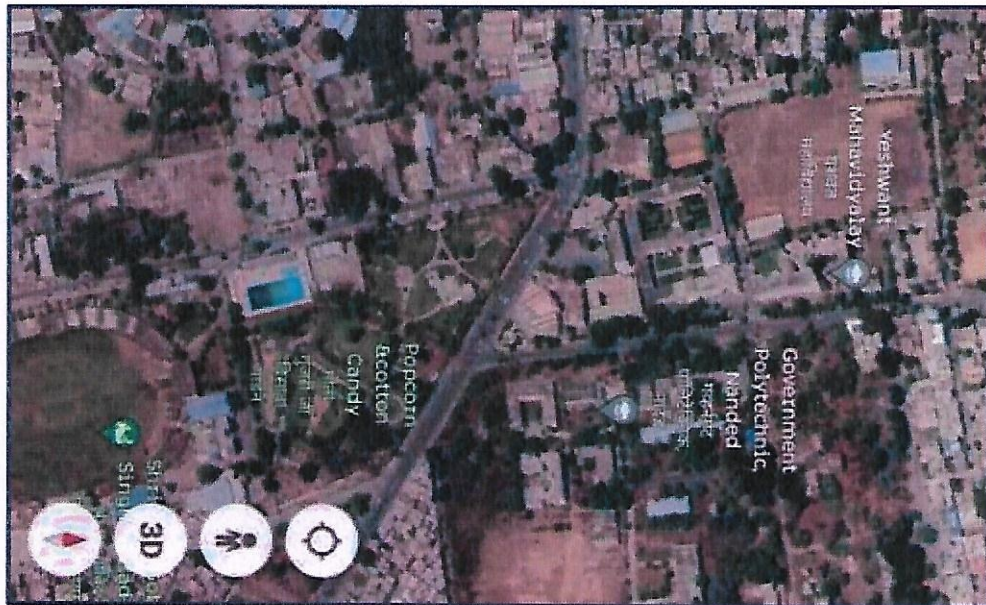
CHAPTER-I INTRODUCTION

1.1 Objectives:

1. To study present Energy Consumption
2. To Study CO₂ emissions
3. To study usage of Renewable Energy
4. Study of Waste Management
5. Study of Rain Water Management
6. Study of Green & Sustainable Practices

1.2 General Details of College: Table No 1:

No	Head	Particulars
1	Name of Institution	Shri Sharda Bhavan Education Society's, Institute of Technology & Management
2	Address	Near Kusum Auditorium, VIP Road, Nanded 431 602
3	Affiliation	S.R.T. Marathwada University, Nanded



CHAPTER-II

STUDY OF PRESENT ENERGY CONSUMPTION

In this chapter, we present the analysis of last year Electricity Bills

Table No 2: Electrical Bill Analysis- 2021-22:

No	Month	Energy Purchased, kWh
1	Mar-21	8741
2	Apr-21	9546
3	May-21	10617
4	Jun-21	8865
5	Jul-21	7159
6	Aug-21	8210
7	Sep-21	8676
8	Oct-21	7766
9	Nov-21	5101
10	Dec-21	6499
11	Jan-22	5348
12	Feb-22	5782
13	Total	92310
14	Maximum	10617
15	Minimum	5101
16	Average	7692.55

Chart No 1: Variation in Monthly Energy Consumption:

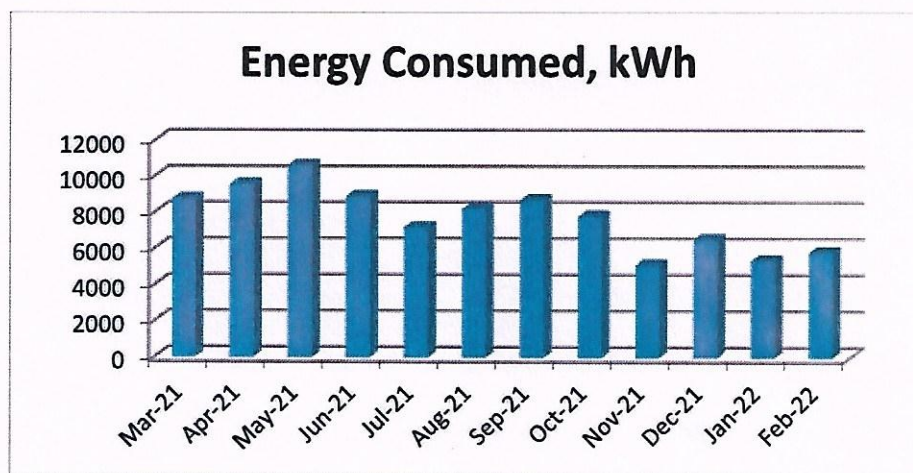


Table No 3: Variation in Important Parameters:

No	Parameter/ Variation	Energy Purchased, kWh
1	Total	92310
2	Maximum	10617
3	Minimum	5101
4	Average	7692.55

CHAPTER III STUDY OF CARBON FOOTPRINTING

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 College for performing its day to day activities

The College uses Electrical Energy for various Electrical gadgets.

Basis for computation of CO₂ Emissions:

The basis of Calculation for CO₂ emissions is as under.

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

Based on the above Data we compute the CO₂ emissions which are being released in to the atmosphere by the College due to its Day to Day operations

Table No4: Month wise CO₂ Emissions:

No	Month	Energy Purchased, kWh	CO ₂ Emissions, MT
1	Mar-21	8741	7.867
2	Apr-21	9546	8.591
3	May-21	10617	9.555
4	Jun-21	8865	7.978
5	Jul-21	7159	6.443
6	Aug-21	8210	7.389
7	Sep-21	8676	7.808
8	Oct-21	7766	6.989
9	Nov-21	5101	4.590
10	Dec-21	6499	5.848
11	Jan-22	5348	4.812
12	Feb-22	5782	5.204
13	Total	92310	83.079
14	Maximum	10617	9.555
15	Minimum	5101	4.590
16	Average	7692.55	6.923

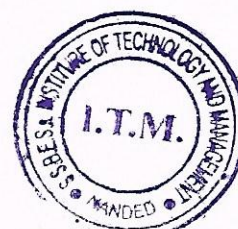


Chart No 2: Month wise CO₂Emissions:

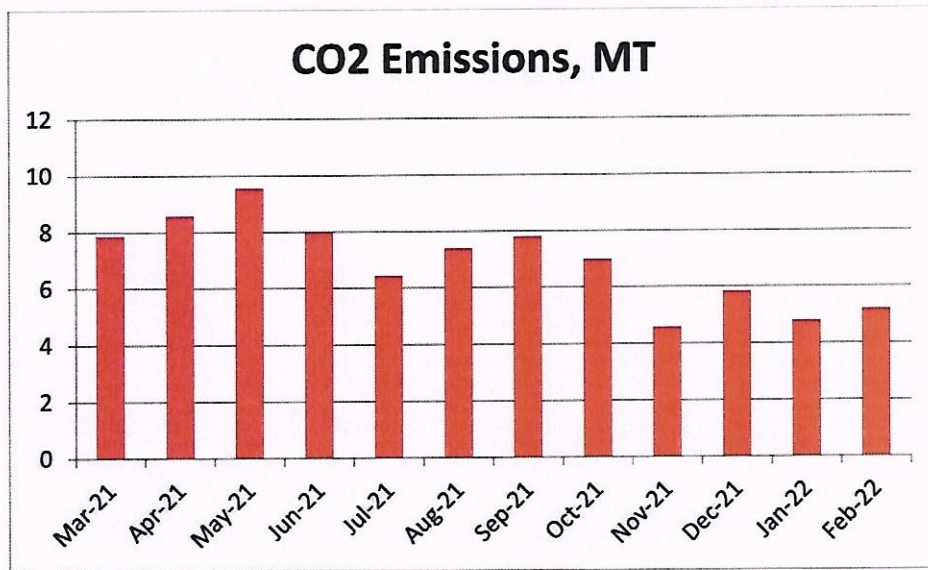
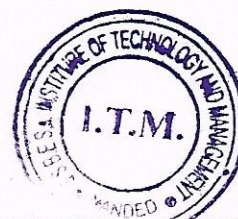


Table No 5: Variation in Important Parameters:

No	Parameter/ Variation	Energy Purchased, kWh	CO2 Emissions, MT
1	Total	92310	83.079
2	Maximum	10617	9.555
3	Minimum	5101	4.590
4	Average	7692.55	6.923



CHAPTER IV STUDY OF USAGE OF RENEWABLE ENERGY

As on today College has not install solar roof-top PV plant.



CHAPTER V STUDY OF WASTE MANAGEMENT

5.1 Segregation of Waste at Source:

The Waste is segregated at source and the recyclable waste, like paper waste is handed over to authorized waste collecting agent for further recycling.



5.2 Bio Composting Pit:

The Institute has a Bio Composting Pit, to convert the Leafy Waste into Bio Compost.

Photograph of Bio Composting Pit:



5.3 Liquid Waste Management:

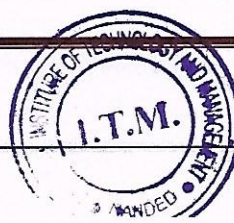
The College has installed Septic tank and is cleaned periodically.

5.4 E-Waste Management:

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

5.5 Sanitary Waste Incinerator:

The College has not installed Sanitary Waste Incinerator, it is recommended to install Sanitary Waste Incinerator for disposal sanitary waste.



CHAPTER-VI

STUDY OF RAIN WATER MANAGEMENT

The Institute has implemented the Rain Water Management Project. The Institute has installed Pipes from the terrace and the Rain water falling on the terrace is gathered and is used for recharging the bore-well.

Photograph of Rain Water Management Section: .



CHAPTER-VII STUDY OF GREEN & SUSTAINABLE PRACTICES

7.1 Pedestrian Friendly Roads:

The College has well maintained internal road to facilitate the easy movement of the students within the campus.

Photograph of Internal Road:



7.2 Internal Tree Plantation:

The College has well maintained landscaped garden in the campus.

Photograph of Tree plantation:



7.3 Provision of Ramp:

The College has facility for ramp, for easy movement for Divyaang.



7.4 Creation of Awareness about Energy Conservation:

The College has displayed posters emphasizing on importance of Energy Conservation awareness.

Photograph of Poster on Energy Conservation awareness:



7.5 Best Practices and Initiative for Social Awareness:

The College has taken initiative for different social awareness program, like water conservation, trees plantations, society cleanness etc under National Service Scheme.

Photograph of Best Practices:



ANNEXURE-1:

DETAILS OF TREES & PLANTS:

Presently the College Campus has more than 100 trees:

Common Name of plant	Botanical Name of Plant	Quantity
Cycas	Cycas revoluta	2
Coconut	Cocos nucifera (L.)	12
Areca Palm	Dyopsis lutescens	2
Mango	Mangifera indica	4
Custard apple	Annona squamosa L.	1
Parijat	Nyctanthes arbortristis	1
Teak	Tectona grandis	8
Chafa	Plumeria alba	4
Neem	Azadirachta indica	17
Ficus	Ficus benghalensis	1
Saptaparni	Alstonia scholaris	4
Cassia	Cassia fistula	3
Tamrind	Tamarindus indica	1
Nag Chafa	Plumeria pudica	2
Gulmohar	Delonix regia	1
Kachnar	Bauhinia variegata	1
Lemon	Citrus limon	1
Guava	Psidium guajava	1
Karanj	Pongamia pinnata	1
Jatropha	Jatropha integerrima	1
Tecoma	Tecoma stans	9
Ornamental Fucus	Ficus benghalensis	3
Bougainvillia	Bauhinia variegata	1
Ficus (Umbar)	Ficus racemosa	50
Canna	Canna indica	1
Nerium	Nerium indicum	5
Ashoka	Saraca asoca	3
Agave	Agave angustifolia	2
copperieaf	Acalypha wilkesiana	4
Screw Pine	Pandanus veitchii	5
Sadaphuli	Catharanthus roseus	10
Madhumalati	Combretum indicum	1

GREEN AUDIT REPORT
of
Shri Sharda Bhavan Education Society's,
INSTITUTE OF TECHNOLOGY & MANAGEMENT
VIP Road, Nanded



Year: 2020-21

Prepared by:

ENRICH CONSULTANTS

Yashashree, 26, Nirmal Bag Society,
Near Muktangan English School, Parvati, Pune 411009
Phone: 09890444795 Email: enrichcons@gmail.com




Director
Shri Sharda Bhavan Education Society's
Institute of Technology and Management,
NANDED.

MAHARASHTRA ENERGY DEVELOPMENT AGENCY

An ISO 9001 : 2000 Reg. no. : RC 91 / 2482



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@mahauria.com, Web: www.mahauria.com

ECN/2021-22/CR-14/1577

22nd April, 2021

**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.

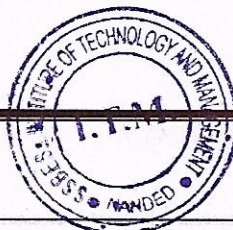
Name and Address of the firm : M/s Enrich Consultants
Yashashree, Plot No. 26, Nirmal Bag Society,
Near Muktangan English School, Parvati,
Pune - 411009.

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

Registration Number : *MEDA/ECN/2021-22/Class A/EA-03*

- 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 **21st April, 2023** 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)



Enrich Consultants

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

Ref: EC/ITM/20-21/02

Date: 30/5/2021

CERTIFICATE

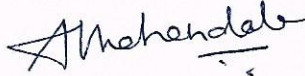
This is to certify that we have conducted Green Audit at Shri Sharda Bhavan Education Society's Institute of Technology & Management, Nanded in the Year 2020-21.

The Institute has adopted following Energy Efficient and Green Practices:

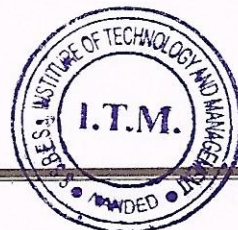
- Usage of Energy Efficient LED Fittings
- Maximum usage of Day Lighting
- Segregation of Waste at Source
- Installation of Rain Water Management Project
- Maintenance of Good Internal Road
- Tree Plantation in the campus
- Provision of Ramp for Divyangajan
- Creation of Awareness on Energy Conservation, by Display of Posters

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

For Enrich Consultants,



A Y Mehendale,
Certified Energy Auditor,
EA-8192



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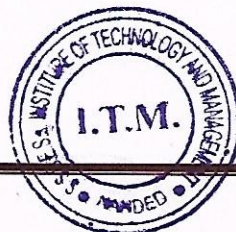
Sr. No	Particulars	Page No
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2	Study of Present Energy Consumption	10
3	Study of CO ₂ Emission	12
4	Study of Usage of Renewable Energy	14
5	Study of Waste Management	15
6	Study of Rain Water Management	16
7	Study of Green & Sustainable Practices	17



ACKNOWLEDGEMENT

We at Enrich Consultants, Pune, express our sincere gratitude to the management of Shri Sharda Bhavan Education Society's, Institute of Technology & Management, Nanded for awarding us the assignment of Green Audit of their Nanded Campus, for the Academic Year: 2020-21.

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



EXECUTIVE SUMMARY

1. Institute of Technology & Management, Nanded consumes Energy in the form of Electrical Energy; used for various gadgets, office & other facilities.

2. Present Energy Consumption & CO₂ Emission:

No	Parameter/ Value	Energy Consumed, kWh	CO ₂ Emissions, MT
1	Total	95987	86.3883
2	Maximum	11360	10.224
3	Minimum	4767	4.2903
4	Average	7998.92	7.19903

3. Energy Conservation measures adopted:

- Usage of Energy Efficient LED fittings
- Maximum Usage of Day Lighting

4. Usage of Renewable Energy:

The College has yet to install Roof Top Solar PV Plant

5. Waste Management:

5.1 Segregation of Waste at Source:

The solid waste is segregated at source. There are separate bins for collection at various points and is disposed of for further for recycling.

5.2 Organic Waste Management:

It is recommended to go for Bio composting for conversion of organic waste.

5.3 Sanitary Waste Management:

The College has not install Sanitary Waste Incinerator, It is recommended to install Sanitary Waste Incinerator for disposal of the Sanitary Waste.

6. Rain Water Management:

The College has Rain Water Management Project. The College has installed Pipes from the terrace and the Rain water falling on the terrace is used to increase the underground water table.

7. Green & Sustainable Practices:

- Maintenance of good Internal Road
- Internal Tree Plantation
- Provision of Ramp for Divyangajan
- Creation of Awareness on Energy Conservation, by Display of Posters

8. Assumptions:

- **1 kWh** of Electrical Energy releases **0.9 Kg** of **CO₂** into atmosphere
- **1 Kg** of LPG releases **2.68 Kg** of **CO₂** into atmosphere

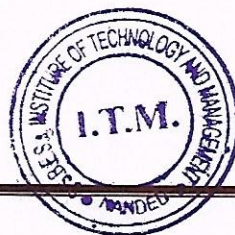
9. Reference:

- For CO₂ Emissions: www.tatapower.com



ABBREVIATIONS

BEE	Bureau of Energy Efficiency
kWh	Kilo Watt Hour
kWp	Kilo Watt Peak
Kg	Kilo Gram
MT	Metric Ton
CO ₂	Carbon Di Oxide
LPG	Liquefied Petroleum Gas



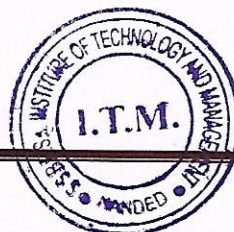
CHAPTER-I INTRODUCTION

1.1 Objectives:

1. To study present Energy Consumption
2. To Study CO₂ emissions
3. To study usage of Renewable Energy
4. Study of Waste Management
5. Study of Rain Water Management
6. Study of Green & Sustainable Practices

1.2 Table No 1: General Details of the College:

No	Head	Particulars
1	Name of the Institution	Shri Sharda Bhavan Education Society's, Institute of Technology & Management
2	Address	Near Kusum Auditorium, VIP Road, Nanded 431 602
3	Year of Establishment	1997



CHAPTER-II STUDY OF PRESENT ENERGY CONSUMPTION

In this chapter, we present the analysis of Energy Consumption.

Table No 2: Study of Electrical Energy Consumption: 20-21:

No	Month	Energy Consumed, kWh
1	Mar-20	9430
2	Apr-20	9140
3	May-20	11360
4	Jun-20	8670
5	Jul-20	7310
6	Aug-20	8125
7	Sep-20	8925
8	Oct-20	7835
9	Nov-20	4767
10	Dec-20	5843
11	Jan-21	5235
12	Feb-21	9347
13	Total	95987
14	Maximum	11360
15	Minimum	4767
16	Average	7998.92

Chart No: 1: Study of variation of Monthly Electrical Energy Consumption:

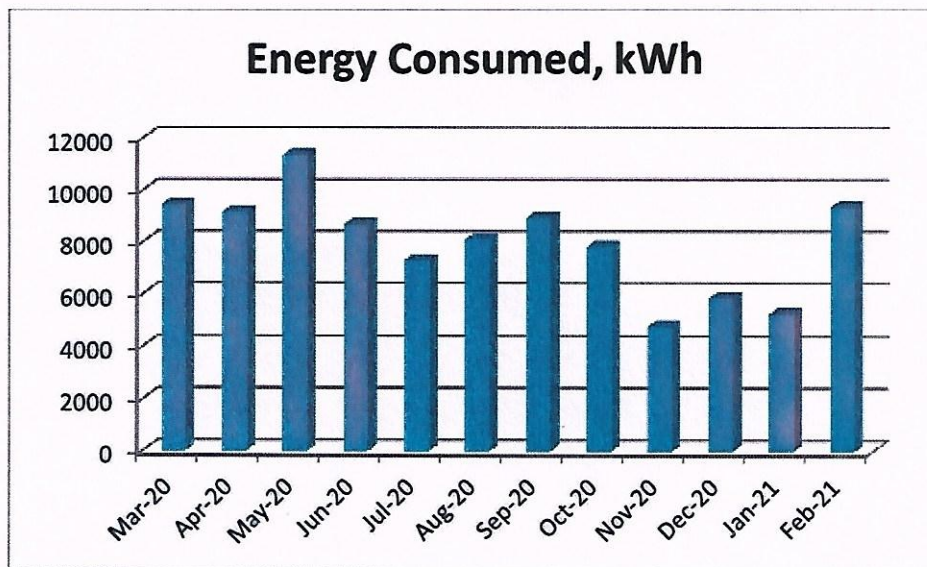
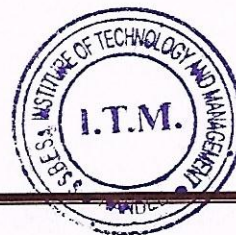


Table No 3: Variation in Important Parameters:

No	Parameter/ Variation	Energy Consumed, kWh
1	Total	95987
2	Maximum	11360
3	Minimum	4767
4	Average	7998.92



CHAPTER-III STUDY OF CO₂ EMISSION

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 College for performing its day to day activities

The College uses two forms of Energy namely: Electrical Energy for various Electrical gadgets and LPG.

Basis for computation of CO₂ Emissions:

The basis of Calculation for CO₂ emissions due to LPG & Electrical Energy are as under

- 1 kWh of Electrical Energy releases 0.8 Kg of CO₂ into atmosphere

Based on the above Data we compute the CO₂ emissions which are being released in to the atmosphere by the College due to its Day to Day operations

Table No 4: Month wise CO₂ Emissions:

No	Month	Energy Consumed, kWh	CO2 Emissions, MT
1	Mar-20	9430	8.487
2	Apr-20	9140	8.226
3	May-20	11360	10.224
4	Jun-20	8670	7.803
5	Jul-20	7310	6.579
6	Aug-20	8125	7.3125
7	Sep-20	8925	8.0325
8	Oct-20	7835	7.0515
9	Nov-20	4767	4.2903
10	Dec-20	5843	5.2587
11	Jan-21	5235	4.7115
12	Feb-21	9347	8.4123
13	Total	95987	86.3883
14	Maximum	11360	10.224
15	Minimum	4767	4.2903
16	Average	7998.92	7.19903

Chart No: 3: Representation of Month wise CO₂ Emissions:

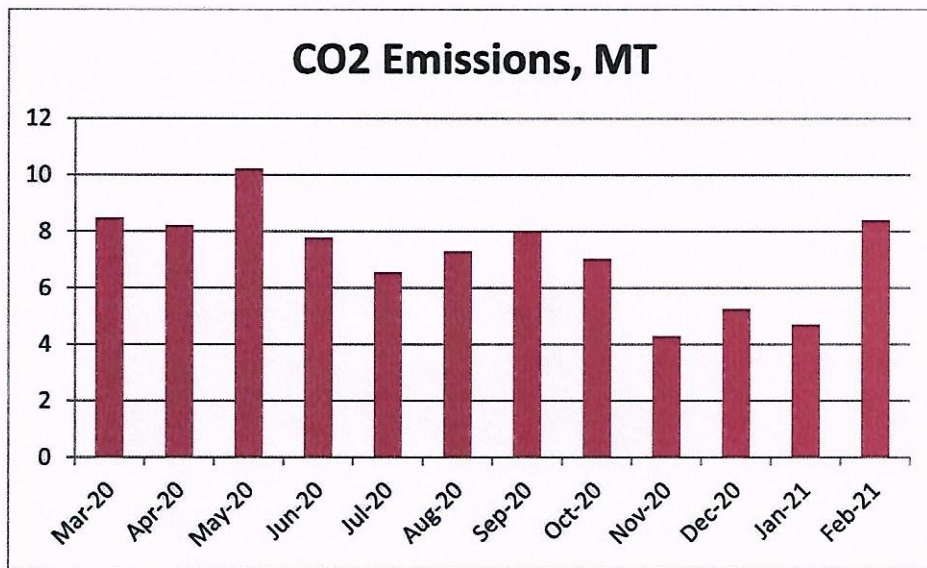
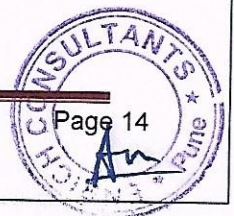
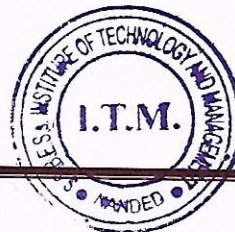


Table No 5: Variation in Important Parameters:

No	Parameter/ Value	Energy Purchased, kWh	CO ₂ Emissions, MT
1	Total	95987	86.3883
2	Maximum	11360	10.224
3	Minimum	4767	4.2903
4	Average	7998.92	7.19903

CHAPTER-IV
STUDY OF USAGE OF RENEWABLE ENERGY

The College has yet to install Roof Top Solar PV Plant



CHAPTER V STUDY OF WASTE MANAGEMENT

5.1 Segregation of Waste at Source:

The solid waste is segregated at source. Bins are kept at various points.

Photograph of Waste Collection Bin:



5.2 Organic Waste Management:

It is recommended to go for Bio composting to convert the Organic waste into Bio compost.

5.3 Sanitary Waste Management:

The College has not install Sanitary Waste Incinerator, It is recommended to install Sanitary Waste Incinerator for disposal of the Sanitary Waste.

CHAPTER-VI

STUDY OF RAIN WATER MANAGEMENT

The College has Rain Water Management Project. The College has installed Pipes from the terrace and the Rain water falling on the terrace is used to increase the underground water table.

Photograph of Underground Rain Water Carrying Pipe:



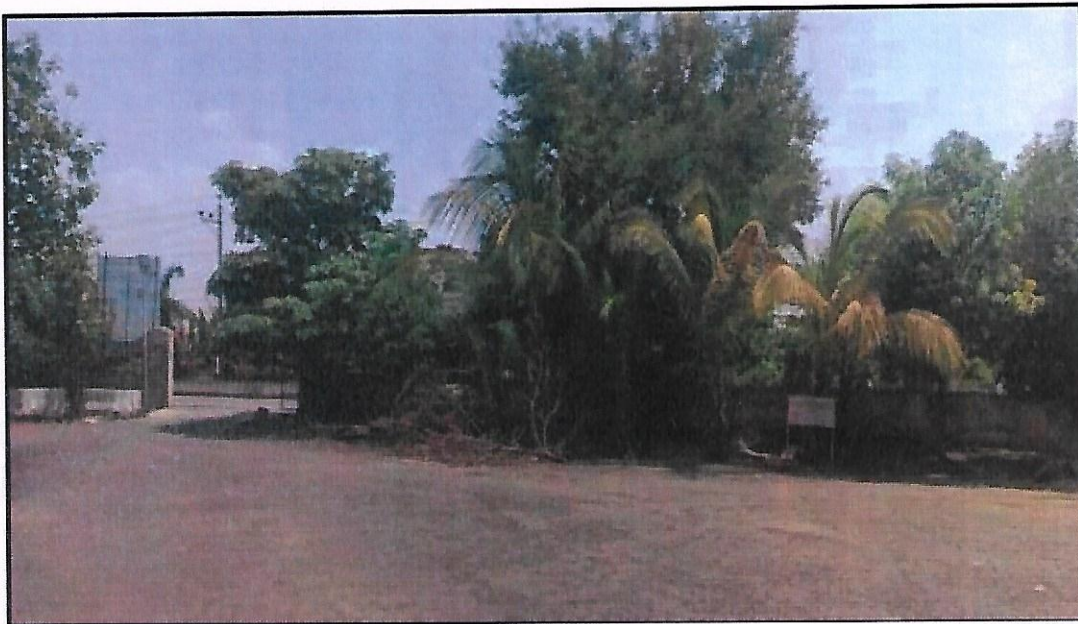
CHAPTER-VII

STUDY OF GREEN AND SUSTAINABLE PRACTICES

7.1 Pedestrian Friendly Road & Internal Tree Plantation:

The College has well maintained internal road to facilitate the easy movement of the students within the campus and also well maintained tree plantation.

Photograph of internal road in the campus:



7.2 Provision of Ramp for Divyangajan:

The College has made provision for Ramp for easy movement of Divyangajan. Also dedicated wash rooms are made available.

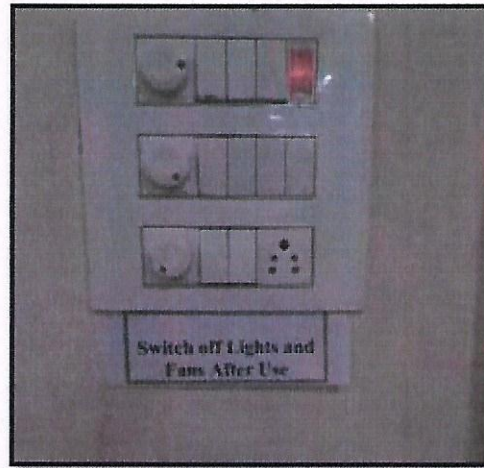
Photograph of Ramp:



7.3 Creation of Awareness on Energy Conservation:

The College has displayed board on Energy Conservation, to create awareness among the stake holders.

Photograph of Display Board on Energy Conservation:



ANNEXURE-1:

LIST OF TREES & PLANTS IN THE CAMPUS:

Common Name of plant	Botanical Name of Plant	Quantity
Cycas	Cycas revoluta	2
Coconut	Cocos nucifera (L.)	12
Areca Palm	Dyopsis lutescens	2
Mango	Mangifera indica	4
Custard apple	Annona squamosa L.	1
Parijat	Nyctanthes arbortristis	1
Teak	Tectona grandis	8
Chafa	Plumeria alba	4
Neem	Azadirachta indica	17
Ficus	Ficus benghalensis	1
Saptaparni	Alstonia scholaris	4
Cassia	Cassia fistula	3
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Nag Chafa	Plumeria pudica	2
Gulmohar	Delonix regia	1
Kachnar	Bauhinia variegata	1
Lemon	Citrus limon	1
Guava	Psidium guajava	1
Karanj	Pongamia pinnata	1
Jatropha	Jatropha integerrima	1
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Bougainvillia	Bauhinia variegata	1
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Agave	Agave angustifolia	2
copperieaf	Acalypha wilkesiana	4
Screw Pine	Pandanus veitchii	5
Sadaphuli	Catharanthus roseus	10
Madhumalati	Combretum indicum	1

