CRITERION 7 - INSTITUTIONAL VALUES AND BEST PRACTICES

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 activities**

Ans. All of the above

Index for Supporting Documents

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

GREEN POLICY

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

PREFACE

The Padmashree Group of Institution have close relationship with the natural environment. The campus is constructed with in a lush green forest environment far from the city on Taverekere and Kengeri road, creating a noise free and pollution free environment for the students and faculties. The campus is situated in between 34 acres and 10,837 sq mts. surrounded by diverse species of trees along with coconut and mango tree, which serve as a natural habitat for many birds, insects and small animals. As environmental concerns continue to rise and the effects of climate change become more apparent, it has become increasingly important for institutions to take steps to reduce their environmental impact. Educational institutes, as centres of learning and progress, have a unique opportunity to lead the way in this regard. Implementing green policies not only helps reduce an institute's carbon footprint but also sets an example for the community and teaches students the importance of environmental stewardship.

For an educational institute with a 35-acre campus, there are many areas where green policies can be implemented. The large campus provides opportunities for sustainable practices such as renewable energy generation, water conservation, waste reduction, and eco-friendly transportation. By incorporating green policies into everyday operations, the institute can create a sustainable environment that not only benefits the planet but also creates a healthier and more productive learning space for students, staff, and faculty.

In this document, we will explore some of the key green policies that can be implemented in Padmashree Institute of Management and Sciences. We will examine the benefits of each policy and provide practical guidance on how to implement them. By working together and making a commitment to sustainability, we can create a better future for ourselves and generations to come.

Scope of the policy

At Padmashree Group of Institution, we recognize the importance of a conducive environment for the academic and personal growth of our students and faculty members. In line with this vision, we have established a green campus that promotes a peaceful and pleasant atmosphere, conducive to learning and personal development.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Implementation of the Policy:

Our institution will establish a green committee to oversee the implementation of this green policy. The green committee will be responsible for developing and implementing strategies to achieve our environmental sustainability goals. The committee will also regularly monitor and report on our progress towards our sustainability goals.

Objectives of the Green Policy:

- Padmashree Group of Institution aims at creating the balanced ecosystem in the campus and preserving the natural resources.
- To ensure limited use of the natural resources and preserving the environment for the future generation
- To encourage the local communities to adapt them to the green policy by planning several extended activities.
- To focus on preserving the local tree species which would in turn help in preserving local bird communities.
- To create collaborative work with the local communities, government officials and schools to conserving the natural resources in and around the campus.
- To spread the awareness on energy recycling protocols to the school children and local communities and creating a plastic free environment.

E-waste Management:

Padamashree Group of Institution also aims at creating an e-waste free environment for the students. The policy is framed in a way that the e-waste generated within the campus are reused or recycled or disposed under proper guidance of the companies involved in these kinds of processes. E-waste disposal sites will be identified with in the department to dump the e-waste in order to prevent it getting mixed with the environment.

Collaboration with the e-waste recycling companies would be made to eliminate the e-waste from the campus.

Students will be enlightened about the effects of e-waste on the environment and instructed to reduce the unnecessary usage of the electronic items.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Promote sustainable transportation: We aim to reduce transportation emissions by promoting sustainable transportation options, including bike sharing programs, electric vehicle charging stations, and public transit subsidies for students and staff.

Increase awareness and education: We aim to increase awareness and education on environmental sustainability among our students, staff, and faculty. This will include the development of sustainability curriculums, training programs, and public awareness campaigns.

Green Strategies:

Energy efficiency: Our institution will implement energy-efficient practices, including LED lighting, smart building management systems, and energy-efficient HVAC systems. We will also invest in renewable energy sources such as solar panels, wind turbines, and geothermal systems.

Waste reduction and recycling: Our institution will implement waste reduction and recycling programs, including composting, electronic waste recycling, and paper reduction initiatives. We will also provide recycling stations throughout campus and promote the use of reusable water bottles, coffee cups, and food containers.

Sustainable transportation: Our institution will promote sustainable transportation options, including bike sharing programs, electric vehicle charging stations, and public transit subsidies for students and staff. We will also encourage carpooling and promote the use of hybrid or electric vehicles.

Awareness and education: Our institution will develop sustainability curriculums, training programs, and public awareness campaigns to promote environmental sustainability among our students, staff, and faculty. We will also host events and workshops on environmental sustainability topics and collaborate with community organizations to promote sustainability in the broader community.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Sustainable agriculture: Encouraging sustainable green practices such as organic farming, agroforestry, and regenerative agriculture to reduce the environmental impact of agriculture and improve soil health.

Conservation and protection of natural resources: Protecting and conserving natural resources such as forests, wetlands, and oceans to preserve biodiversity and ecosystem services. Creating awareness about the same.

Education and awareness: Promoting education and awareness about environmental issues and encouraging individuals to adopt environmentally friendly behaviours.

Environmental regulations and policies: Implementing regulations and policies such as carbon pricing, emissions standards, and environmental impact assessments to reduce the environmental impact of businesses and industry Purpose:

The purpose of this green policy is to promote environmental sustainability and reduce the carbon footprint of our higher educational institute. We recognize that our institution has a significant impact on the environment and that it is our responsibility to take proactive measures to reduce our environmental impact and promote sustainability.

Padmashree Institute of Management and Sciences is committed to

Reduce energy consumption and carbon emissions: Our institution aims to reduce our energy consumption and carbon emissions by 20% within the next five years. We will achieve this by promoting energy-efficient practices, investing in renewable energy sources, and using carbon pricing mechanisms to incentivize energy efficiency.

Reduce waste generation and promote recycling: We aim to reduce waste generation by 30% and increase recycling rates by 50% within the next five years. We will achieve this by implementing waste reduction and recycling programs, including composting, electronic waste recycling, and paper reduction initiatives.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Our policy focuses on creating a sustainable and eco-friendly campus, with an emphasis on reducing pollution levels and conserving natural resources. We have implemented a range of measures, including the use of solar power and the adoption of modern technology to improve the ecosystem.

In addition, we are committed to creating awareness among our students and local communities about the importance of preserving the environment. Our policy also includes initiatives to create a plastic-free campus and promote co-curricular and extra-curricular activities that enhance creative skills and encourage students to be agents of change.

Goals of green policy:

Green policy generally refers to a set of policies and practices aimed at promoting environmental sustainability, reducing carbon footprint, and mitigating the effects of climate change. The specific components of green policy may vary depending on the particular context, but some common elements include:

Renewable energy: Encouraging the development and use of renewable energy sources such as solar, biogas, to reduce dependence on fossil fuels.

Energy efficiency: Promoting energy efficiency in buildings, transportation, and industrial processes to reduce energy consumption and greenhouse gas emissions.

Sustainable transportation: Encouraging the use of public transportation, bicycles, and electric vehicles to reduce traffic congestion and air pollution.

Waste reduction and recycling: Encouraging waste reduction, recycling, and the use of recycled materials to conserve resources and reduce the amount of waste sent to landfills.

Green infrastructure: Investing in green infrastructure such as parks, green roofs, and green walls to reduce the urban heat island effect, improve air quality, and promote biodiversity.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Campus survey would be conducted at a regular interval time to identify any unused or damaged electronic equipment's which would be either repaired or replaced.

Awareness programs:

The implementation of the policy within the campus is an utmost important for the Padmashree group of Institution to maintain the greenery within the campus. The awareness among the students shall be spread by organizing regular, seminars, workshop, and swachh campus abhiyaan shall be organized on a regular basis to clean the campus. Celebration of Environmental day, plantation program, would also help the students know the importance and need of the good environment. Institution shall celebrate and promote the environment related days and activities.

Earth Day (April 22nd) - This day is celebrated globally to raise awareness about environmental issues and to promote actions to protect the planet.

World Environment Day (June 5th) - This day is celebrated to encourage people to take action to protect the environment and raise awareness about pressing environmental issues.

World Oceans Day (June 8th) - This day is dedicated to raising awareness about the importance of our oceans, promoting sustainable use of marine resources, and addressing ocean-related challenges.

International Day for Biological Diversity (May 22nd) - This day is aimed at increasing understanding and awareness of biodiversity and its importance, and promoting actions to conserve and sustainably use biodiversity.

World Wildlife Day (March 3rd) - This day is celebrated to raise awareness about the importance of wildlife conservation and to promote efforts to protect endangered species.

International Day of Forests (March 21st) - This day is dedicated to raising awareness about the importance of forests and promoting sustainable forest management.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Departmental Activities:

The institute shall encourage the students to participate in different departmental activities like events, seminar, competitions, and training sessions. The NSS cell members shall take initiatives to organize all these events and to spread the positive environment within the campus.

The Green initiatives and practices to be followed by various departments.

Department wise waste disposal Practices:

Microbial laboratory waste disposal:

The microbiology laboratory generates various hazardous wastes that can be harmful to students, municipal workers, and the environment. To address this issue, a policy has been implemented to ensure proper waste management. The policy provides information on waste collection, segregation, decontamination, and disposal.

There are several categories of waste generated in the microbiology laboratory. Biological waste includes living cells, body fluids, tissues, clinical samples, and microorganisms, which may be infectious or non-infectious. Infectious waste contains clinical samples and living microorganisms that can cause infections. Non-infectious waste includes items such as petri-plates, slides, and conical flasks that do not pose a risk of infection. Hazardous chemicals, plastics, and metal waste are also generated in the laboratory.

The waste disposal procedure involves identifying the type of waste and determining the appropriate disposal method. Biological samples, genetically modified organisms, hazardous chemicals, hard plastics, and metals are placed in designated bins or bags. Hazardous waste is placed in a red bin with a danger sign, biodegradable waste is placed in a green bin, and hazardous chemical waste is placed in a yellow bin. Sharp metal items are placed in a blue bin. The waste is then treated using various methods such as autoclaving, incineration, recycling, or encapsulation.

To ensure proper waste management, all biohazard materials generated in the laboratory must be recorded before disposal. This includes the date and time of waste generation, quantity of waste,

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

and method of treatment. By following these guidelines, the microbiology laboratory can effectively manage its waste and protect the health and safety of its workers and the environment.

Biotechnology lab waste disposal: Biotechnology lab waste disposal policy should be designed to ensure the safe and proper disposal of all laboratory waste. The policy should address the disposal of all types of waste, including hazardous, infectious, and non-infectious waste. The policy should also outline the procedures for handling and disposing of these wastes, including the use of proper containers, labelling, and storage.

Some key elements of a biotechnology lab waste disposal policy include:

Hazardous waste disposal: The policy should outline the procedures for the proper disposal of hazardous waste, including chemical waste, sharps, and biological materials. This may include the use of designated containers, such as sharps containers or chemical waste containers, and guidelines for handling these materials.

Infectious waste disposal: The policy should address the disposal of infectious waste, such as cultures, stocks, and specimens, and outline procedures for handling and disposing of these materials safely. This may include the use of designated containers, such as biohazard bags or containers, and guidelines for handling these materials.

Non-infectious waste disposal: The policy should address the disposal of non-infectious waste, such as paper, plastic, and glass, and outline procedures for handling and disposing of these materials safely. This may include the use of designated containers, such as recycling bins or trash cans, and guidelines for handling these materials.

Storage: The policy should outline guidelines for the storage of laboratory waste, including the use of proper containers, labelling, and storage conditions.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Training: The policy should require all laboratory personnel to be trained in waste disposal procedures and guidelines. This may include annual training sessions or refresher courses to ensure that all personnel are up to date on proper waste disposal practices.

Compliance: The policy should outline the consequences for non-compliance with waste disposal procedures, including disciplinary actions or fines.

Chemistry/Biochemistry waste disposal policy:

Chemistry lab waste disposal policies may vary depending on the location and regulations, but generally, they follow some basic guidelines. Here are some important aspects of a typical chemistry lab waste disposal policy.

Segregation: All lab waste should be segregated according to its chemical properties and characteristics, such as flammability, toxicity, corrosiveness, and reactivity. This ensures that different types of waste do not mix and create hazardous reactions or increase the volume of hazardous waste.

Labelling: All lab waste containers should be labelled with the contents, date, and any other relevant information to ensure that the waste is properly identified and tracked.

Storage: Hazardous waste should be stored in appropriate containers and kept in designated storage areas that meet the safety and regulatory requirements. Storage areas should be properly ventilated, secure, and easily accessible.

Disposal: Hazardous waste should be disposed of following established protocols and guidelines. This may involve treatment, incineration, landfill disposal, or recycling, depending on the type of waste and regulatory requirements.

Training: All lab personnel should receive training on waste management and disposal procedures, including handling, labelling, and storage of hazardous waste.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Record-keeping: Records of all waste generated, stored, and disposed of should be maintained to ensure compliance with regulatory requirements and to track waste generation trends.

Regulatory compliance: The lab should comply with all applicable federal, state, and local regulations regarding hazardous waste management and disposal.

It is important to note that the disposal of lab waste can be dangerous and should be handled by trained professionals. If you are unsure of how to properly dispose of a particular lab waste, seek guidance from your institution's environmental health and safety office.

Food and Kitchen waste management policy:

Food waste and kitchen waste management policies aim to reduce the amount of waste produced in the kitchen and promote sustainable practices for disposing of waste. Here are some policy measures that can be implemented:

Education and Awareness: Educating people about the importance of reducing food waste and kitchen waste can go a long way in reducing the amount of waste produced. Raising awareness through campaigns, social media, and education programs can help in creating a culture of waste reduction.

Composting: Composting is an effective way of reducing kitchen waste. Municipalities can provide compost bins and educate people about how to use them. Additionally, restaurants and businesses can compost their waste by setting up their own composting systems.

Food Recovery Programs: Food recovery programs can help to reduce food waste by redistributing surplus food to people in need. These programs can be run by local governments, non-profit organizations, and food banks.

Recycling: Recycling programs can help to divert waste from landfills. Food packaging, cans, bottles, and other recyclable materials can be collected and processed to produce new products.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Regulation: Governments can enact laws and regulations to promote sustainable practices in the food industry. For example, some countries have banned food waste from being sent to landfills and require businesses to compost or donate surplus food.

Incentives: Governments can provide incentives for businesses and households that reduce their food waste. For example, tax breaks or subsidies can be provided for businesses that donate their surplus food to food recovery programs.

Overall, food waste and kitchen waste management policies can play a crucial role in reducing waste and promoting sustainable practices. By implementing these policies, we can reduce our environmental impact and create a more sustainable future.

Sanitary waste Management:

Sanitary waste management policy is an important aspect of maintaining a clean and healthy environment in hostels. Here are some guidelines for a sanitary waste management policy for hostels:

Segregation of Sanitary Waste: It is important to segregate sanitary waste from other waste. Hostels should have separate bins or containers for sanitary waste, and they should be clearly marked.

Placement of Bins: Sanitary waste bins should be placed in easily accessible locations within the hostel, such as washrooms, restrooms, and common areas. They should also be placed at a reasonable distance from food preparation areas to prevent contamination.

Proper Disposal of Sanitary Waste: Sanitary waste should be disposed of in a safe and hygienic manner. Hostels should have a system in place for the regular collection and disposal of sanitary waste.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Save water policy:

Water conservation is an important issue, and implementing water conservation policies on campus can help reduce the amount of water used and promote sustainable practices. Here are some ideas for water conservation policies on a campus:

Install low-flow fixtures: Low-flow faucets, showerheads, and toilets can significantly reduce the amount of water used on campus. They use less water than traditional fixtures while still providing the necessary function.

Fix leaks promptly: Leaks can waste a significant amount of water, so it's important to fix them as soon as they are detected. Regular maintenance and inspections can help identify and address leaks promptly.

Use recycled water: Greywater, which is wastewater from sinks, showers, and washing machines, can be treated and used for irrigation and other non-potable purposes. This can help reduce the amount of freshwater used on campus.

Install rainwater harvesting systems: Rainwater can be collected and used for irrigation and other non-potable purposes. Rainwater harvesting systems can be installed on buildings or in other areas of campus to capture rainwater and store it for later use.

Implement water-efficient landscaping practices: Xeriscaping, which is the practice of landscaping with drought-resistant plants, can help reduce the amount of water needed for irrigation. Other water-efficient landscaping practices include using mulch to retain moisture, grouping plants with similar water needs together, and avoiding watering during the hottest part of the day.

Promote water conservation education: Educating students, faculty, and staff about the importance of water conservation and providing tips for reducing water usage can help create a culture of sustainability on campus.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Education and Awareness: Hostels should educate their residents about the importance of proper sanitary waste management. This can be done through posters, flyers, and other forms of communication.

Use of Biodegradable Sanitary Products: Hostels can promote the use of biodegradable sanitary products to reduce the environmental impact of sanitary waste.

Monitoring and Evaluation: Hostels should regularly monitor and evaluate their sanitary waste management policies to ensure that they are effective and that residents are following them.

By implementing a comprehensive sanitary waste management policy, hostels can promote a clean and healthy living environment for their residents while also minimizing the environmental impact of sanitary waste.

Padmashree Green policy in a nutshell:

Our institution recognizes that we have a responsibility to protect the environment and promote sustainability. To this end, we have developed a campus green policy that will guide our efforts to reduce our environmental impact and promote sustainable practices.

Goals:

To reduce our carbon footprint and overall environmental impact.

To promote sustainable practices among staff, faculty, students, and visitors.

To create a culture of environmental responsibility on campus.

To enhance the quality of life on campus and in the surrounding community.

Actions:

Energy Efficiency

a. Implement energy-efficient technologies and practices, including lighting and HVAC systems.

b. Encourage the use of natural light and ventilation where possible.

c. Promote the use of energy-efficient appliances and electronics.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Waste Reduction and Recycling

a. Implement a comprehensive recycling program for paper, plastic, glass, and other materials.

b. Encourage the use of reusable products and reduce the use of disposable items.

c. Implement composting programs in dining halls and other appropriate areas.

Sustainable Transportation

a. Encourage the use of public transportation, biking, and walking to and from campus.

b. Implement a carpooling program for staff and students.

c. Install electric vehicle charging stations on campus.

Water Conservation

a. Implement water-efficient technologies and practices in buildings and landscapes.

b. Promote the use of drought-tolerant plants and landscaping practices.

c. Install rainwater collection systems for irrigation and other uses.

Green Building

a. Implement green building practices in new construction and renovation projects.

b. Use environmentally friendly materials and products wherever possible.

c. Implement a program to monitor and reduce the energy and water use of existing buildings.

Education and Outreach

a. Develop educational programs and events to promote sustainability among staff, faculty, students, and visitors.

b. Encourage the use of sustainable practices in academic and research activities.

c. Engage with the local community to promote sustainability and environmental responsibility.

Implementation:

This policy will be implemented by a campus sustainability committee, which will be responsible for developing and implementing specific programs and initiatives to achieve the goals of this policy. The committee will work with all campus stakeholders to ensure the successful implementation of this policy.

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Padmashree Institute of Management & Sciences Bangalore-60

Review and Evaluation:

This policy will be reviewed and evaluated on a regular basis to ensure that it remains relevant and effective in achieving our sustainability goals. The campus sustainability committee will be responsible for conducting these reviews and evaluations and recommending changes as necessary.

Green, Energy, and Environmental Audit

Green audit would be regular conducted within the campus, to assess the percent usage of energy, water, other resources along with the generation of waste within the campus. Audit would help us to have the clear idea about the different types of waste generated and their maintenance within the campus. Audit also helps us to plan and execute the different measures to protect greenery within the campus. Energy audit report would help us to save the electricity and depend on solar energy as an alternative mode of energy. Environmental audit will help us to implement the single transportation system, restricted entry of visitor's vehicles, and parking facilities.

Plastic free campus

The solid waste management policies and its implementation in the campus would help to reduce the generation and use of plastic in the campus. Recyclable plastics will be regularly dispatched to the recycling units, thereby preventing the negative impact on the environment and living organisms.

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management &

GREEN AUDIT REPORT

ON

WATER AUDIT, ENERGY AUDIT,

WASTE MANAGEMENT AUDIT,

GREEN CAMPUS MANAGEMENT AUDIT,

AND ENVIRONMENT AUDIT

OF

PADMASHREE INSTITUTE OF MANAGEMENT AND SCIENCES

#149 PADMASHREE CAMPUS,

KOMMAGHATAA SULIKERE POST,

KENGERI HOBALI, BANGALORE,

KARNATAKA – 560 060

ECO ENERGIME ENGINEERS LLP

ENHANCING RESOURCE EFFICIENCY

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

GREEN AUDIT REPORT

OF

PADMASHREE INSTITUTE OF MANAGEMENT AND SCIENCES

PADMASHREE CAMPUS, KENGERI HOBALI, BANGALORE,

KARNATAKA – 560 083

2021 – 2022

FOR MORE INFORMATION

Eco Energime Engineers LLP
14, S-1, 3rd Main, 14th Cross
AECS Layout, B – Block
Singasandra
Bangalore–560 068

Mobile: +91 9449 777 000
+91 8050 387 500
Email: info@eeellp.com
Web: www.eeellp.com

Padmashree Institute of Management & Sciences Bangalore-60

ENHANCING RESOURCE EFFICIENCY

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

PROJECT TEAM

- Mr. A Govindaraj, M. Tech., M.S., - EA 5212
- Mr. R Arasa kumar, M. E
- Ms. V Samhita, M. E

PROJECT ADVISOR

- Mr. Prabu Das, M. Tech
- Ms. Aparna Reddy, B.Arch., MBA

ACKNOWLEDGEMENTS

We are thankful to the management of **Padmashree Institute of Management and Sciences, Bengaluru,** for the support, guidance and, giving us the opportunity to be involved in this very interesting and challenging assignment.

We would be happy to provide any further clarifications, if required, to facilitate the implementation of the recommendations.

We received full co-operation and support from the concerned personnel/ staff members of the college. They took key interest and gave valuable inputs during the course of study. We would like to thank:

Chairman – Padmashree Institute of Management and Sciences, Bengaluru

And other Staff in personnel who have given full co-operation and support. They took a keen interest and gave valuable inputs during the course of study.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Smart Solutions for Sustainable Tomorrow

Eco Energime Engineers LLP

Certificate

This is to certify that M/s. Eco Energime Engineers LLP, Bengaluru has conducted **Quality Audit** of **"Padmashree Institute of Management and Sciences, Bengaluru"** during the April 2022 to May 2022. The Audit includes water audit, energy audit, waste management audit, green campus management audit and aspects of environment audit.

The audit involves field visit, measurements and observations, verification of bills, log books, data base, maintenance registers and interview with staffs, and this gives an overview of the existing system.

In an opinion and to the best of our information and according to the information given to us, said Quality Audit gives a true and fair view in conformity with auditing principles.

For Eco Energime Engineers LLP

Authorized Signatory

No.14, S-1, 3rd Main, 14th Cross, AECS Layout, B-Block, Singasandra, Bangalore - 560 068, Karnataka
80503 87500 www.eeellp.com info@eeellp.com

Padmashree Institute of Management & Science Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Smart Solutions for Sustainable Tomorrow **Eco Energime Engineers LLP**

EEELLP ACKNOWLEDGEMENT

EEELLP team thanks the management of **Padmashree Institute of Management and Sciences, Bengaluru** for assigning this interesting work to us. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are due to Principal & their team of colleagues for giving us necessary inputs to carry out this very vital exercise. We would like to thank all the head of the departments and staff members who were actively involved while collecting the data and conducting field measurements.

For Eco Energime Engineers LLP

Authorized Signatory

No.14, S-1, 3rd Main, 14th Cross, AECS Layout, B-Block, Singasandra, Bangalore - 560 068, Karnataka
80503 87500 www.eeellp.com info@eeellp.com

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

DISCLAIMER

The Audit Team has prepared this report for Padmashree Institute of Management and Sciences, Bengaluru based on the input data submitted by the representatives of college complemented with the best judgment capacity of the expert team.

While all reasonable care has been taken in its preparation, details contained in this report have been compiled in good faith based on information gathered.

It is further informed that the recommendations are arrived following best judgments and no representation, warranty or undertaking, express or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report

For Eco Energime Engineers LLP

Authorized Signatory

No.14, S-1, 3rd Main, 14th Cross, AECS Layout, B-Block, Singasandra, Bangalore - 560 068, Karnataka
80503 87500 www.eeellp.com info@eeellp.com

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Table of Contents

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Table of Figures

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Table of Tables

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

ABBREVIATION AND ACRONYMS

1.	A	:	Amperes
2.	AC	:	Air Conditioner
3.	APFC	:	Automatic Power Factor Controller
4.	BBMP	:	Bruhat Bengaluru Mahanagara Palike
5.	BESCOM	:	Bangalore Electricity Supply Company
6.	BWSSB	:	Bangalore Water Supply and Sewerage Board
7.	CC Camera	:	Closed Circuit Camera
8.	DG	:	Diesel Generators
9.	EE Fan	:	Energy Efficient Fan
10.	E-Waste	:	Electronic Waste
11.	etc.	:	Etcetera
12.	FTL	:	Fluorescent Tube Light
13.	GHG	:	Green House Gas
14.	Hz	:	Hertz
15.	HP	:	Horse Power
16.	HT	:	High Tension
17.	I	:	Current
18.	ICT	:	Information and Communications Technology
19.	IQAC	:	Internal Quality Assurance Cell
20.	ISO	:	International Organization for Standardization
21.	kgs	:	Kilograms
22.	kL	:	Kilo Liters
23.	kV	:	kilo volt
24.	kVA	:	kilo volt ampere
25.	kVAr	:	Reactive kilo volt ampere
26.	kW	:	Kilo Watt
27.	kWh	:	kilo Watt hour
28.	kWp	:	kilo Watt peak
29.	Lab	:	Laboratory
30.	LCD	:	Liquid Crystal Display
31.	LED	:	Light Emitting Diode
32.	LT	:	Low Tension
33.	mA	:	Milli Amperes
34.	MoU	:	Memorandum of Understanding
35.	NA	:	Not Applicable
36.	NAAC	:	National Assessment and Accreditation Council
37.	Nos.	:	Numbers
38.	NSS	:	National Service Scheme
39.	Prim/Sec	:	Primary/Secondary

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

40.	PF	:	Power factor
41.	PG	:	Post Graduate
42.	Ph.D.	:	Doctor of Philosophy
43.	PV	:	Photo Voltaic
44.	Rs.	:	Rupees
45.	RO	:	Reverse Osmosis
46.	RR. No.	:	Revenue Register Number.
47.	SMV	:	Sir. Mokshagundam Visvesvaraya
48.	S. No.	:	Serial Number
49.	Sq. Ft.	:	Square Feet
50.	Sq.m.	:	Square Meter
51.	SRTPV	:	Solar Roof Top Photo Voltaic
52.	TL	:	Tube Light
53.	TR	:	Ton of Refrigeration
54.	TV	:	Television
55.	UG	:	Under Graduate
56.	USD	:	United States Dollar
57.	V	:	Volts
58.	W	:	Watts
59.	Wi-Fi	:	Wireless Fidelity
60.	Wp	:	Watt peak
61.	#	:	Number

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

1. INTRODUCTION

Padmashree Institute of Management and Sciences, popularly known as "PIMS" made a humble start in the year 2000. The motto of PIMS is imparting quality education, to inculcate scientific temper and ethical values among its students. The Institute is focused on research and development of life sciences in general and Nutraceuticals, Food Processing and Biotechnology in particular. Now the institute accelerated its expansion in establishing new courses of scientific and global importance.

With able governance and leadership and within the value framework, the college has achieved a ranking among the top 20 biotech schools in India. Received an approval from the state government to establish prestigious 2nd phase of Biotechnology Skill Enhancement Program (BTFS). PIMS is now UGC recognized Deen Dayal Upadhyay KAUSHAL Kendra (Centres for Knowledge Acquisition and Upgradation of Skilled Human Abilities and Livelihood).

The institution is privileged to have a great combination of a dynamic management with a vision of academic excellence and a team of dedicated teachers and resource personnel who are under the determination of the realizing the vision goals. The college believes in a value-based education practice and emphasizes on self-sustenance and overall personality development.

In order to fulfill the mission and objectives in powerful ways, each member of the College strives to achieve excellence in every endeavor encircling education, research, consultancy and extension activities. We take pride in our students getting graduated every year and serving the nation in different capacities and leaving their footprints worldwide.

Padmashree Institute of Management and Sciences is situated among the lush of greeneries in 35 acres land.

- Free Wi-Fi facility is available all over the campus.
- Modular laboratories with well-equipped accessories for Microbiology, Biotechnology, Biochemistry and Food Technology are present.
- Central instrumentation laboratory with state-of-the-art equipment such as
    - Atomic Absorption Spectrophotometer (AAS)
    - HPLC
    - Microvolume UV spectrophotometer
    - Nanodrop
    - Cooling Centrifuge
    - Multiple numbers of UV-Vis spectrophotometer, etc.
- Equipped with a pilot scale herbal extraction, food processing, packaging, and labeling equipment.
- Well-equipped quality control and analysis laboratory.

Padmashree Institute of Management and Sciences (PIMS) under Padmashree Group of Institutions has a record of academic excellence since 2000 and is continuously working for its vision of imparting quality education and job-oriented skills to the students. PIMS is glad to announce the inception of "Padmashree Merit Scholarship" for meritorious economically backward students. The initiative is part of the vision of management to provide equal opportunities in higher education to every deserving student.

VISION

We want the education by which character is formed, strength of mind is increased, the intellect is expanded, and by which one can stand on one's own feet

MISSION

- Foster intellectual growth and character development.
- Inculcate the idea of lifetime learning process.
- Provide education that transform lives, build communities that improve society.
- Assert skill development leading to self-sustainability.
- Develop scientific temper amongst faculty and students.
- Develop leadership qualities that enhance collaborative approach, professional relationships with industry and research organizations.

CORE VALUES

- Contributing to societal development
- Promoting team work and inculcating values
- Holistic development of students
- Pursuit of academic excellence

Committee and Cells

The various committee and cells are listed below

Internal Quality Assurance Cell (IQAC)

Institutional Quality Assurance Cell is constituted in 2013, however revised and restructured as per NAAC guidelines. IQAC has subdivisions, cells and committees with their roles and responsibilities clearly defined. There are three main subdivisions Academic quality Assurance Division, Research Quality Assurance Division, Administrative Quality Assurance Division. These three wings monitor all the cells and committees and ensure implementation of quality practices envisioned by IQAC. Various cells and committees and sub committees are as under:

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

1. **Administrative Quality Assurance Division:**
   - ICT Cell
   - HR cell
   - Admission Cell
   - Accounts and Finance cell
   - Padmashree welfare and Development Cell
   - Student grievance redressal cell
   - Anti-ragging committee
   - Anti-Sexual harassment committee
   - Scholarship facilitating cell
   - Infrastructure development and maintenance cell
   - Hostel committee
   - Transport facilitation committee
   - External affairs and operations cell

Academic Quality Assurance Division

- Academic cell
- Examination cell
- Curricular extension and training cell
- Alumni cell
- Competitive examination cell
- Placement and training cell
- Extracurricular activities cell
- NSS and Sports cell

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Research and Development Quality Assurance Division

- Research and innovation cell
- Extension cell
- Patent and Publication facilitating cell
- Entrepreneurship development cell

Campus Area and Built-up area

The area of the campus (built up and total) is given in table 1-1.

S. No.	Description	Units	Details
1	Campus total area	Acres	34
2	Built up area	Sq.mts.	10837

Table 1-1: Campus and Built-up Area

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Overview of Green Audit:

Green Audit helps college / facility to:

- Understand the usage of electricity, water and other natural resources
- Identify opportunities to conserve various natural resources
- Identify various technological improvements
- Evaluate the techno-commercial of identified conservative measures
- Create awareness among the students and staff
- Disseminate the commitment of management towards saving nature
- Develop a culture among students, staff and management to be socially responsible

2. PRE – AUDIT PHASE

A pre-audit meeting is a prerequisite for the Audit; it helps to meet and discuss about the schedule and documents required during the audit. The pre-audit meeting was conducted at PIMS, Sulikere Post, Kengeri, Bengaluru in month of April 2022. During the meeting, introduction of team members, scope and objectives of the audit were discussed.

Management Commitment

The Management of the college has shown significant commitment towards Quality Auditing during the pre-audit meeting. They were ready to encourage all green activities. It is decided to promote all activities that are environment friendly such as awareness programmes on the environment, campus farming, planting more trees on the campus etc., after the Quality Auditing.

College administration is vital to the process of realizing campus sustainability, and college policy is an essential instrument for any substantial change in the campus environment.

Scope and Goals of Quality Auditing

A clean and healthy environment aids effective learning and provides a conducive learning environment. There are various efforts around the world to address environmental education issues. Quality Auditing is one among them for educational institutions.

Once a baseline is established, the data can serve as a point of departure for further action in campus greening. Existing data will allow the college to compare its programs and operations with those of peer institutions, identify areas in need of improvement, and prioritize the implementation of future projects.

This data will also provide a basis for calculating the economic benefits of resource conservation projects by establishing the current rates of resource use and their associated costs. This audit initiative focused initially on educating colleges and universities through workshops, guidebooks, fact sheets and ensuring compliance through inspections and self-audits.

2.1. Audit Schedule

Green Audit schedule includes the pre-audit phase, on-site / audit phase and post audit phase. Table 2-1 details the complete Green Audit schedule.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

S. No	Description	Timeline
1.	Pre-audit Phase	18 April 22 to 23 April 22
2.	Onsite-audit Phase	27 April 22 to 10 May 22
3.	Post-audit Phase	13 May 22 to 20 May 22
4.	Presentation	26 May 22

Table 2-1: Audit Schedule

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

3. ON-SITE AUDIT PHASE

3.1. Scope / Target Areas of Green Auditing

3.1.1. Water Audit

Water Audit addresses water consumption, water sources, appliances and fixtures. 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.

3.1.2. Energy Audit

Energy Audit addresses energy consumption, energy sources, energy monitoring, lighting, appliances, and vehicles. Energy use is clearly an important aspect of campus sustainability.

3.1.3. Waste Management Audit

Waste Audit addresses waste production and disposal, plastic waste, paper waste, food waste, and recycling. Municipal solid waste has a number of adverse environmental impacts, most of which are well known and not in need of elaboration.

3.1.4. Green Campus Management Audit

Green campus initiatives are becoming an integral part of modern day's university systems. Green campus Audit helps in maintaining the air and water clean. It regulates the climatic conditions and provides a healthy and comfortable environment for living.

3.1.5. Environment Audit

Environment Audit addresses the usage of fossil fuels (coal, diesel, petrol and gas). The mode of commute to and from college each day has an impact on the environment through the emission of greenhouse gases into the atmosphere by the burning of fossil fuels.

3.2. Audit Methodology and Approach

The methodology and approach adopted for the study involve various steps that include:

- Review of Document and records
- Review of Policies
- Review of MoU
- Review of various measures implemented
- Site Walkthrough

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

- Data Collection
- Interviews

3.2.1. Review of Document and Records

Electricity bills, Water bills, equipment register, list of appliances, office registers, internal Quality Audit document, purchase document, were reviewed and relevant data and inputs required for analysis have been collected.

3.2.2. Review of Policies

College has various policies that include safety policy, environment policy, and Anti-ragging policy.

A. Safety Policy:

An organization's safety policy is a recognized to protect the health and safety of the students and employees, as well as the surrounding community. All the students, teaching and non-teaching staff, maintenance and house-keeping staff have been given training to use fire extinguishers in emergency situations of fire and explosion.

Fire hydrant system and fire extinguishing cylinders have been installed in each floor and in laboratory areas. The management has provided the safety wears in the laboratory. Fire order statements and instructions to use fire extinguisher has been posted at each block. Fire alarm is also installed at the premises. Photos of fire order, fire extinguisher and fire alarm are shown in figures 3-1 to 3-3.

Figure 3-1: Fire Order

Figure 3-2: Fire Extinguisher with instructions to use

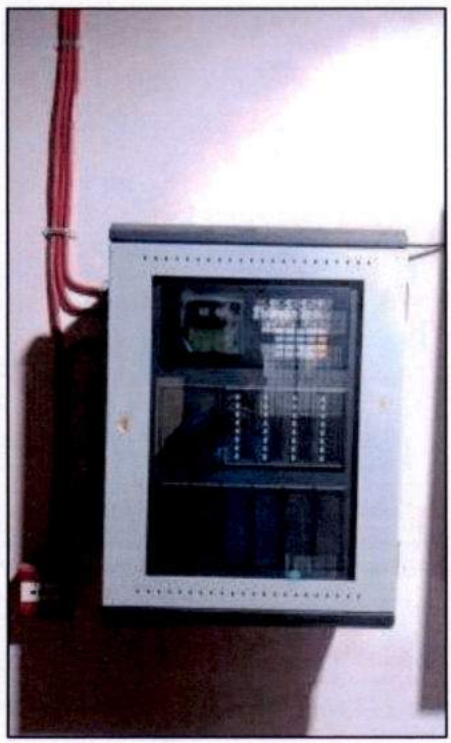


Figure 3-3: Fire Alarm Control Panel

B. Anti-Ragging policy:

Ragging in all its forms shall be totally banned in the entire institution, including its departments, constituent units, all its premises (academic, hostel, sports, canteen, etc.) whether located within the campus or outside and in all means of transportation of students whether public or private. 'Ragging is banned' poster is placed in each block of the campus and a sample photo is as shown in the figure 3-4.

Figure 3-4: Anti-ragging posters

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

3.2.3. Review of various measures implemented

During the Green Audit study, it was observed the college has taken various initiatives in conserving natural resources that include:

- Green Audit team including Management, Staff and Students
- Water flow meter to monitor the water consumption
- Low flow taps for water conservation
- Open pond for ground water recharging
- Rain water collection system and filters are available in all buildings. The collected water is filtered and is stored in the sumps and used for cleaning and flushing toilets
- Regular checking of water distribution system
- Solar water heater and heat pump technology for hot water system
- Installation of different types LED lights to reduce electricity consumption
- Installation of occupancy sensors
- Installation of LCD/LED monitors for all the desktops to conserve electricity
- Use of sign boards to conserve energy and water
- Switching OFF lights and fans whenever not in use to save electricity
- Use of complaints and maintenance register
- Installation of waste segregation bins at all the rooms to separate the dry and wet waste
- De-composter pit for dry leaves
- Food waste is collected separately
- Tobacco free campus – sign board
- Swachh Bharat campaign - poster
- Sign boards to keep the campus clean & tidy
- Transport facility provided by the college
- Restricted entry of Automobiles
- Separate parking for automobiles
- Pedestrian friendly pathways
- Encouragement of Electric Vehicles

3.2.4. Site Walk through

Site walk through was conducted with staff members, students and audit team members. Staff and students have shown very keen interest in the data collection process and methods to be followed in field data collection. The staff and students have given inputs and suggestions for resource conservation as well.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

College Infrastructure

PIMS College campus has various blocks and departments. Each floor has state of the art class rooms, staff rooms, laboratories libraries and many more. Details of infrastructure are as follows:

- ATM – Axis Bank
- Gym
- Canteen/Food Courts
- Courier/DTP
- Sports and Games
- Playground
- Power Backup
- Health Center
- 24 Hrs Ambulance Facility
- Facilities like lift, ramps for physically challenged
- Smart Class room
- Seminar Halls
- Board Room
- RO Water Plants
- Transport facility
- Stationery & Reprography
- Rain water sumps
- Hostel (separately for girls & boys)
- Library
- Digital Library
- Staff Room
- Common Room for girls and boys

All the classrooms and staff rooms are well ventilated and the integration of day-light is well utilized. This has helped in optimized usage of electricity for lights and fans during day time.

3.2.5. Inventory Collection

To understand the types of appliances used, inventory collection was carried out by the audit team members. The various types of appliances used are lights, fans, geysers, RO water plants etc. The consolidated list of inventories is given in table 3-1.

S. No.	Inventory Type	Wattage	Quantity
1.	FTL	1 x 40 W	675
2.	LED	1 x 09 W	306

3.	LED	1 x 10 W	83
4.	LED	1 x 16 W	157
5.	LED	1 x 20 W	458
6.	LED	1 x 22 W	523
7.	LED	1 x 40 W	10
8.	LED street light	1 x 18 W	50
9.	Fans	-	855
10.	Spot light	-	54
11.	Focus light	-	4
12.	AC	-	2
13.	LCD Projector	-	7
14.	RO Plant (500 lph)	-	3

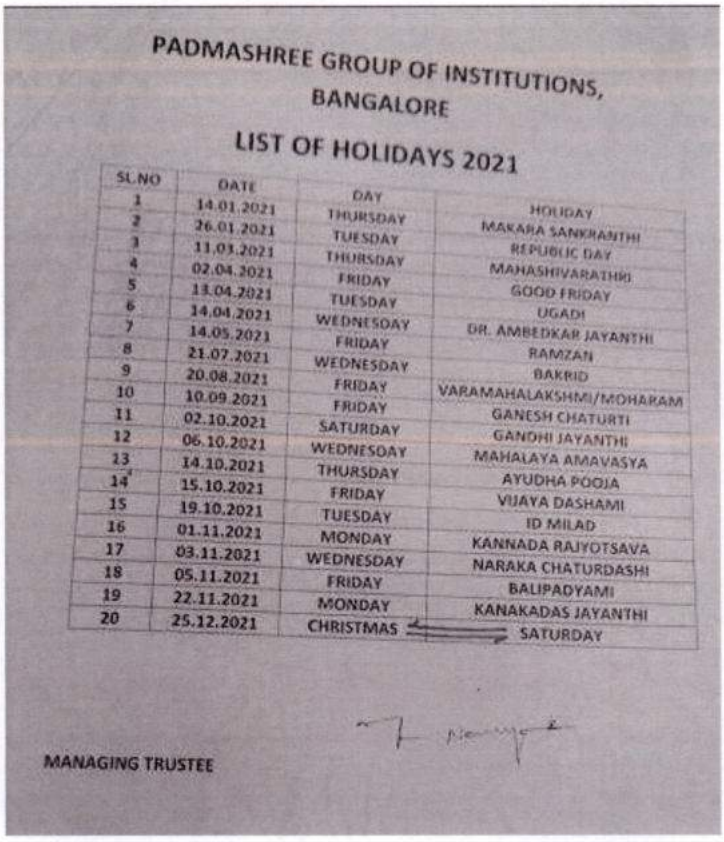
Table 3-1: Consolidated list of Inventories

3.2.6. Interviews

To collect the various data, information and operating patterns, interviews were conducted with college staff (Principal, teaching staff, non-teaching staff) and students. The consolidated information from the interviews is given in the following sub-sections.

3.2.6.1. List of Holidays:

The lists of holidays were collected during the study and the same is given in figure 3-7.



PADMASHREE GROUP OF INSTITUTIONS,
BANGALORE

LIST OF HOLIDAYS 2021

SL.NO	DATE	DAY	HOLIDAY
1	14.01.2021	THURSDAY	MAKARA SANKRANTHI
2	26.01.2021	TUESDAY	REPUBLIC DAY
3	11.03.2021	THURSDAY	MAHASHIVARATHRI
4	02.04.2021	FRIDAY	GOOD FRIDAY
5	13.04.2021	TUESDAY	UGADI
6	14.04.2021	WEDNESDAY	DR. AMBEDKAR JAYANTHI
7	14.05.2021	FRIDAY	RAMZAN
8	21.07.2021	WEDNESDAY	BAKRID
9	20.08.2021	FRIDAY	VARAMAHALAKSHMI/MOHARAM
10	10.09.2021	FRIDAY	GANESH CHATURTI
11	02.10.2021	SATURDAY	GANDHI JAYANTHI
12	06.10.2021	WEDNESDAY	MAHALAYA AMAVASYA
13	14.10.2021	THURSDAY	AYUDHA POOJA
14	15.10.2021	FRIDAY	VIJAYA DASHAMI
15	19.10.2021	TUESDAY	ID MILAD
16	01.11.2021	MONDAY	KANNADA RAJYOTSAVA
17	03.11.2021	WEDNESDAY	NARAKA CHATURDASHI
18	05.11.2021	FRIDAY	BALIPADYAMI
19	22.11.2021	MONDAY	KANAKADAS JAYANTHI
20	25.12.2021	CHRISTMAS	SATURDAY

MANAGING TRUSTEE

Figure 3-5: List of Holidays for 2021

3.2.6.2. Tentative Schedule of College:

The tentative schedule of the college is 09.00 AM to 4:30 PM. The details of the sessions are given in table 3.2.

S. No.	Description	Timings
1	Session – I	09.30 AM to 10.30 AM
2	Session – II	10.30 AM to 11.30 AM
3	Session – III	11.30 AM to 12.30 PM
4	Lunch	12.30 PM to 01.30 PM
5	Session – IV	01.30 PM to 02.30 PM
6	Session – V	02.30 PM to 03.30 PM
7	Session – VI	03.30 PM to 04.30 PM

Table 3-2: Tentative College Schedule

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

3.2.6.3. Staff and Students of College:

The number of staff and students are given in the table 3-3. The number of students includes both boys and girls.

S. No.	Staff	Students
1	73	1236

Table 3-3: Number of staff and students

4. WATER AUDIT

4.1. Facility description

The water audit study involved carrying out various observations and analysis, to realistically assess usage of water and potential for water conservation.

Borewell is the main source of water, for facilitating the water supply requirement of the entire campus.

Three number of borewells are available. The location and name of the borewells are given in table 4-1.

S. No.	Location	Name
1	Near Management block	Borewell 1
2	Near Playground	Borewell 2
3	Near Girl's hostel road	Borewell 3

Table 4-1: Details of borewells

The borewell near management block is shown in figure 4-1.

Figure 4-1: Borewell #1 – near Management block

Figure 4-2: Borewell #2 – near Playground (Boy's hostel side)

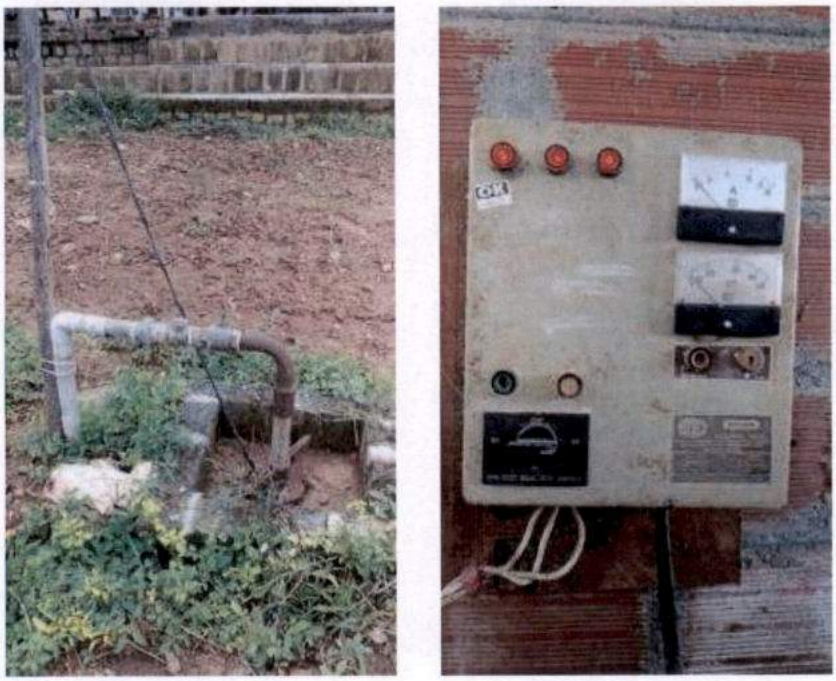


Figure 4-3: Borewell #3 – near new Girl's hostel road

From borewells 1 & 2 the water is pumped to the main RCC overhead tank (behind complex building). From borewell 3, the water is pumped to overhead tanks (6 numbers) of boy's hostels. The pumps used to pump water from borewell to OHT are all submersible type.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

The main RCC water tank with a capacity of 2 lakh Litres, is located behind the complex block shown in figure 4.4

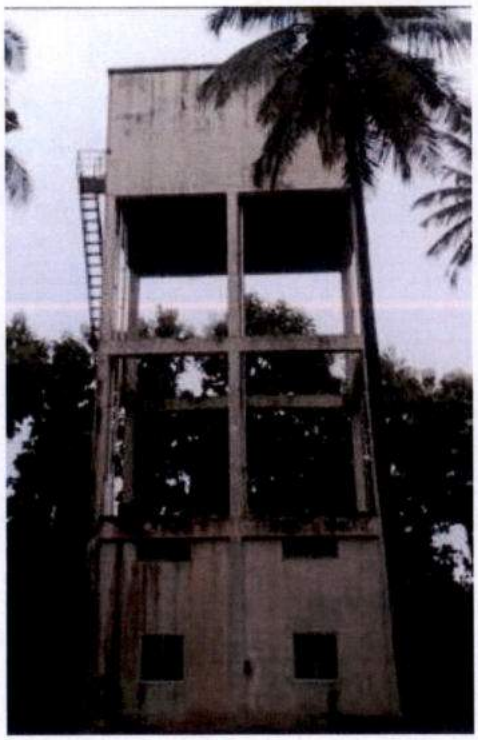


Figure 4-4: RCC OHT – Behind complex block

The location of OHT, type and capacity are given in table 4.3

S. No.	Location	Type	Capacity, Litres	Quantity, Nos.
1	Science block	PVC	2000	2
2	Management block	PVC	3000	1
3	Boy's hostel – 1	PVC	3000	2
4	Boy's hostel – 2	PVC	3000 2000	3 1
5	Women hostel – 1(old block)	PVC	3000	3
6	Women's hostel (new block)	PVC	5000	1

Table 4-2: Details of OHTs – location and capacity

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Two sumps are available within the campus. The sumps are used for storing rain water. The location of sumps, type and capacity is given in table 4.3.

S. No.	Name	Location	Type	Capacity, Litres
1	Rain water sump	Old Girl's hostel – 1	Underground sump	1,50,000
2	Rain water sump	Boy's hostel – 1	Underground sump	3,00,000

Table 4-3: Details of sumps and location

Based on the source, usage, type and recycling, water is classified as following types in the college campus that include:

- Raw Water
- Drinking Water
- Hot Water
- Rain Water
- Sewage Water
- RO Reject Water

Details of the various types of water usages are discussed in detail, in the following sections.

4.1.1. Raw Water System

The raw water is consumed in the following areas:

- RO Input
- Cleaning
- Washrooms
- Toilets
- Laboratories
- Garden

The schematic of raw water distribution system (bore well to overhead tanks) is given in figure 4.5.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

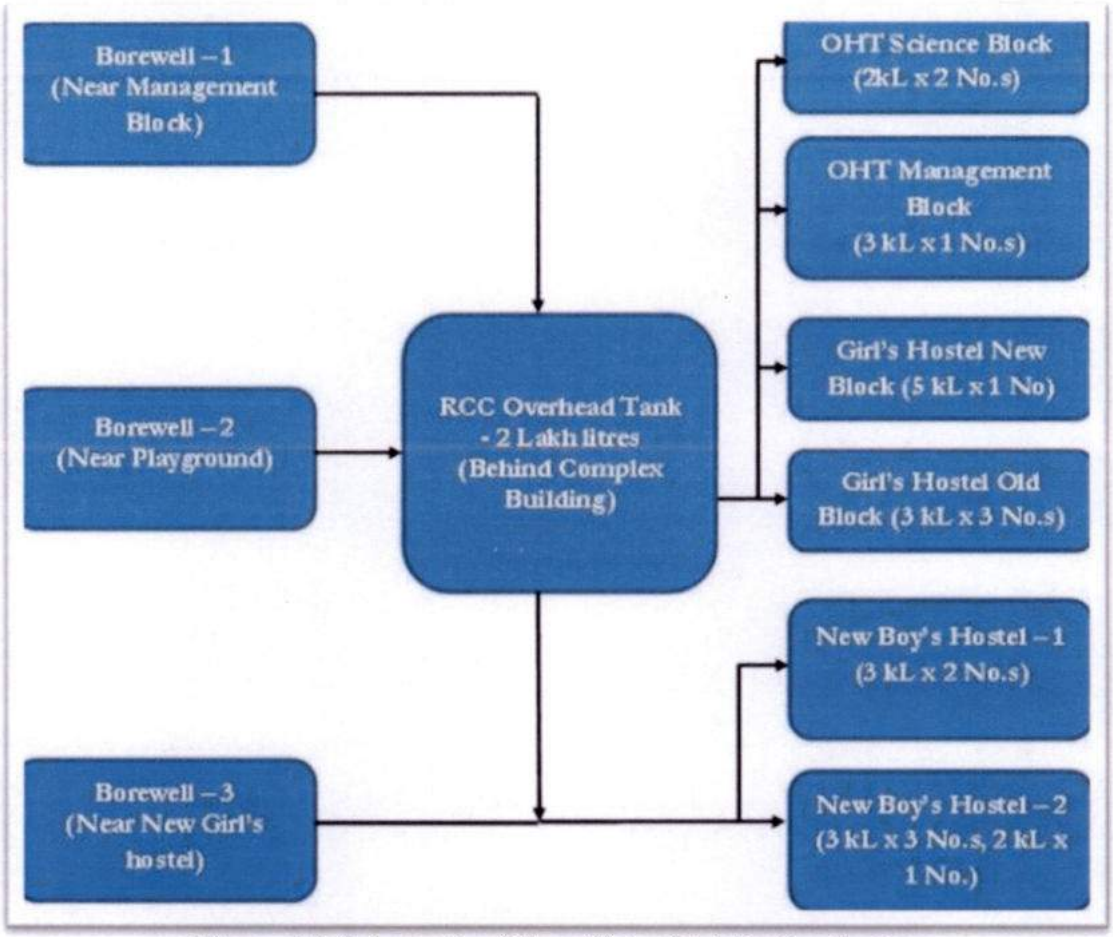


Figure 4-5: Schematic of Raw Water Distribution System

The Water from borewell 1 & 2 is pumped to the RCC overhead tank located behind the complex building. The capacity of RCC overhead tank is 2 lakh litres. From borewell 1, the water is pumped using 7.5 HP submersible pump. From borewell 2, the water is pumped using 10 HP submersible pump.

From the RCC OHT, the water is distributed for science-block, Management block and Girl's hostel (new and old girl's hostels) overhead tanks.

From borewell 3, the water is pumped to the PVC overhead tanks of boy's hostel using 7.5 HP submersible type pump. Also, there is a valve mechanism for filling water from RCC OHT to boy's hostel OHT.

Science Block:

The water from RCC OHT is filled at two number of PVC overheads tanks located at terrace of science block. The water gets filled by pressure. The capacity of each PVC tank is 2000 Litres. The water from tanks is distributed to RO filters, student toilets, staff toilets,

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

laboratories and science block garden area. The PVC overhead tanks, at terrace of science block is shown in figure 4.6

Figure 4-6: PVC OHT's – Science block

Management Block:

The water from RCC OHT is filled to PVC overhead tank (1 No's) located at terrace of science block. The water gets filled by pressure. The capacity of PVC tank is 3000 Litres. The water from tank is distributed to RO filters, student toilets, staff toilets, laboratories and management block garden area.

The PVC overhead tank, at terrace of management block is shown in figure 4.7

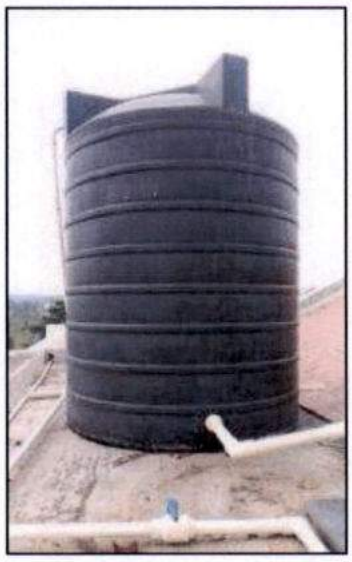


Figure 4-7: PVC OHT – Management block

The water for fire hydrant system is also taken from the same overhead tank. The connection for fire hydrant system from the OHT is shown in figure 4.8

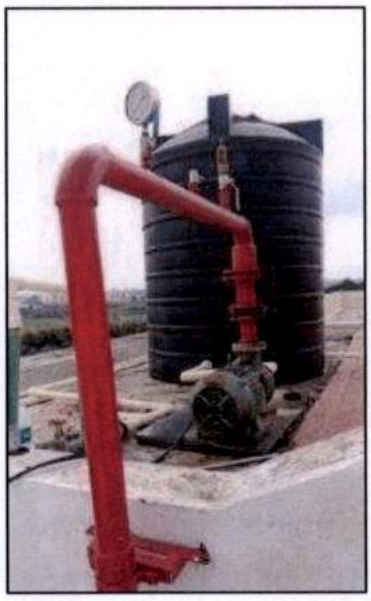


Figure 4-8: Connection for fire hydrant system – Management block

Boy's Hostel:

For boy's hostels, the water is pumped from borewell 3 (near girl's hostel- new block) to overhead tanks using a 7.5 HP submersible type pump. The tanks are PVC type.

For new boy's hostel – 1 (Akanksha), two number of PVC overhead tanks are available at terrace. The capacity of each tank is 3 kL. The water is distributed to fire wood boiler system, toilets, bathroom, washing area, hand wash, kitchen, dining hall and garden area.

The input for RO plant located at ground floor is given from the OHTs.

For new boy's hostel – 2 (Amogha), four number of PVC overhead tanks are available at terrace. The capacity of tanks are 3 kL x 3 No.s and 2 kL x 1 No.s. The water is distributed to fire wood boiler system, toilets, bathroom, washing area and hand wash.

The PVC overhead tanks, at terrace of new boy's hostel – 1(Akanksha) is shown in figure 4.9

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Figure 4-9: PVC OHT's – New Boy's Hostel – 1 (Akanksha)

The PVC overhead tanks, at terrace of new boy's hostel – 2 right side wing (Amogha) is shown in figure 4.10

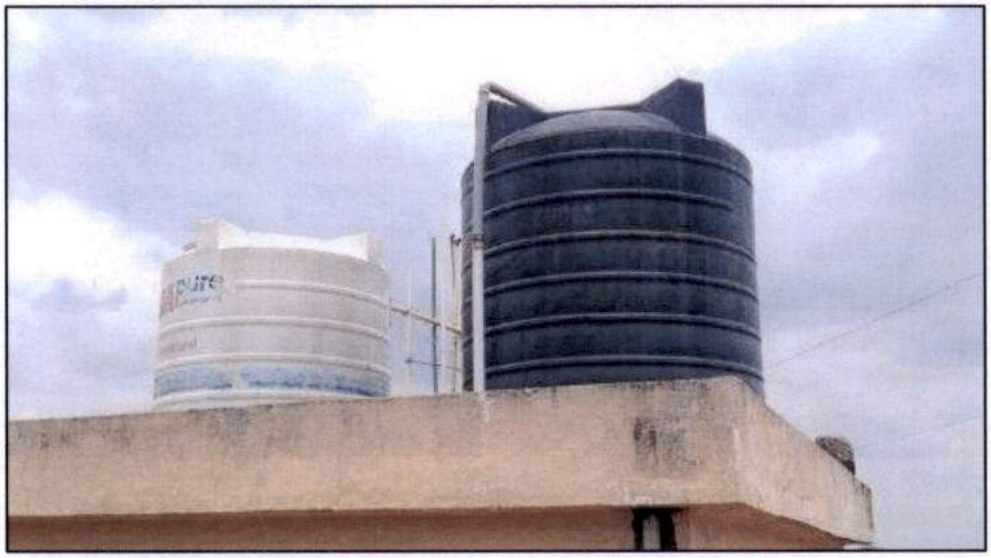


Figure 4-10: PVC OHT's – New Boy's Hostel – 2 (Amogha – Right wing side)

The PVC overhead tanks, at terrace of new boy's hostel – 2 left side wing (Amogha) is shown in figure 4.11

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Figure 4-11: PVC OHT's – New Boy's Hostel – 2 (Amogha – Left wing side)

Girl's Hostel:

The water from RCC OHT (behind complex building) is filled to PVC overhead tanks located at terrace of girl's hostels (new and old block). The water gets filled by pressure.

For girl's hostel new block, one number of PVC overhead tank is available at terrace. The capacity of the tank is 5 kL. The water is distributed to solar hot water system, toilets, bathroom, washing area and hand wash and RO plant input.

For girl's hostel old block, three number of PVC overhead tank is available at terrace. The capacity of each tank is 3 kL. The water is distributed to hot water system, kitchen, dining hall, toilets, bathroom, washing area and hand wash and RO plant input.

The PVC overhead tank, at terrace of new girl's hostel is shown in figure 4-12.

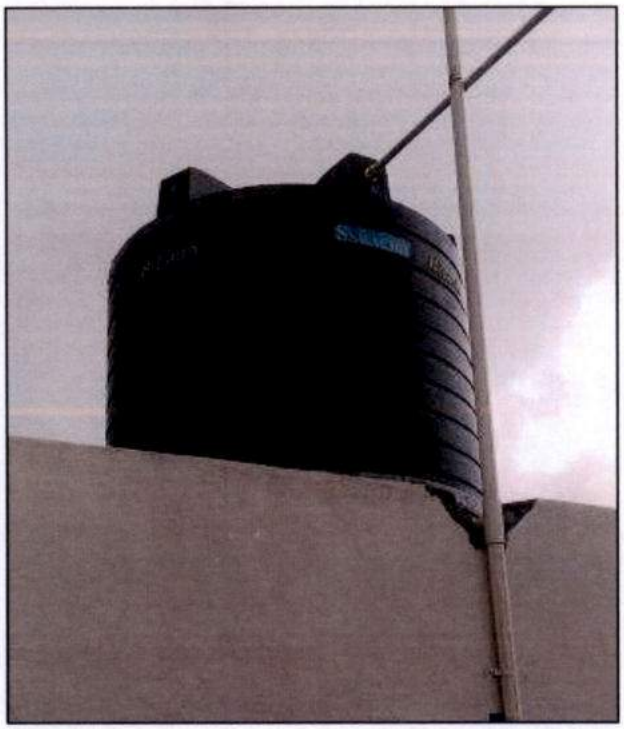


Figure 4-12: PVC OHT – New girl's hostel

The PVC overhead tank, at terrace of girl's hostel (old block) is shown in figure 4.13

Figure 4-13: PVC OHT's – Girl's hostel (Old block)

4.1.2. Drinking Water System

Drinking water system – Hostel's:

To provide drinking water, RO plants were installed at boy's and girl's hostels. Three number of RO plants were installed (Boy's hostel – 1 No. and Girl's hostels – 2 No.s). The input water for RO plant is given from overhead tanks of the corresponding hostels. The permeate rate of RO plants are 500 lph. The RO drinking water is stored in 1000 litres RO tanks. From RO water tank, taps are provided consumption.

The schematic of RO drinking water system at hostels are shown in figure 4.14

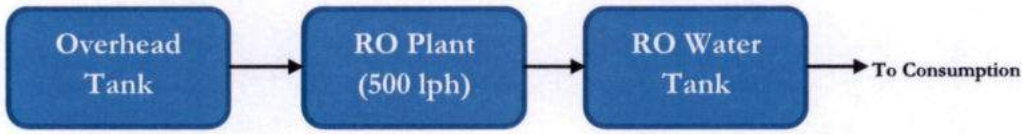


Figure 4-14: Schematic of RO drinking water system

The RO plant (500 lph) installed at boy's hostel is shown in figure 4.15

Figure 4-15: RO water treatment plant in boy's hostel

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

The RO plant (500 lph) installed at women's hostel is shown in figure 4.16

Figure 4-16: RO water treatment plant in Women's Hostel

The RO plant (500 lph) installed at women's hostel new block is shown in figure 4.17

Figure 4-17: RO water treatment plant in New Block - Women's Hostel

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

The sample image of RO drinking water consumption point at boy's hostel is shown in figure 4.18

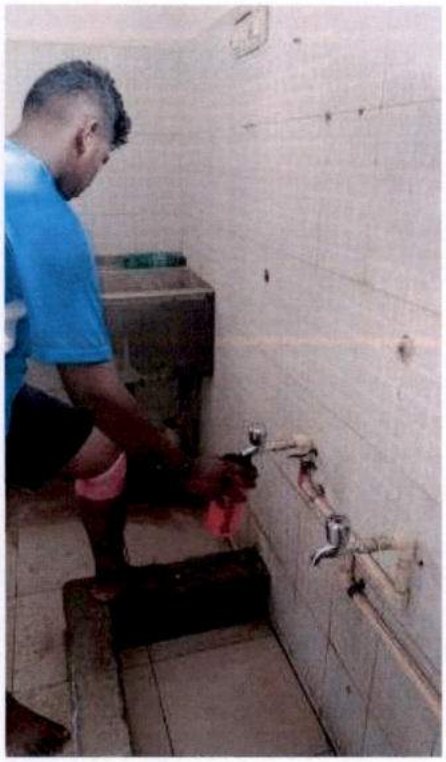


Figure 4-18: RO drinking water consumption point – Boy's hostel

Drinking water system – Science Block & Management Block:

To provide drinking water, RO filters were installed at science block and management block. At science block, four RO filters were installed and in management block four RO filter were installed. The capacity of each RO filter is 8 Litres.

The input for RO filters is taken from the overhead tanks. The image of RO filter at science block is shown in figure 4.19

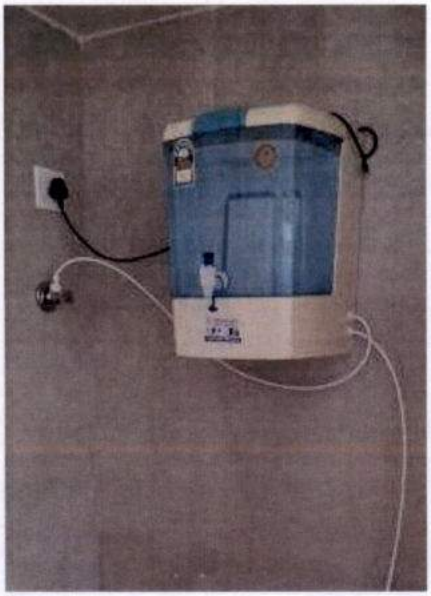


Figure 4-19: RO filter – Management block

The image of RO filter at management block is shown in figure 4.20

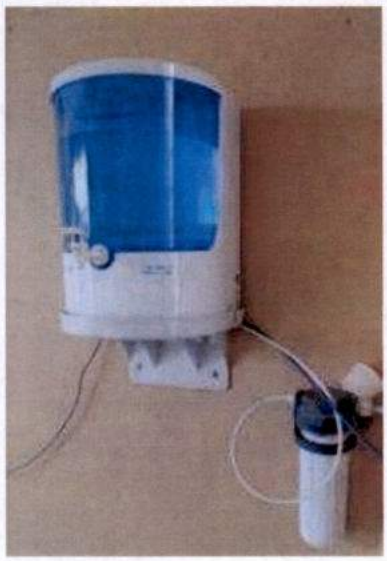


Figure 4-20: RO filter – Management block

Hot Water for Drinking Purpose:

To provide hot water for drinking purpose water dispensers are made available. The water dispenser is capable of providing both normal and hot water. The sample image of hot water dispenser is shown in figure 4.21

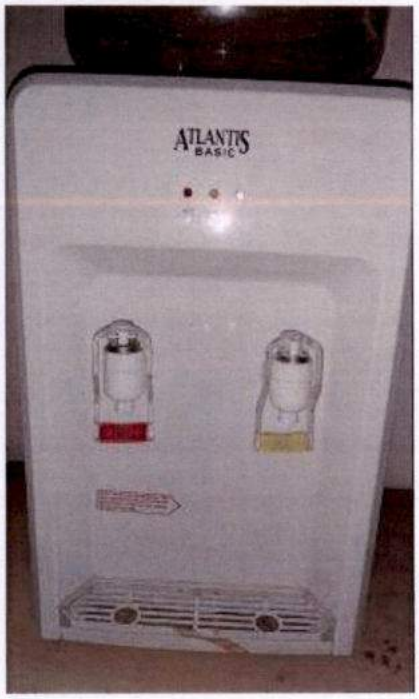


Figure 4-21: Hot water dispenser

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

4.1.3. Hot Water System

The hot water is mainly consumed in hostels for bathing purposes. The hot water requirement for bathing is met by solar water heater systems integrated with heat pumps, and fire-wood boilers installed at hostels.

S. No.	Location	Type of heater	Capacity, Litres	Quantity
1	Girl's hostel - Terrace	Heat Pump technology & Solar water heater (Integrated heating system)	1000 2000	1

Table 4-4: Details of integrated water heater system

The schematic of hot water distribution system in new block of girl's hostel is shown in figure 4.22.

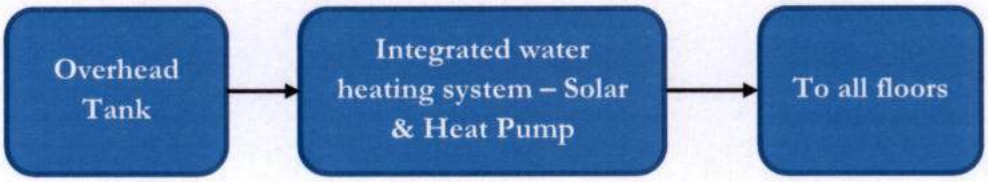


Figure 4-22: Schematic of HOT water distribution system in girl's hostel

The raw water from OHT is heated using integrated heating system. Heat pump technology and solar water heater technology is integrated to produce hot water. Then, hot water is distributed to all floors of hostel building.

The integrated water heating system is shown in figure 4.23.

Figure 4-23: Solar water heater with Heat pump system – Women's hostel

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Figure 4-24: Fire-wood boilers for hot water system in Hostels

The sample image of hot water tap at boy's hostel is shown in figure 4.25

Figure 4-25: Sample photo of hot water tap in boy's hostel

4.1.4. Rain Water Storage System

The rain water from terrace of the buildings are brought through pipes to ground level. The rain water sump with a capacity of 3 lakh Litres (near boy's hostel – 1) and 1.5 lakh Liters (near girl's hostel) is used to store the rain water. It is located near chemistry lab.

The stored rain water is used for watering the garden and toilet flushing. The piping arrangement and rain water harvesting sump is shown in figure 4.26

Figure 4-26: Rain water sump at Girl's hostel – 1

The rain water sump at boy's hostel – 1(backside) is shown in figure 4.27

Figure 4-27: Rain water sump at Boy's hostel – 1

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

4.1.5. Sewage Water System

The sources of waste water in the college campus of all blocks are as follows

- Washrooms
- Toilets
- Kitchen
- Hostel
- Labs
- Canteen

Waste water from the wash rooms, toilets and labs are connected to the waste water chambers in each block. Then, from chambers the waste water is collected in a sewage tank. From sewage tank, the waste water is sent to BWSSB drainage system through underground pipes.

The sample image of waste water outlet pipes in boy's hostel is shown in figure 4.28

Figure 4-28: Waste Water Outlet Pipes

The sample image of waste water chamber is shown in figure 4.29

Figure 4-29: Waste Water Chamber

The sample image of waste water tank in boy's hostel is shown in figure …

Figure 4-30: Sewage Tank

4.2. Best Practices Implemented for Water Conservation

4.2.1. Rain Water Harvesting

Rainwater harvesting is the simple process or technology used to conserve rainwater by collecting, conveying, purifying and storing of rainwater for later use.

The rain water from terrace of the buildings are brought through pipes to ground level. The rain water sump with a capacity of 3 lakh Litres (near boy's hostel – 1) and 1.5 lakh Liters (near girl's hostel) is used to store the rain water. It is located near chemistry lab.

The stored rain water is used for watering the garden and toilet flushing. The piping arrangement and rain water harvesting sump is shown in figure 4.31

Figure 4-31: Rain water sump at Girl's hostel – 1

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

The rain water sump at boy's hostel – 1(backside) is shown in figure 4.32

Figure 4-32: Rain water sump at Boy's hostel – 1

The benefits of rainwater harvesting system are listed below.

- Helps in reducing the water bill.
- Decreases the demand for water.
- Reduces the need of bore well water
- Promotes both water and energy conservation
- Improves the quality and quantity of groundwater
- It is an excellent source of water for landscape irrigation

4.2.2. Open pond for ground water recharge

Open pond is available within the campus for ground water recharging. The rain water from terrace of the buildings are brought to a chamber and the from chamber it is made to reach the pond through dedicated piping system.

Also, the rain water from road drains into the pond via gravity. For this water trenches were made available.

The sample image of open pond near boy's hostel is shown in figure 4.33

Figure 4-33: Open Pond for ground water recharge

The dedicated pipeline for the rain water to reach the pond is shown in figure 4.34

Figure 4-34: Dedicated rain water pipeline for pond

4.2.3. Use of water flow meters

Three borewells are used as primary sources of water. Water is pumped daily from the borewells and distributed to overhead tanks available in each block for usage.

With the presence of flow meters, it is possible to measure quantity of water used per day.

Measurement is the first step towards conservation of water. Water flow meters were installed at main RCC OHT (behind complex building) input and output lines.

The image of water flow meter installed is shown in figure 4.35

Figure 4-35: Water flow meter installed for RCC OHT

4.2.4. Posters on water conservation

Usage of sign boards near water consumption points are posted to create awareness for water conservation, sample photos are taken during the audit and are shown in figure 4.36.

Figure 4-36: Posters on Water conservation

4.2.5. Regular checking of water distribution system

The water distribution system is checked regularly. Every week the plumbing department personnel checks all plumbing fixtures for any leakage and damages.

If any leakage or damage is found, then immediate attention is given. The leakage arresting and damage rectification are done immediately.

Complaints & Rectification Register – Plumbing

The sample image of complaint and rectification register for plumbing activities is shown in figure 4.37. The complaints registered are attended immediately by the plumber.

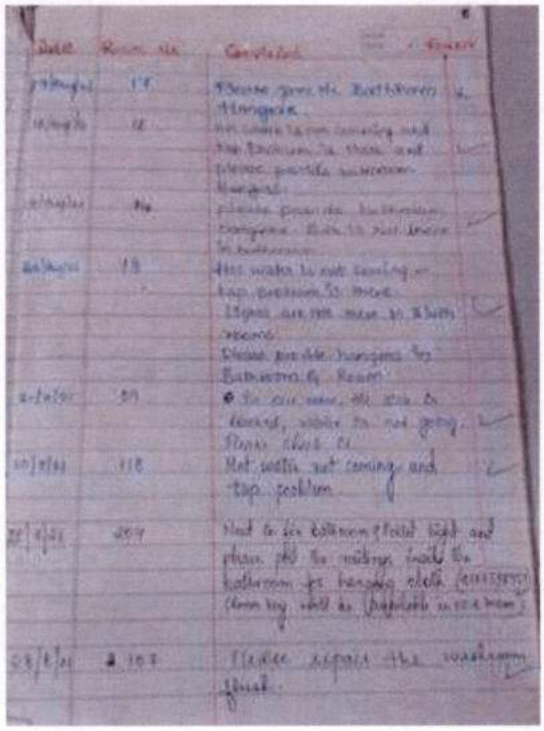


Figure 4-37: Complaint & Rectification register – Plumbing

4.2.6. Use of Push type taps

Push type taps are installed for urinals at rest rooms. This helps to save water.

A push tap is a type of faucet that can be operated by just pushing a button in order to activate the water flow.

It's a self-closing faucet which if once activated, emits water for a short interval of time and automatically shuts off if pushing is released.

The image of push taps installed is shown in figure 4.38.

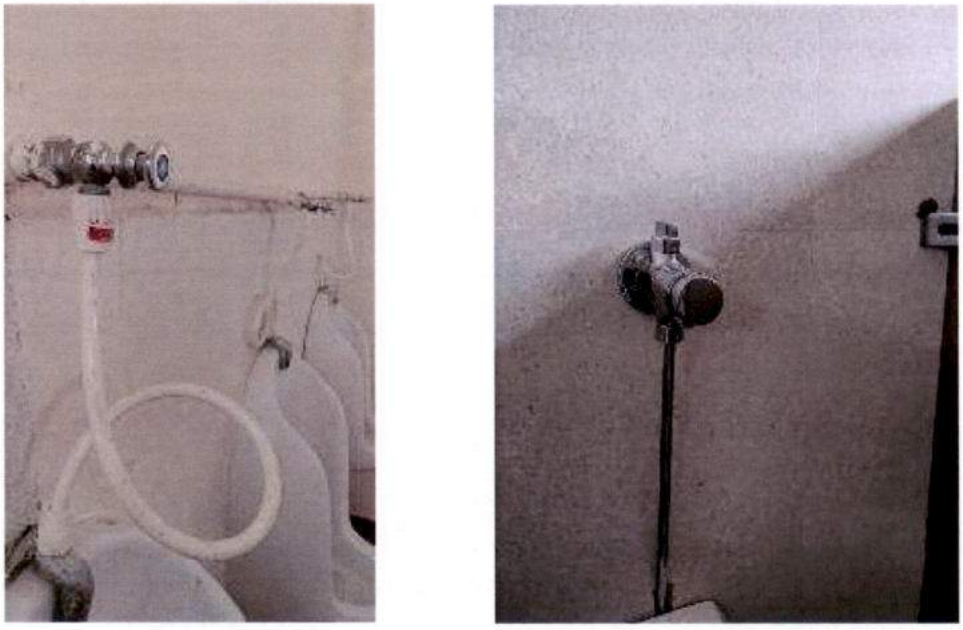


Figure 4-38: Push type taps in urinals

Push type taps are designed to control wastage of water caused due to human laxity. Also, it eliminates the risk of the tap being left open on by a user. This type of taps is more water-saving when compared to the other taps because they have a controlled water stream which limits the water use.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

4.2.7. Solar Water Heater

Solar water heaters are installed in boys and girl's hostel for generating hot water. Sample photo of solar water heater used in the college area are shown in figure 4.39.

Figure 4-39: Use of Solar Water Heater

The cost savings by installation of solar water heater are given in table 4.5.

Savings achieved due to SWH system Installation			
S. No.	**Description**	**Unit**	**Values**
1	Solar water heater installed	L	2000
2	Total amount of heat produced	kCal/hr	60000
3	Electricity equivalent	kWh	69.8
4	No. of working days per year	days	250.0
5	Annual electricity savings	kWh	17441.9
6	Average electricity cost	Rs./kWh	10.45
7	Annual cost savings achieved per year	Rs. lakh/year	1.82
8	CO2 mitigations per year	Tons/year	14.83

Table 4-5: Annual cost savings by installation of Solar Water Heater

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

4.2.8. Heat Pump Technology

The energy efficient heat pump technology is used in girl's hostel. The heat pump technology is used along with solar water heater technology. This integrated technology provides hot water supply for girl's hostel.

The energy savings achieved due to installation of heat pump for water heating is given in table 4.6 below

Savings achieved due to Heat Pump system Installation			
S. No.	**Description**	**Unit**	**Values**
1	Heat Pump Capacity	L	1000
2	Total amount of heat produced	kCal/hr	30000
3	Electricity equivalent	kW	9
4	Input Power required for heat pump	kW	6
5	Difference in electrical power	kW	3
6	Energy savings per heat pump per day (Considering 4 hours of working)	kWh	3
7	Total number of heat pumps installed	no.	2
8	Total energy savings from 2 numbers of heat pumps	kWh	5
9	No. of working days per year	days	250
10	Annual electricity savings	kWh	1360
11	Average electricity cost	Rs./kWh	10.45
12	Annual cost savings achieved per year	Rs. lakh/year	0.14
13	CO2 mitigations per year	Tons/year	1.2

Table 4-6: Annual cost savings by installation of Heat pump system

4.3. Recommendations

4.3.1. Waterless Urinals

Traditional water-based urinals are one of the major waters consuming area in any facility. Apart from the normal water usage, the cost for handling raw water to the urinals is an added expenditure. Also, maintaining the water taps and flushes for urinals will add to maintenance cost as well.

To overcome these challenges and as part of water conservation measure, implementation of waterless urinals can be incorporated in the campus.

Waterless urinals may look similar to regular flush urinals, but they use no water and have no flush valves. The sample image of waterless urinals is shown in figure 4.40.

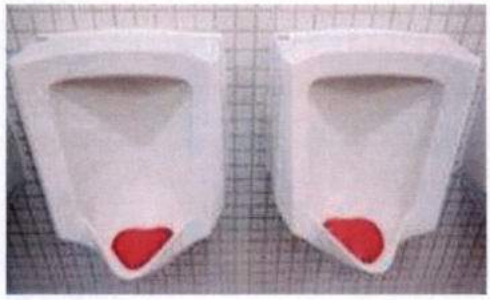


Figure 4-40: Waterless urinals

The advantages of water less urinals are as follows:

- Saves water
- Reduces water bill
- Reduces maintenance cost
- Reduces water handling cost (electricity cost for pumping raw water)
- Reduces usage of chemicals
- Improves overall bathroom hygiene

4.3.2. Regular Water Quality Testing

Testing water quality on a regular basis is an important part of maintaining a safe and reliable source. The test result allows to properly addressing the specific problems of a water supply. This will help ensure that the water source is being properly protected from potential contamination, and that appropriate treatment is selected and operating properly.

It is important to test the suitability of water quality for its intended use, whether it be livestock watering, chemical spraying, or drinking water. This will assist in making informed decisions about your water and how you use it.

Regular testing is important to:

- Identify existing problems
- Ensure water is suitable for the intended use, especially if used for drinking by humans and animals
- Track changes over time
- Determine the effectiveness of a treatment system

4.3.3. Aerators for taps

The aerator is a small attachment that either fits onto the end of the tap or can be inserted inside of the existing spout. These water saving devices will control the amount of water that flows through the tap without affecting the water pressure as they mix the water with air which will save water and money.

The aerators will separate a single flow of water into many tiny streams which introduces the air in to the water flow. Also, as there is less space for the water to flow through, the water flow is reduced, resulting in water savings. As the water pressure is maintained, most people don't notice a difference in the amount of water coming out of an aerated faucet yet benefit from the water efficiency.

Tap aerators are of most use to those with older taps which run on average around 15 litres of water per minute. Adding an aerator to an older tap can reduce this to as little as 6 litres of water per minute.

The biggest water saving benefit is achieved in the bathroom / hand wash / kitchen sinks where you are often turning the taps on and off to wash your hands and for other uses. The aerator tap is shown in figure 4.41.

Figure 4-41: Aerators for taps

Tap aerators can save as much as up to half your water usage through this way. When you are using aerated water, you are unlikely to notice the difference except for saving water resulting in lower bills.

Other recommendations:

1. To create awareness about the water conservation among new students and staff, awareness programs/campaigns need to be conducted inside the campus on a periodic basis.
2. Installation of STP

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

5. ENERGY AUDIT

5.1. Facility Description

Incoming power supply from BESCOM is received at the transformer yard inside the college premises. The 11 kV rated HT power supply is stepped down to LT 433V, by one number of 100 kVA rated transformer. The college has availed power supply, with connection – RR. No 0290168101 (W7HT55) with 1HT2C2 tariff. Transformer unit installed inside college premises is as shown in the figure 5-1.

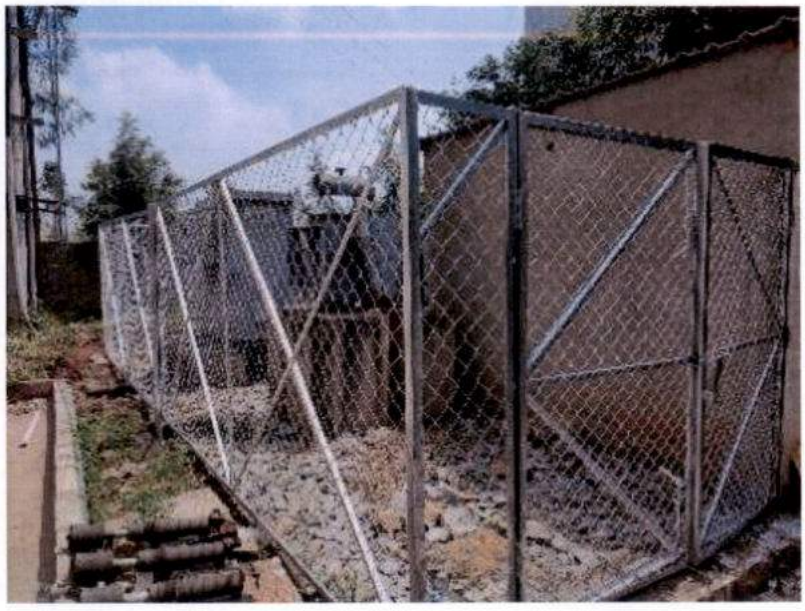


Figure 5-1: Transformer Yard - College

Transformer Yard – Hostel Area

Incoming power supply from BESCOM is received at the transformer yard near boy's hostel. The 11 kV rated HT power supply is stepped down to LT 433V, by one number of 200 kVA rated transformer. The college has availed power supply, with connection – RR. No 0290168102 (W7HT93) with 1HT2C2 tariff. Transformer unit installed near boy's hostel is shown in the figure 5-1.

Figure 5-2: Hostel - Transformer yard

The name plate details of transformer are given in table 4-1.

S. No	Description	Units	College	Hostel
1	Rated Capacity	kVA	100	200
2	Voltage, V	HV	11000	11000
3		LV	433	433
4	Current, A	HV	5.25	13.12
5		LV	133.33	333.33
6	Phases	-	3	3
7	Type of Cooling	-	ONAN	ONAN
8	Frequency	Hz	50	50
9	Vector group	-	DYN 11	DYN 11
10	Impedance volts	%	4.5	4.53
11	Total weight	Kgs.	540	585
12	Oil	litres	140	690
13	Year of Mfg.	-	2008	2021
14	GTD Max Air Temp Rise	°C	45	45
15	Manufactured by	-	Vijay Vidhyut Udhyog	Vijay Vidhyut Udhyog

Table 5-1: Name plate details of transformers

The LT supply from the transformer is taken to the main distribution panel inside the panel room of science block. Electrical panel room is as shown in the figure 5-3.

Figure 5-3: Main PCC panel in panel room of science block

The electrical distribution panel of management block is shown in figure 5.4.

Figure 5-4: Electrical distribution panel – Management block

The main LT electrical distribution panel of boy's hostel is shown in figure 5.5

Figure 5-5: Main LT Electrical Distribution Panel – Boy's Hostel

The electrical distribution panel of boy's hostel block is shown in figure 5.6.

Figure 5-6: Electrical distribution panel – Boy's Hostel

The electrical distribution panel of boy's hostel – 2 (Amogha block) is shown in figure 5.7.

Figure 5-7: Electrical distribution panel – Boy's Hostel – 2 (Amogha block)

The electrical distribution panel of girl's hostels is shown in figure 5.8

Figure 5-8: Electrical distribution panel – Girl's hostel

The electrical distribution panel of girl's hostels (new block) is shown in figure 5.9

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Figure 5-9: Electrical distribution panel – Girl's hostel (new block)

The sample image of floor-wise electrical distribution box at science block is shown in figure 5.10.

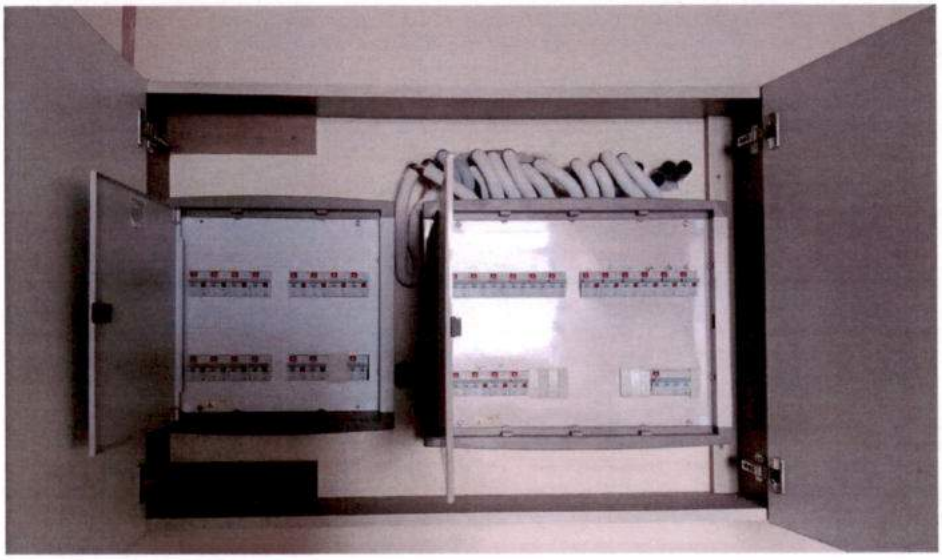


Figure 5-10: Floor-wise Electrical DB – Science Block

The sample image of floor-wise electrical distribution box at boy's hostel – 1 (Akanksha block) is shown in figure 5.11

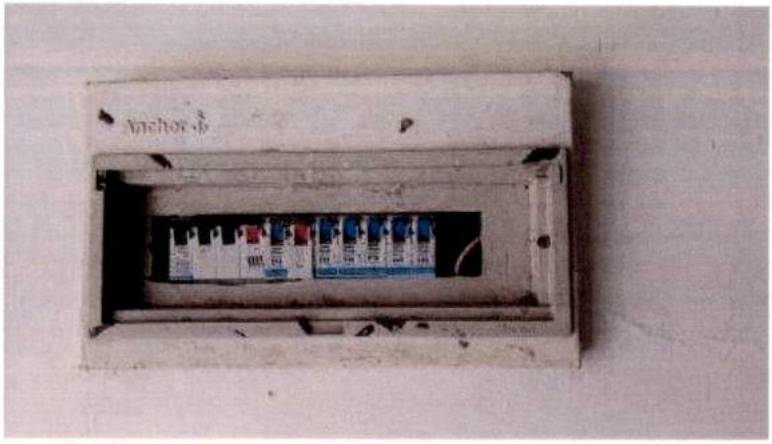


Figure 5-11: Floor-wise Electrical DB – Boy's Hostel – 1

Power supply cables from the electrical panel room is distributed to the various distribuition panels placed inside the campus. From main panel room, power supply is catered to girl's hostel, degree college and feeder panel located near boy's hostel. From feeder panel, the power is distributed to science block, mechanical block and boy's hostel distribution panels.

DG Sets:

Four numbers of DG (Diesel Generator) sets are used for backup power supply, during power failure from BESCOM. DG sets were installed at the Science block, Management block, Boy's hostel, and Girl's hostel.

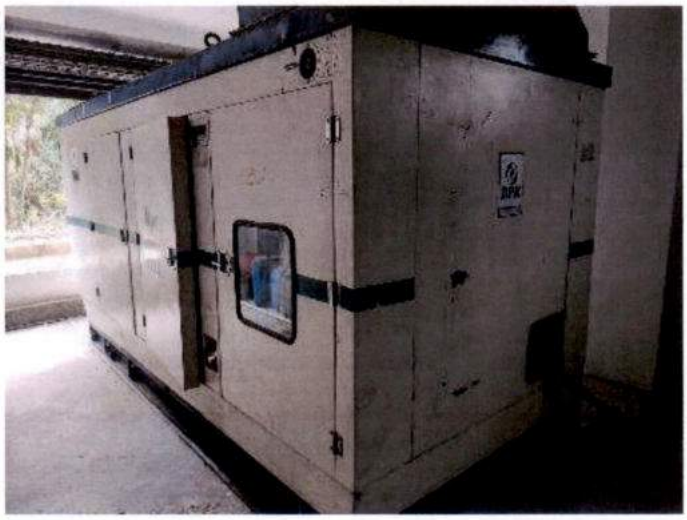


Figure 5-12: Diesel Generator (DG) set - Science block

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management &

Figure 5-13: Diesel Generator (DG) set – Management Block

Figure 5-14: Diesel Generator (DG) set – Boy's Hostel

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Padmashree Institute of Management & Sciences Bangalore-60

Figure 5-15: Diesel Generator (DG) set – Girl's Hostel

The name plate specification rating of the DG sets is given in the table 5-2.

S. No	Description	Unit	Science Block	Management Block	Boy's hostel	Girl's hostel
1	Rated Capacity	kVA	160	15	62.5	125
2	AC Volt	V	415	415	415	415
3	AC Amp	A	226	20.9	87	173.9
4	Power Factor		0.8	0.8	0.8	0.8
5	Phase		3	3	3	3
6	Ambient	°C	40	40	40	40
7	Frequency	Hz	50	50	50	50
8	RPM		1500	1500	1500	1500
9	Connection		Star	Star	Star	Star
10	IP		21 S	23	23	23
11	Duty		S 1	S 1	S 1	S 1
12	Make		Kirloskar	Cooper corp	Stanford	Kirloskar

Table 5-2: DG set specifications

UPS is available in the campus to give the backup power supply for all the critical loads like computer labs, server rooms, emergency lighting etc. Sample picture of the 15 kVA UPS installed at science block is shown in the figure 5.10.

Figure 5-16: UPS system – Science block

The 15 kVA UPS installed at management block is shown in the figure 5.17

Figure 5-17: UPS system – Management block

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Science

5.1.1. Tariff Structure

The sanctioned contract demand of the campus is 300 kVA at specified voltage of 11 kV. Electricity supply from BESCOM is billed under 1HT2C2 schedule of tariffs. The tariff includes demand charges of Rs. 220 per kVA, and energy charges of Rs.8.10 per kWh.

The kVA demand charges @ Rs. 220/kVA of maximum demand recorded during the month or 85% of the contract demand, whichever is higher.

5.1.2. Electricity Consumption Data

Details of electricity consumption for the last two years have been collected and Salient features of electrical energy details are given in table 5-3.

S. No.	Description	Unit	Details
1	Contract Demand	kVA	300
2	Demand Charges	Rs./kVA	220
3	Maximum Demand Recorded during last one years	kVA	146
4	Average Monthly Energy Consumption during last one year	kWh	35804.75
5	Average Energy Charges considered for savings calculations	Rs./ kWh	10.45

Table 5-3: Electricity Bill Parameters

Figure 5-18 indicates the month wise recorded maximum demand and month wise energy consumption of the college campus for the last one year (Apr 2021 to Mar 2022).

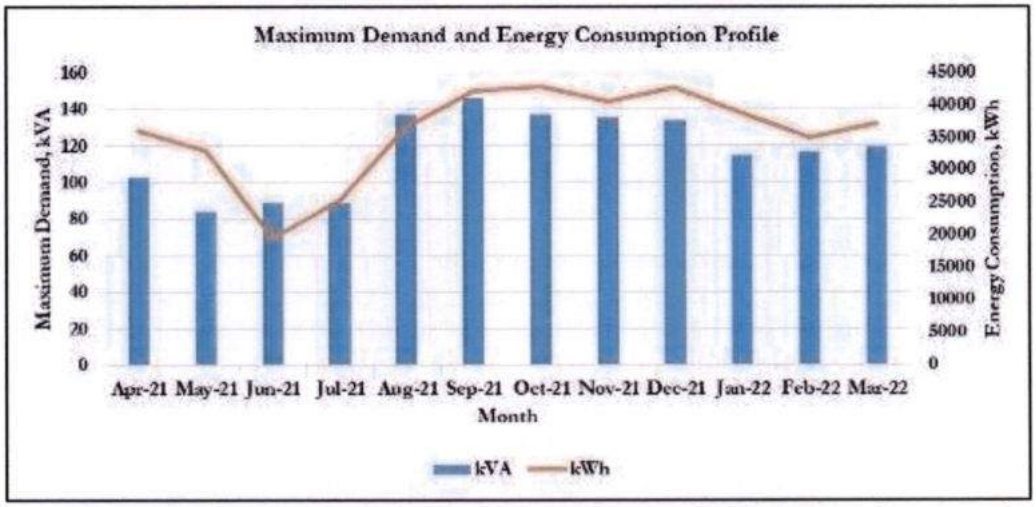


Figure 5-18: Month wise Recorded Maximum Demand and Energy Consumption

From the maximum demand curve, it was observed that maximum demand registered during the month of September 2021 was found to be 146 kVA and is the peak demand during the last one year of billing period. Average of registered maximum demand during April 2020 to March 2021 is **117.08 kVA.**

From the month wise energy consumption profile, it was observed maximum energy consumption was registered during October 2021. Average monthly energy consumption is **35804.75 kWh**.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

5.2. Best Practices Implemented for Energy Conservation

During the study, observations were carried out on the usage of the inventories in the college building premises. In the intension of saving the electricity, various measures have been adopted in the college. Computers and AC units are used only during the working hours, after completion of class hours – fans, lights, computers and AC units are found to be turned OFF. This practice is followed across the college premises (class rooms, labs, staff rooms, office rooms, library and auditoriums).

5.2.1. Day-light Integration

During the walk-through of the audit classrooms, Staff-rooms, computer lab, seminar hall, UPS & batteries room and library areas were surveyed for illumination levels and fresh air-circulation. It was observed most of the rooms are well ventilated and day-light integrated; sample photos are shown in figure 5-19 and figure 5-20.

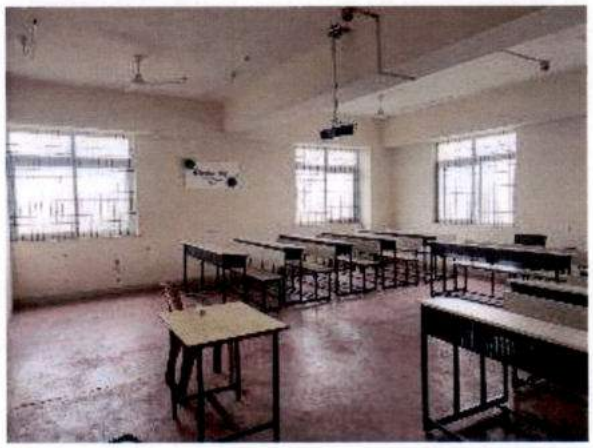


Figure 5-19: Day-light integrated Class room

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Figure 5-20: Well-ventilated and day-light integrated lab

Figure 5-21: Well-ventilated and day-light integrated Staff-room

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Figure 5-22: Well-ventilated and day-light integrated Library

Figure 5-23: Well-ventilated and day-light integrated Panel room

5.2.2. Installation of LED lights

Many of the FTL in all the blocks of the campus are replaced with LED lights. LED tube lights are used in the class rooms, staff-rooms, corridors, hostel, dining area, street lights and in the library area. Sample photo of LED lamp used in the some of the locations of the college area are shown in figure 5-24.

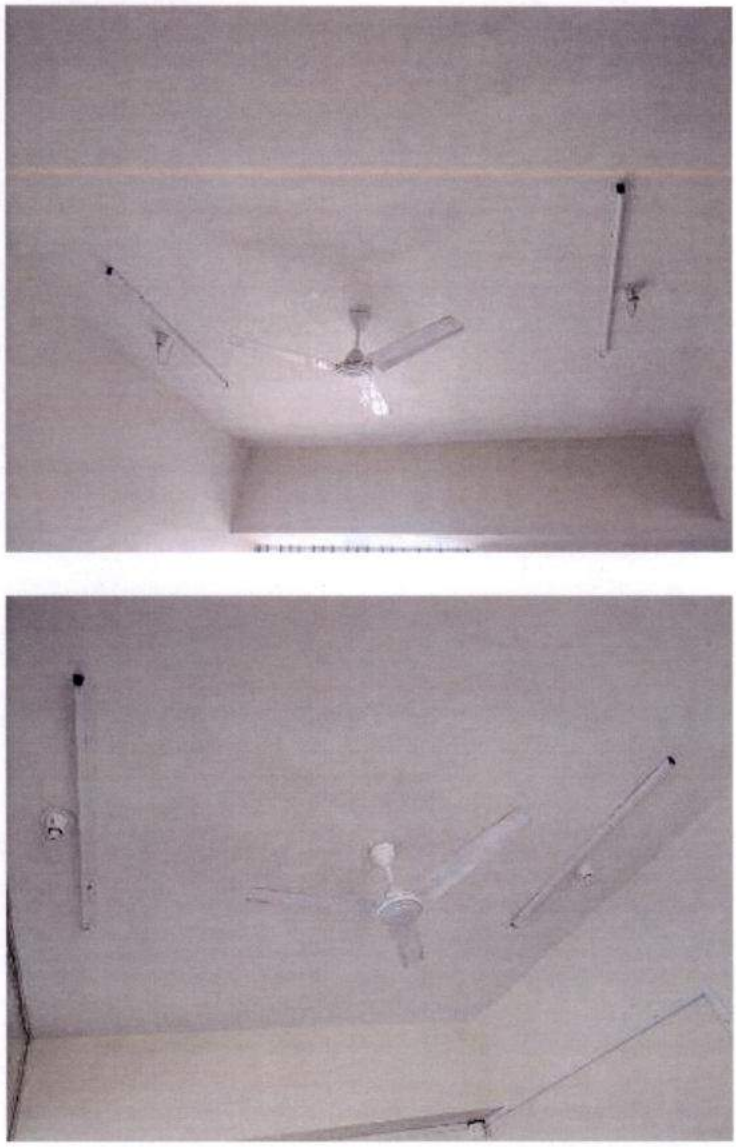


Figure 5-24: Use of LED lights in labs

Figure 5-25: Use of LED lights in Staff room

Figure 5-26: Use of LED lights in library

Figure 5-27: Use of LED Street lights

The cost savings by installation of LED lights are given in table 5-4 to table 5-9.

Savings achieved due to 1x9W - LED Installation			
S. No.	**Description**	**Unit**	**Values**
1	Rated Wattage of LED lamps installed	W	9
2	Quantity of LED lamps installed	Nos	306
3	Rated wattage of lamps used earlier	W	18
4	Savings per lamp by installation of LED lamps	W	9
5	Total savings	kW	2.754
6	Working hours per day	hours	8
7	No. of working days per year	days	250
8	Annual electricity savings	kWh	5508
9	Average electricity cost	Rs./kWh	10.45
10	Annual cost savings achieved per year	Rs. lakh/year	0.58
11	CO2 mitigations per year	Tons/year	4.68

Table 5-4: Annual cost savings by installation of 1x9W – LED lights

Savings achieved due to 1x10W - LED Installation			
S. No.	**Description**	**Unit**	**Values**
1	Rated Wattage of LED lamps installed	W	10
2	Quantity of LED lamps installed	Nos	83
3	Rated wattage of lamps used earlier	W	20
4	Savings per lamp by installation of LED lamps	W	10
5	Total savings	kW	0.83
6	Working hours per day	hours	8
7	No. of working days per year	days	250
8	Annual electricity savings	kWh	1660
9	Average electricity cost	Rs./kWh	10.45
10	Annual cost savings achieved per year	Rs. lakh/year	0.17
11	CO2 mitigations per year	Tons/year	1.41

Table 5-5: Annual cost savings by installation of 1x10W – LED lights

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Savings achieved due to 1x16W-LED Installation			
S. No.	**Description**	**Unit**	**Values**
1	Rated Wattage of LED lamps installed	W	16
2	Quantity of LED lamps installed	Nos	157
3	Rated wattage of lamps used earlier	W	32
4	Savings per lamp by installation of LED lamps	W	16
5	Total savings	kW	2.512
6	Working hours per day	hours	8
7	No. of working days per year	days	250
8	Annual electricity savings	kWh	5024
9	Average electricity cost	Rs./kWh	10.45
10	Annual cost savings achieved per year	Rs. lakh/year	0.53
11	CO2 mitigations per year	Tons/year	4.27

Table 5-6: Annual cost savings by installation of 1x16W – LED lights

Savings achieved due to 1'x1'-20W-LED Installation			
S. No.	**Description**	**Unit**	**Values**
1	Rated Wattage of LED lamps installed	W	20
2	Quantity of LED lamps installed	Nos	458
3	Rated wattage of lamps used earlier	W	40
4	Savings per lamp by installation of LED lamps	W	20
5	Total savings	kW	9.16
6	Working hours per day	hours	8
7	No. of working days per year	days	250
8	Annual electricity savings	kWh	18320
9	Average electricity cost	Rs./kWh	10.45
10	Annual cost savings achieved per year	Rs. lakh/year	1.91
11	CO2 mitigations per year	Tons/year	15.57

Table 5-7: Annual cost savings by installation of 1'x1' -20W – LED lights

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Savings achieved due to 1x22W - LED Installation			
S. No.	**Description**	**Unit**	**Values**
1	Rated Wattage of LED lamps installed	W	22
2	Quantity of LED lamps installed	Nos	523
3	Rated wattage of lamps used earlier	W	50
4	Savings per lamp by installation of LED lamps	W	28
5	Total savings	kW	14.644
6	Working hours per day	hours	8
7	No. of working days per year	days	250
8	Annual electricity savings	kWh	29288
9	Average electricity cost	Rs./kWh	10.45
10	Annual cost savings achieved per year	Rs. lakh/year	3.06
11	CO2 mitigations per year	Tons/year	24.89

Table 5-8: Annual cost savings by installation of 1x22W – LED lights

Savings achieved due to 2'x2' - 40W - LED Installation			
S. No.	**Description**	**Unit**	**Values**
1	Rated Wattage of LED lamps installed	W	40
2	Quantity of LED lamps installed	Nos	10
3	Rated wattage of lamps used earlier	W	80
4	Savings per lamp by installation of LED lamps	W	40
5	Total savings	kW	0.4
6	Working hours per day	hours	8
7	No. of working days per year	days	250
8	Annual electricity savings	kWh	800
9	Average electricity cost	Rs./kWh	10.45
10	Annual cost savings achieved per year	Rs. lakh/year	0.08
11	CO2 mitigations per year	Tons/year	0.68

Table 5-9: Annual cost savings by installation of 1x22W – LED lights

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

5.2.3. Installation of Solar Water Heater

Solar water heaters are installed in Women's hostel and integrated with heat pump system for hot water usage. Sample photo of solar water heater used in the hostel are shown in figure 5-28 and figure 5-29.

Figure 5-28: Women's hostel – Solar Water Heater system

Figure 5-29: Heat pump integration with Solar water heater system

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

The cost savings by installation of solar water heaters of the campus are given in table 5-10

	Savings achieved due to SWH system Installation		
S. No.	**Description**	**Unit**	**Values**
1	Solar water heater installed	L	2000
2	Total amount of heat produced	kCal/hr	60000
3	Electricity equivalent	kWh	69.8
4	No. of working days per year	days	250.0
5	Annual electricity savings	kWh	17441.9
6	Average electricity cost	Rs./kWh	10.45
7	Annual cost savings achieved per year	Rs. lakh/year	1.82
8	CO2 mitigations per year	Tons/year	14.83

Table 5-10: Annual cost savings by solar water heater

5.2.4. Installation of Occupancy Sensors

Occupancy sensors activate lighting once an occupant is identified. Once the occupant has left, the sensors automatically turn the light off. When leaving a room occupants may forget to turn the lights off. This will end up in increase of energy consumption.

The benefit of occupancy sensors is their ability to reduce waste from lights left on in unoccupied space.

At college premises, occupancy sensors were installed to reduce energy waste from lights left on in places where the occupancy is less frequent.

The occupancy sensor installed at the board room is shown in figure 5.30.

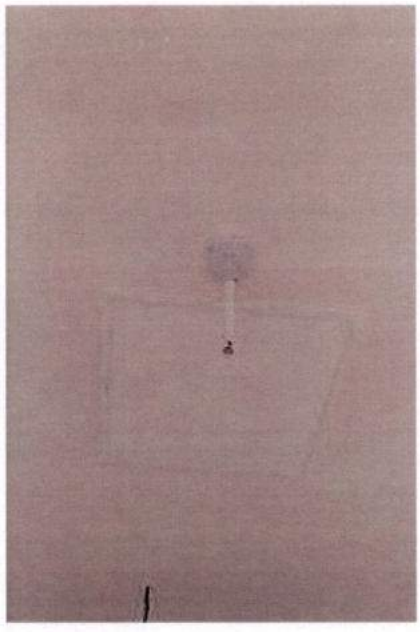


Figure 5-30: Occupancy Sensor – Board room

5.2.5. Procurement of LED/LCD monitors

LED/LCD monitors are used for all the desktop computers in staff rooms and in computer labs. Sample photos of the computer labs are as shown in the figure 5-31

Figure 5-31: Use of LED/LCD monitors in the computer labs

Figure 5-32: Use of LED/LCD monitors in the learning area

5.2.6. Heat pump technology for Hot water system

Heat pump technology has been used for the hot water availability in Girl's hostel and is integrated with the solar water heater. Annual energy savings by heat pump technology is as shown in table 5-11.

Savings achieved due to Heat Pump system Installation			
S. No.	**Description**	**Unit**	**Values**
1	Heat Pump Capacity	L	1000
2	Total amount of heat produced	kCal/hr	30000
3	Electricity equivalent	kW	9
4	Input Power required for heat pump	kW	6
5	Difference in electrical power	kW	3
6	Energy savings per heat pump per day (Considering 4 hours of working)	kWh	3
7	Total number of heat pumps installed	no.	2
8	Total energy savings from 2 numbers of heat pumps	kWh	5
9	No. of working days per year	days	250
10	Annual electricity savings	kWh	1360
11	Average electricity cost	Rs./kWh	10.45
12	Annual cost savings achieved per year	Rs. lakh/year	0.14
13	CO2 mitigations per year	Tons/year	1.2

Table 5-11: Annual cost savings by heat pump technology

5.2.7. Usage of Sign boards

Sign boards are posted in the campus to create awareness among the staff and students to conserve electricity. Posters stating - 'Save Energy', 'Switch off light and fan when not in use' is placed near switch boards. Sample picture taken during the audit is shown in the figure 5-33

Figure 5-33: Save Energy – Sign board

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

5.2.8. Usage of Cable Tray

A cable tray system supports and protects both power and signal cable and facilitates upgrading, expanding, reconfiguring, or relocating networks.

Most of the cable tray systems are open, allowing efficient heat dissipation and easy access for replacement and repairs.

At college premises, the power cables are properly carried using cable trays. The sample image of cable tray used for carrying power cables is shown in figure 5.34.

Figure 5-34: Cable Tray – Science Block

5.2.9. Complaints and Maintenance Register

There is a systematic process is in place for complaints and maintenance monitoring. The complaints are recorded manually in the complaint register. The complaint is rectified immediately by the electrician and closed in the register.

The sample image of complaint and rectification register for electrical problems is shown in figure 5.35.

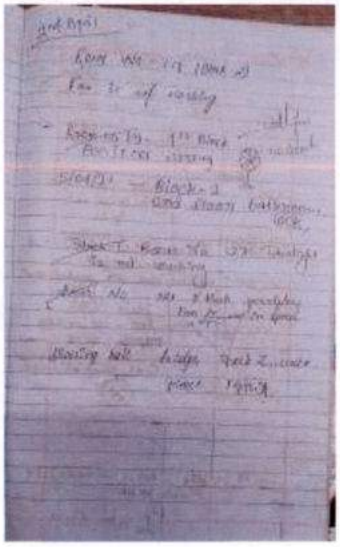


Figure 5-35: Electrical Complaint and Maintenance Register

The sample image of diesel log book for the DG set is shown in figure 5.36.

Figure 5-36 Diesel log book of DG sets

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

5.3. Recommendations for Energy Conservation

5.3.1. Replacement of conventional 1x40W FTL lamps with energy efficient 1x20W LED lamps

Background

From the inventory data; collected during study it is observed conventional FTL lighting fixtures are used in the campus. The total number of 1x40W FTL fixtures is 537. The power consumed by FTL in comparison with LED fixtures is 50% higher. Replacing the existing FTL with LED will result in energy savings.

Recommendation

It is recommended to replace the existing 1x40W FTL lamps with 1x20W LED tube lights.

Energy Savings

The energy savings and investment cost for replacement of FTL with LED fixtures and its payback period are given in table 5-12.

S. No.	Description	Unit	Details
1	Total no. of 1x40W FTL	No.s	675
2	Power consumption by 1x40W FTL	kW	27
3	% of savings if all FTL replaced by LED fixtures	%	50
4	% of savings in kW if replaced by LED fixtures (Considering all fixtures)	kW	13.5
5	% of Lights found to be ON during working hours	%	70
6	Energy savings for fixtures in ON condition (4 x 5%)	kW	9.45
7	Total working hours per day	hours	9.0
8	Annual savings (6 x 7 x 200days)	kWh/Annum	17010.0
9	Average energy cost per kWh	Rs./kWh	10.45
10	Annual cost savings	Rs. lakh	1.8
11	Cost of LED per fixture	Rs.	350.0
12	Total Investment cost for 675 LED fixtures	Rs.lakh	2.4
13	Simple payback period (12 / 10)	Years	1.33

Table 5-12: LED replacement cost and payback period calculations

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

5.3.2. Replacement of conventional fans with energy efficient fans

Background

1x65W conventional fans have been used in almost all the rooms of the college. Total number of 1x65W fans used accounts to around 233 numbers. Hence, replacing the 1x65W conventional fans with 1x35W energy efficient fans will result in energy savings.

Recommendation

It is recommended to replace 65 W fans with 35 W EE fans, as procurement practice. Whenever the existing fans fails, while procuring 35W EE fans shall be procured.

Energy Savings

The energy savings and investment cost for replacement of 65 W fans with 35 W EE fans and its payback period are given in table 5-13.

S. No.	Description	Unit	Details
1	Total no. of 1x65W Fans	No	855
2	Power consumption by 1x65W Fans	kW	56
3	% of savings if all FTL replaced by EE fans	%	45
4	% of savings in kW if replaced by EE fans (Considering all fans)	kW	25
5	% of fans found to be ON during working hours	%	80
6	Energy savings for fans in ON condition (4 x 5%)	kW	20.0
7	Total working hours per day	hours	9.0
8	Annual savings (6 x **7** x **200days**)	kWh/Annum	36012.6
9	Average energy cost per kWh	Rs./kWh	10.45
10	Annual cost savings	Rs. lakh	3.8
11	Cost of fan	Rs.	2000.0
12	Total Investment cost for 855 fans	Rs. lakh	17.1
13	Simple payback period (12 / 10)	Years	4.54

Table 5-13: EE Fans replacement and payback period calculations

5.3.3. Other Recommendations

- Conduct training and awareness programs on energy conservation
- Installation of SRTPV (Solar Roof Top Photo Voltaic) system
- Replacement of conventional FTL lamps with energy efficient LED lamps in phased manner, as part of procurement practice
- Replacement of conventional fans with energy efficient fans in phased manner, as part of procurement practice.
- Conduct Seminars and workshops on a regular basis among all the staffs and students to create awareness about Energy conservation and proper usage.
- It is advised to conduct preventive maintenance on a regular basis.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

6. WASTE MANAGEMENT AUDIT

The Institution has taken up various initiatives to maintain an environment friendly campus. The campus is full of greenery and is kept clean and tidy. The gardens, lawns and plantations inside the campus is maintained by a dedicated group of caretakers, sweepers and housekeeping staff. The Institution implements effective waste management through waste segregation and recycling of the waste.

6.1. Facility Description

The study involved carrying out various analyses to realistically assess waste generation.

There are different types of waste generated in the college and is tabulated in table 6-1.

S. No.	Description	Yes / No	Details
1	E-Waste	Yes	External Agency
2	Hazardous / Chemical Waste	No	NA
3	Solid Waste	Yes	External Agency
4	Dry Leaves	Yes	Compost Unit
5	Food Waste	Yes	Feed live stock
6	Waste Water	Yes	BBMP
7	Glass Waste	No	NA
8	Unused Materials	No	External Agency
9	Plastic Waste	Yes	External Agency

Table 6-1: Types of Waste Generated in the college

6.1.1. Dry Waste Management

The Institution implements solid waste management by enforcing the waste segregation rules. Solid waste includes both biodegradable and non-biodegradable components. The non-biodegradable solid waste generated in the campus include, paper, plastics, metal cans etc. Biodegradable waste includes food waste, vegetable peels, leaves etc.

Dustbins have been provided at designated locations in the campus. Housekeeping/sweepers are allotted to each floor who manage all the waste generated in the campus. All waste/garbage from college and hostel is segregated at source and disposed of in a proper manner.

Wastes like newspapers and stationery is sold to proper recycling agencies/vendors.

There is no hazardous waste and radioactive waste is generated inside the campus.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

6.1.2. Wet Waste Management

To manage the wet waste in the college, which is produced from the canteen in the campus, remains of the tiffin boxes brought by the students, teachers, & non-teaching staff of the college, separate bins to collect food waste is kept in canteen. Also, it is practiced to consume food only in the canteen dining hall. It is not permitted to consume food inside the class rooms, labs etc.,

The waste bin for food waste disposal at boy's hostel is shown in figure 6.1

Figure 6-1: Food waste collection bin with trolley

Biodegradable waste generated in the hostel kitchen and canteen which can be used to feed the livestock, is utilized by local community farmers. The image of bio degradable waste being taken by local farmer is shown in figure 6.2.

Figure 6-2: Food waste being taken to feed livestock

6.1.3. Liquid- Waste Management

Waste water from the wash rooms, toilets and labs are connected to the waste water chambers in each block. Then, from chambers the waste water is collected in a sewage tank. From sewage tank, the waste water is sent to BWSSB drainage system through underground pipes.

The sample image of waste water outlet pipes in boy's hostel is shown in figure 6.3.

Figure 6-3: Waste Water Outlet Pipes

The sample image of waste water chamber is shown in figure 6.4.

Figure 6-4: Waste Water Chamber

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

The sample image of waste water tank in boy's hostel is shown in figure 6.5.

Figure 6-5: Sewage Tank

6.1.4. E - Waste Management

The Institution as undertaken a number of E-waste Management initiatives with the objective of creating an eco-friendly environment in the campus. E-waste such as computers and its peripherals are upgraded regularly to continue usage and to avoid its wastage.

E-wastes such as electronic components (plastic/metallic) are handed over to agencies which help recycle these materials. By recycling the electronic components, they have recovered valuable materials from old electronics components which can be used to make new products.

6.2. Best Practices Implemented for Waste management

6.2.1. Waste collection bins

The waste segregation is done at source level itself. Separate waste bins for dry waste, wet waste, plastic waste and e-waste are kept at appropriate locations of the campus. This helps to maintain the college premises clean & hygiene.

Figure 6.6 to figure 6.11 shows sample waste collection bins available at different places in the college campus.

Figure 6-6: Waste bin – For paper waste collection

Figure 6-7: Waste bin – Boy's Hostel

Figure 6-8: Waste bin – College campus area

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

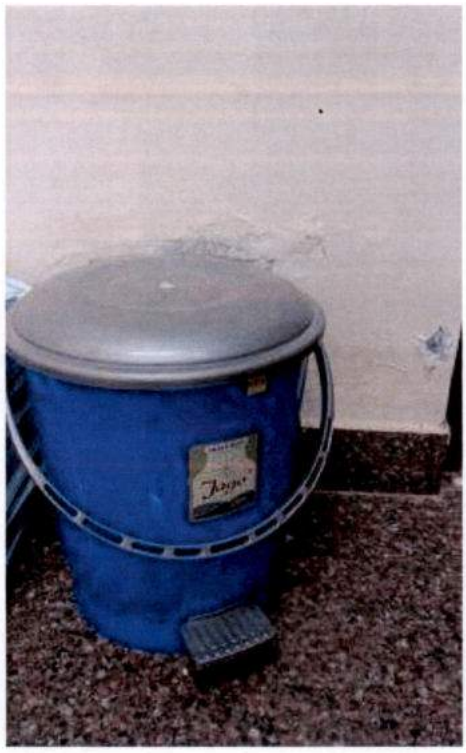


Figure 6-9: Waste bin at staff room

Figure 6-10: Waste bin at Restroom

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

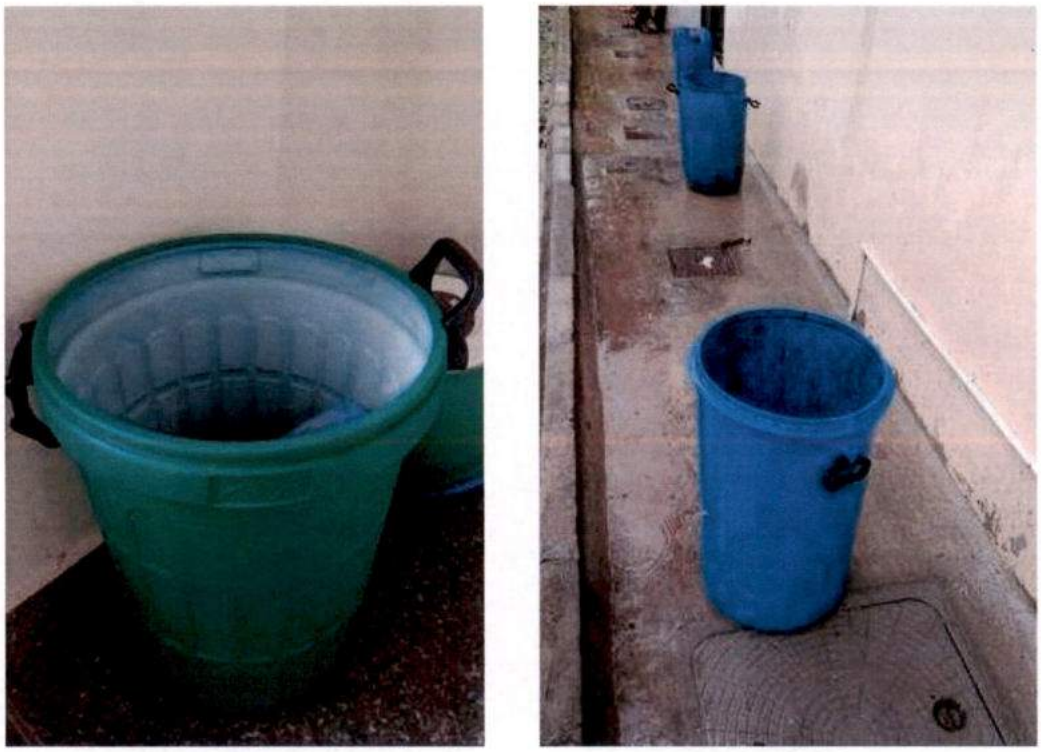


Figure 6-11: Larger Waste bins at Science block

6.2.2. De-composter pit for dry leaves

The fallen leaves from trees and plants within the campus is cleaned daily. The dry leaves are collected and dumped into a de-composter pit located opposite to the girl's hostel. The stems and leaves collected during the maintenance activity is also dumped into this pit. After dumping it covered with soil and left for natural de-composting. The de-composted waste is used as manure for trees and plants. The de-composer pit is shown in figure 6.12

Figure 6-12: De-composter Pit

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

6.2.3. Sign boards to keep clean

Sign boards indicating keep clean, don't litter is kept all around the campus. The sample image of sign boards is shown in figure 6.13 and figure 6.14.

Figure 6-13: Keep Clean – Sign board

Figure 6-14: Don't Litter Here – Sign board

6.2.4. Regular cleaning of campus

Regular cleaning of campus is done to maintain overall hygiene. Cleaning activities are carried out using chemicals wherever necessary. Purchase of brooms, chemicals, phenyls, mop etc., are done based on requirement. The sample image of cleaning activity is shown in figure 6.15

Figure 6-15: Regular cleaning activity of premises

The chemical used for cleaning activity i.e., phenyls and soap oil are shown in figure 6.16

Figure 6-16: Chemicals used for cleaning activity

6.2.5. Tobacco free campus

Signboards on ban of tobacco is placed at appropriate locations of the college premises. The sample image of signboard is shown in figure 6.17

Figure 6-17: Sign board – Tobacco Free Institution

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

6.2.6. Swachh Bharat Campaign – Plastic free campus

The Swachh Bharat movement board kept at college premises is shown in figure 6.18.

Figure 6-18: Swachh Bharat movement board

Swachh Bharat Abhiyan campaign was conducted by Padmashree Institute of Management and Sciences in association with Bruhat Bengaluru Mahanagara Palike (BBMP).

The theme of the campaign was 'Plastic Free Campus'. The principal of the institute Dr. Anuradha M, enlightened the staff and students regarding the hazardous impact of plastic degradation on the environment and how to work towards making the campus plastic free.

The campaign began with the students taking oath to maintain plastic free campus. Students and the faculties were provided personal protective equipment for cleaning the campus.

Sample photos during the campaign are shown in figure 6.19.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Figure 6-19: Swachh Bharat campaign photos

6.3. Recommendations on Waste Management Audit

6.3.1. Color Code Bins

Different color code bins for the waste segregation (Dry, Wet, Bio-medical/Sanitary) at the source itself will make the segregation easy and hence it is recommended to place standard color code bins at all waste collection points of the campus.

6.3.2. Posters on Plastic Ban

Different posters on 'Plastic Ban' can be placed in and around the blocks of the campus. So that the students, staff and trespassers are aware of the college is Plastic Free zone.

6.3.3. Conducting waste management (collection) drives & awareness programs

Keeping the environment clean is not a one-man job, it is the responsibility of every person inside the society/campus. Hence, it is necessary to create awareness programs and waste management drives often and often for the institutions to keep the environment clean, green and hygiene.

Use of posters stating 'Proper usage of dustbins' to create awareness among students and staff regarding waste management.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

7. GREEN CAMPUS MANAGEMENT AUDIT

7.1. Facility Description

PIMS, one of the best Management colleges in Karnataka, has always taken a green agenda. Despite being primarily a management institution, it has shown remarkable awareness in maintaining an eco-friendly campus. On visiting the Campus, one can experience the aesthetic and elegant buildings, lush green trees, splendid lawns, spacious sports grounds and green environment conducive for teaching-learning process.

The 34-acres campus of Padmashree Institute of Management and Sciences, is a home to rich flora and fauna, thus supporting biodiversity. In total, there are 91 plant species in the college campus.

7.1.1. Landscaping with Trees and Plants

Landscaping of the college is worth seeing and reflects aesthetic sense. The institute has a canopy of trees and plants to make the environment pollution free to safeguard the health of all the inmates. the trees provide shade and beautiful ambience. Utmost care is taken to develop and maintain green landscaping by trained gardeners and supervisor. The construction, maintenance and beautification committee constituted in the college looks after the development and maintenance of the greenery in the campus.

There are 210 plants in the college Herbal garden, which includes Allspice (Pimenta dioica), Catmint (Nepeta cataria), Pepper mint (Mentha piperita), Spearmint (Mentha spicata), Lavender (Lavandula), Gotu kola (Centella asiatica), Brahmi (Bacopa monnieri), Ashwagandha (Withania somnifera), varieties of Tulsi/Holy Basil (Ocimum tenuiflorum), Common rue (Ruta graveolens), Lemon balm (Melissa officinalis), Black seed (Nigella sativa) RoseMary (Salvia rosmarinus), lemon grass (Cymbopogon), Indian coleus (Coleus forskohlii coleus), etc.

The campus also has a variety of trees (details given in the table below). The presence of plants and trees in the campus helps in reducing environmental pollution and soil erosion. They also improve outdoor air quality, increase oxygen level and decrease carbon dioxide. They also promote biodiversity conservation.

Being situated in the semi-urban area away from the city's hustle and bustle, the campus is a home to a variety of fauna such as Parrots (Psittaciformes), Pigeons (Columba livia domestica), Woodpecker (Picidae), Kingfisher (Alcedinidae), Crows (Corvus splendens), Swans (Cygnus), Erget (Ardea alba), owls (Strigiformes), Mongoose (Herpestidae), Squirrels (Funambulus palmarum), Dogs (Canis familiari) Cats (Felis catus), different types

of Reptiles, Frogs (Anura), Butterflies, (Euploea core), Carpenter Ants (Camponotus sp), and a plethora of insects.

Photos taken during the audit are shown in the following figures 7.1 to 7.8.

Sample list of trees is as shown in table 7-1 to 7-6.

Main gate to complex building			
Common Name	**Botanical Name**	**Family Name**	**Quantity**
Pink trumpet tree	Tabebuia rosea	Bignoniaceae	23
Coconut	Cocos nucifera	Arecaceae	42
Teak	Tectona grandis	Lamiaceae	173
Avacado	Persea americana	Lauraceae	2
Gum tree	Eucalyptus globulus Labiil	Labill	3
Mango	Mangifera indica	Anacardiacaea	7
Indian cork tree	Millingtonia hertensis	Bignoniaceae	4
Ceylon wood	Manilkara hexandra	Sapotaceae	3
Sago palm	Cycas	Cycadaceae	1
Champa	Plumeria alba	Apocyanaceae	3
Neem	Azandirachta indica	Meliaceae	1
Jungle flame	Ixora	Rubiaceae	7
Royal palm tree	Roystonea regia	Arecaceae	20
Guava	Psidiun guajava	Myrtaceae	3
Pteridium aquilinum	Bracken	Dennstaedtiacea	6
pome granate	Pumica granatum	Lythraceae	2
leadworts	Plumbago	Plumbaginaceae	2
Jack fruit	Artocarpus hrterophyllus	Moraceae	1
		TOTAL	303

Table 7-1: Trees List -Main gate to complex building

Complex to UG Hostel			
Common Name	**Botanical Name**	**Family Name**	**Quantity**
Pink Trumpet tree	Tabebuia rosea	Bingnoniaceae	111
Sugar applr	Anonus squamosa	Annonaceae	2
Teak	Tectona grandis	Lamiaceae	132
Coconut	Cocus nucifera	Arecaceae	162
Ficus nuda	Ficus benjamina	Moraceae	10
Guava	Psidiun guajava	Myrtaceae	4
Mango	Mangifera indica	Anacardaceae	1
Orchis tree	Bauhinia parpuria	Fabaceae	5
Mountain cassia	Senna occidentalis	Fabaceae	13
Queen's crape myrtle	lagerstroemia speciosa	Lythraceae	26
Neem	Azandirachta indica	Meliaceae	7
Gooseberry tree	phyllanthus acidus	Eupharbiaceae	
Bread fruit	Artocarpus integrifolia	Moraceae	5
Indian almond	Terminallia	Combretaceae	1
Drumstick	Moringa oleifera	Moringaceae	15
Pome granate	Pumica granatum	Lythraceae	1
Lemon	Citrus limon	Rutaceae	1
Hibiscus	Hibiscus	Malvaceae	5
Jasmine	Jasminum officinale	Jasminaceae	2
Jack fruit	Artocarpus hrterophyllus	Moraceae	3
Curry leaves	Murraya koenigii	Rutaceae	1
java Palm	Syzygium cumini	Myrtaceae	4
Nerium	Oleander	Apocyanaceae	2
Whie frangipani	Plumaria Alba	Apocyanaceae	4
Lanceleaf coreopsis	Coreopsis Auriculata	Asteraceae	1
Amla	Embellia officinale	Phyllanthaceae	1
Golden webdrop	Duranta	Verbenaceae	1
Rose	Rosa	Rosales	2
		TOTAL	522

Table 7-2: Trees List -Complex to UG hostel

Main gate to Science Block			
Common Name	**Botanical Name**	**Family Name**	**Quantity**
Pink trumpet tree	Tabebuia rosea	Bignoniaceae	16
Silver oak	Grevillea Robusta	Proteaceae	21
Melia	Melia dubia	Meliaceae	1
Butter fruit	Persea americana	Lauraceae	2
Mango	Mangifera Indica	Anacardaceae	19
Neem	Azandirachta indica	Moraceae	5
Tabubuia pentaphylla	Bignonia Pentaphylla	Bignoniaceae	5
Common lantana	Lantana camera	verbenaceae	
Connonball tree	Couroupita guianensis	Lecythidaceae	4
Santa maria feverfew	Partanium Hysterophorus	Asteraceae	
Turkey berry	Solanum tarvum	Solanaceae	
Common Purslane	Portulaca Oleracea	Portulacaceae	
touch me not	Mimos pudica	Legumes	
Tree of heaven	Ailanthus Excelsa	Simaroubaceae	6
Bamboo	Bambusa vulgaris	Poaceae	1
indian beech	Pongamia pinnata	Fabaceae	1
Broom creeper	Cocculus hirsutus	Menispermaceae	
Passion flower	Plasiflora foetida	Passifloraceae	
wild Jute	corchorus trilocularis	Tiliaceae	
Royal poinciana	Delonix regia	Fabaceae	1
wild Jute	Cupressus	Cupressacea	5
Bread fruit	Artocarpus Communis	Moraceae	1
Teak	Tectona grandis	Lamiaceae	10
Jack fruit	Artocarpus hrterophyllus	Moraceae	1
Guava	Psidiun guajava	Myrtaceae	2
Coconut	Cocos nucifera	Arecaceae	111
emperor's candle sick	senna algata	Fabaceae	4
		TOTAL	216

Table 7-3: Trees List -Main gate to science block

Science Block to Ground			
Common Name	**Botanical Name**	**Family Name**	**Quantity**
Tavellers palm	Ravenella madagascariensis	Strelitziaceae	2
Tarlmounia	vernonia Eliagniforia	Asteraceae	
Red Ginger	Alpenia Per[urata	Zingiberaceae	
Rangoon Creeper	Combratum indicum	Combretaceae	
Blue mahoe	Taliparíti elatum	Malvacea	
Queen's crape myrtle	lagerstroemia speciosa	Lythraceae	16
Australia umbrella tree	Brassia Ctinophylla	Araliacea	
Frangipani	plumeria pudica	Apocyanaceae	5
Spider plant	Chlorophytum Comusum	Apocyanaceae	
Common lantana	Lantana camera	verbenaceae	
West indian jasmine	Ixora	Rubiaceae	
Mediterranean Cypress	Cupressus Sempervirens	Cupressaceae	4
Guava	Psidiun guajava	Myrtaceae	3
Custerd apple	Anonus squamosa	Annonaceae	2
Java plum	Sysygium cumini	Myrtaceae	11
Papaya	Carica papaya	Caricaceae	2
Indian acalypha	Acalypha Indica	Euphorbiaceae	
Henna	Ficus benjamina	Lythraceae	2
FIG	Ficus carica	Moraceae	10
Sansevieria	Dracaena Trifasciata	Asparagacee	
Nettlespurges	Jatropha	Euphorbiaceae	
Crape Jasmine	Tabernaemontana divaricata	Apocyanaceae	2
indian beech	Pomgamia pinnata	Fabaceae	5
Champa	Plumeria alba	apocyanaceae	
Alexandrian laurel balltree	Conophyllum Inophyllum	Colophyllaceae	1
Indian elm	Holoptera intergrifolia	Ulmaceae	6
Cape Honeyscuckle	Tecoma Capensis	Bignoniaceae	23
Mosaica	Acalypha wikwsiana	Euphorbiaceae	2
wild Jute	Cupressus	Cupressacea	9
Indian Spurge tree	Polyanthae neriifolia	Euphorbiaceae	1
Sacred tree	Butea monosperma	Fabaceae	4

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Science Block to Ground			
Pome granate	Pumica granatum	Lythraceae	3
Malabar nut	Justicia adhatoda	Acanthaceae	3
Portia tree	Thespesia populnea	Malvacea	1
Neem	Azandirachta indica	Meliaceae	1
Buah cheri	Muntingia calabura	Teliaceae	5
Tree od heaven	Ailanthus excelsa	Simaeoubaceae	9
Termarind	Tamarindus indica	Fabaceae	1
Amruta	Mappia foetida	Lacinaceae	7
Coconut	Cocus nucifera	Araliacea	
Silver oak	Grevillea Robusta	Proteaceae	
Trumpetbush	Tectoma Grandis	Bignoniaceae	3
Ashoka tree	Saraca asoca	Fabaceae	3
Blume	Brassaiopsis Glomerulata Regel	Araliacea	1
Henna tree	Lawsonia Inermis	Lythraceae	19
		Total	166

Table 7-4: Trees List -Science block to ground

New Girls hostel to Boys hostel			
Common Name	**Botanical Name**	**Family Name**	**Quantity**
Silver oak	Grevillea Robusta	Proteaceae	85
Papaya	Carica papaya	Caricaceae	4
coconut	Cocus nucifera	Arecaceae	
Banana	Musa	Musaceae	10
Pink trumpet tree	Tabebuia rosea	Bignoniaceae	17
Teak	Tectona grandis	Lamiaceae	46
Neem	Azandirachta indica	Moraceae	6
Guava	Psidiun guajava	Myrtaceae	2
Halfa Grass	Desmostachya bipinnata	Poaceae	
		Total	183

Table 7-5: Trees List -New girl's hostel to boy's hostel

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Name of the Plant	Qty.	Name of the Plant	Qty.
Tabebuia rosea	146	Couroupita guianensis	4
Cocos nucifera	315	Partanium Hysterophorus	
Tectona grandis	364	Portulaca Oleracea	
Persea americana	4	Solanum tarvum	
Eucalyptus globulus Labiil	3	Mimos pudica	0
Mangifera indica	27	Ailanthus Excelsa	6
Millingtonia hertensis	4	Bambusa vulgaris	1
Manilkara hexandra	3	Pongamia pinnata	1
Cycas	1	Cocculus hirsutus	
Plumeria alba	10	Plasiflora foetida	
Azandirachta indica	20	corchorus trilocularis	
Ixora	7	Delonix regia	1
Roystonea regia	20	Cupressus	18
Psidiun guajava	12	senna algata	4
Bracken	6	Ravenella madagascariensis	2
Pumica granatum	6	vernonia Eliagniforia	
Plumbago	2	Alpenia Per[urata	
Artocarpus hrterophyllus	131	Combratum indicum	
Anonus squamosa	4	Taliparíti elatum	
Ficus benjanina	10	Brassia Ctinophylla	
Bauhinia parpuria	5	Chlorophytum Comusum	
Senna occidentalis	13	plumeria pudica	5
lagerstroemia speciosa	42	Cupressus Sempervirens	4
phyllanthus acidus		Sysygium cumini	11
Artocarpus integrifolia	5	Acalypha Indica	
Terminallia	1	Ficus benjamina	2
Moringa oleifera	15	Ficus carica	10
Citrus limon	1	Dracaena Trifasciata	
Hibiscus	5	Jatropha	
Jasminum officinale	2	Tabernaemontana divaricata	2
Murraya koenigii	1	Pomgamia pinnata	5
Syzygium cumini	4	Conophyllum Inophyllum	1
Oleander	2	Holoptera intergrifolia	6
Plumaria Alba	4	Tecoma Capensis	23
Coreopsis Auriculata	1	Acalypha wikwsiana	2
Embellia officinale	1	Butea monosperma	4
Duranta	1	Justicia adhatoda	3
Rosa	2	Thespesia populnea	1
Grevillea Robusta	106	Muntingia calabura	5

Name of the Plant	Qty.	Name of the Plant	Qty.
Carica papaya	6	Tamarindus indica	1
Musa	10	Mappia foetida	7
Desmostachya bipinnata		Tectoma Grandis	3
Melia dubia	1	Saraca asoca	3
Bignonia Pentaphylla	5	Brassaiopsis Glomerulata Regel	1
Lantana camera		Lawsonia Inermis	19
		Total	**1483**

Table 7-6: List of plants in campus

Figure 7-1: Sample photos of Trees around the campus

Figure 7-2: Sample photos plantations

Figure 7-3: Sample photos of Pot plantations

Figure 7-4: Sample photos of lawn

Figure 7-5: Green landscaping with coconut trees

7.2. Best Practices Implemented for Green Campus Management

The maintenance staff members do periodic checks and maintain records for the same. Many initiatives are taken by the management to inculcate the eco-friendly culture among the student community. The green campus provides the facilities such as rain water harvesting, well grown plantations and lawn all around the campus.

- Plastic free campus
- Green landscaping with trees, plants like vegetable, fruits and medicinal plants; lawns
- Paperless office: All communication regarding academics and administration are sent as e-mails and messages to faculty members and students that contributes paperless communication
- Apart from above, the maintenance of entire campus gardening and nurseries are done regularly.

Environmental conscious administration, the management and the students of the college look after the environment carefully. Every year, during rainy season, tree plantation is done and carefully maintained.

Nursery plantation program has been initiated with the name boards. Sample photo are shown in figure 7.4.

Figure 7-6: Initiation of nursery plantations

7.3. Recommendations on Green Campus Management

- Encouraging students to recommend creative ideas for making campus more greenery.
- Conducting competition among departments to promote student's ideas in sustainability initiatives
- More number of Indoor plantations and pot plantations in the corridors are recommended

8. ENVIRONMENT AUDIT (CARBON FOOTPRINT ANALYSIS)

8.1. Facility Description

The carbon footprint is "the total amount of greenhouse gas (GHG) emissions caused by an organization, event or product". Global warming and climate change are the foremost environmental challenges facing the world today. It is our responsibility to minimize the consumption of energy and hence reduce the emissions of greenhouse gases.

To analysis the carbon footprint, transportation details of students and staff are collected as below:

1. Whether college provides transport facility for staff and students (Yes/No)? Yes,
2. Number (or Percentage) of student & staff using transport services provided by college 78 %
3. Number (or Percentage) of student & Staff using Bike: 20%
4. Number (or Percentage) of student & Staff using Car: 2%

Percentage share of modes of transport services used by students and staffs are given in figure 8.1.

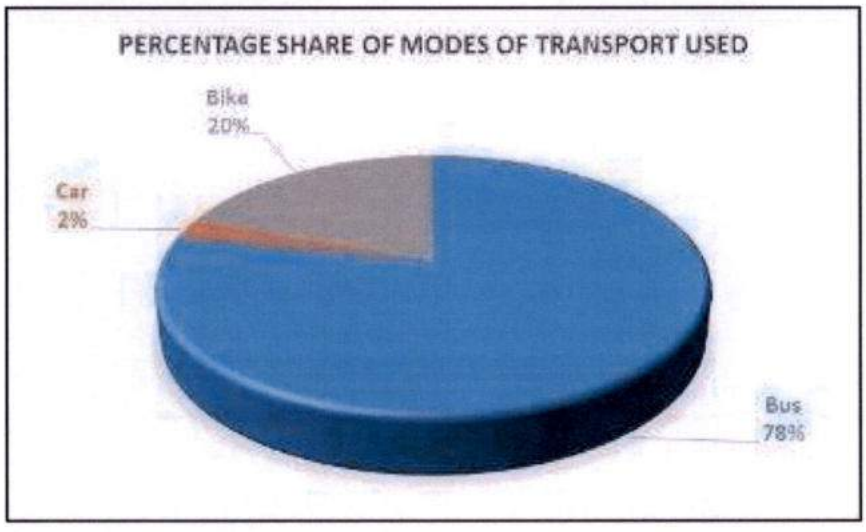


Figure 8-1: Percentage share of modes of transport used by Students & Staff

8.2. Best Practices Implemented for Environment Conservation

8.2.1. Transport Facility

The institute provides transportation facility in order to reduce the number of vehicles entering the campus to minimize the emission of carbon dioxide and other greenhouse gasses. The institute provides eight busses with a seating capacity for 56 people in each bus. Sample photos of the college buses is shown in figure 8.2.

Figure 8-2: Sample photo of college busses

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

8.2.2. Restricted Entry of Automobiles

College operates buses to facilitate the students and staff. The institute encourages the staff and students to use the college transport instead of their own vehicles for safety, security, fuel conservation and to reduce environmental pollution. The college buses are checked for pollution by the authorized agency. The vehicles owned by faculty or students with pollution check stickers are permitted into the campus. Random checks are made to check the validation and periodicity of this certificate.

The institution had provision for restricted entry of automobiles. The institution had made barricades at the entrance of the campus and the entry is for pedestrians only. With this type of facility there is no chance of accidental entry of large vehicles in the campus.

Sample photo of the restricted entry of vehicles is shown in figure 8.3

Figure 8-3: Restricted entry of vehicles inside the campus

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

8.2.3. Designated parking at entrance of the campus

Designated Parking facilities are provided for two and four wheeler's vehicles separately for faculties and students outside the campus. Sample photo of vehicle parking is shown in figure 8-4.

Figure 8-4: Separate two-wheeler parking outside the campus

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

8.2.4. Pedestrian Friendly Pathways

Vehicle parking space is provided at the main entrance of the college campus. As the campus is vehicle free with some exceptions, students and staff experience comfort walking through the pedestrian friendly pathways. The internal roads are lined with trees and lights and they are properly maintained by the campus maintenance committee.

The institution had pedestrian friendly pathways where all staff & faculty can walk safely. Pedestrian friendly pathways are designed in such a way that there is no accidental intervention of vehicles on pathway of pedestrians. Sample photos of pedestrian pathways are shown in the figure 8.5 and figure 8.6.

Figure 8-5: Pedestrian friendly pathways

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Figure 8-6: Pedestrian friendly pathways near hostel

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

8.2.5. Ban on Use of Plastic

The college continuously committed to work towards plastic-free campus. In the PIMS campus there is complete ban on single-use plastics in class room, labs canteens in the institution's premises and hostels.

Single-use plastic items such as plastic bottles, bags, spoons, straws and cups are banned completely and awareness is created among staff and students through orientation and display boards in the premises. To restrict the use of plastic, measures have been taken to replace plastic tea cups and glasses with steel glasses in the canteen. The staff and students are informed to use steel or copper water bottles instead of plastic bottles.

Figure 8-7: Clean & Plastic free campus

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

8.2.6. Encouragement of Electric Vehicles

The institution management is recommending and encouraging the staff and students to use the public transport and electric vehicles, to reduce the carbon foot prints.

Some of the staff & students are coming to college by Electric vehicles. During audit pictures of electric vehicles are taken and the same is given in figure 8-8

Figure 8-8: Sample photo of electric bike

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Figure 8-9: Sample photo of Electric car

8.3. Recommendations on Carbon Footprint Analysis

During the study, there was continuous interaction between the audit team, college engineers and staff members to ensure that the suggestions made are realistic, practical and implementable.

- Awareness campaign on environment conservation
- Celebration of environment day
- Recommend staff to use car-pooling system
- Recommend students and staff to use public transport system
- Recommend students and staff to use bicycle
- Recommend staff and students to use electric vehicles
- Use of Display Boards to conserve fuel and the use of bicycle.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

9. ANNEXURES

9.1. Data Collection Questionnaire

A questionnaire is a checklist used as the primary tool for the collection of data / information in a systematic manner that enables to perform the audit.

9.1.1. General information of the college:

General information of the college needs to be collected to get an overview of the campus for the walk-through purpose. It includes a set of questionnaires as given below.

1. Previous NAAC Grading's:

Previous NAAC Grading's of the college was collected from table 9-1.

S. No.	Phase	Grade	CGPA/Percentage	Year of Acc.	Acc. Period
1	I				
2	II				
3	III				

Table 9-1: NAAC grading's Table

2. Internal Quality Audit Team : 2020 – 2021

Table 9-2 depicts the format for the collection of Internal Quality Audit team.

S. No.	Name	Designation	Role
1			
2			
3			

Table 9-2: Internal Quality Audit team

3. General Information of the college

General information of the college includes an address of college and head office, contact person details, year of establishment etc., as given in table 9-3.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

S. No.	Description	Details	
1.	Name of the College and address:		
1.a	Head office address :		
2.	Telephone/Fax No		
3.	Co-ordinating officer:	Name:	
		Mob:	
		Email:	
4.	Year of Establishment:		
5.	Hostel (Available/Not Available)		
6.	No. of Working days/year		
7.	Brief description of Campus		

Table 9-3: General information of the college

4. College Infrastructure

Infrastructure details of the college were gathered from table 9-4.

S. No.	Description	Details
1	Block Name	Class rooms
		Labs
		Staff rooms
		Wash rooms
2		
3		

Table 9-4: Detail Infrastructure of the college

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

5. Details of Student clubs
6. Details of cells that support students
7. Tentative Schedule of a working day:
   a. No. of working days per year:
   b. List of holidays:
8. Total area of the campus
9. Details of List of Departments and Courses (Faculty wise)

The total number of department, laboratories, conference hall, Libraries, Auditorium, and Cafeteria are obtained from table 9-5.

S. No.	Description	Details
1	Department	
2	Laboratories	
3	Conference Hall	
4	Libraries	
5	Auditorium	
6	Cafeteria	

Table 9-5: Details of the departments

10. Number of staff

Teaching, non-teaching, supporting staff with a male and female breakup is obtained from table 9-6

S. No.	Teaching Staff		Non-teaching Staff		Support Staff (Security, House Keeping)	
	Male	Female	Male	Female	Male	Female

Table 9-6: Details of the Staff

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

11. Number of Students

Number of students is collected from table 9-7.

S. No.	Boys	Girls
1		

Table 9-7: Details of the Students

12. Additional infrastructure details have been collected from table 9-8.

S. No.	Description	Details	
1.	Number of blocks available for boys hostel	Nos.	
2.	Number of rooms available for boys hostel	Nos.	
3.	Number of blocks available for girls hostel	Nos.	
4.	Number of rooms available for girls hostel	Nos.	
5.	Whether Laundry is available in the hostel	Yes / No	
6.	If Yes List the Electrical Equipment in Laundry Section of the hostel (like Washing machine, Dry Cleaning Machine, Iron)		
7.	Whether gym/ indoor sports hall is available in hostel	Yes / No	
8.	Whether Solar PV based Power Generation is available in campus (academic or hostel block)	Yes / No	
9.	Whether lifts available in academic block	Yes / No	
10.	Whether Kitchen is available in the academic block	Yes / No	
11.	Whether any food counter (outside caterers) available in academic block	Yes / No	
12.	Whether any commercial shops available in academic block	Yes / No	
13.	Any more information or additional details of academic block you would like to share – kindly elaborate here		

Table 9-8: Details of the departments

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

9.1.2. Water Audit details:

1. General information

General information required for water management analysis is collected from table 9-9.

S. No.	Description	Details
1	Source of water	
2	Types of water	
3	No of Wells	
4	No of motors used	
5	No of bore wells	
6	Rating of the motors in HP	
7	Depth of each bore-well	
8	Water level of bore well	
9	Number of water tanks (overhead & underground tanks)	
10	Capacity of overhead tank	
11	Capacity of underground tank	
12	Quantity of water pumped every day	
13	Any water wastage of water /why?	
14	Water usage for gardening	
15	Waste water sources	
16	Use of waste water	
17	Faith of waste water from labs	
18	Whether waste water from labs mixed with ground water?	
19	Any treatment method available for lab water?	
20	Whether any green chemistry method practiced in labs?	
21	Total number of water coolers	
22	Whether Rain water harvesting system available?	
23	Whether Sewage Treatment Plant (STP) is available?	
24	List of equipment installed in STP (If S.No.23 is Yes)	
25	Whether Solar Hot Water System is available in the campus	

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Science

S. No.	Description	Details
26	Number of units and amount of water harvested	
27	Any leaky taps in the campus	
28	Amount of water lost per day	
29	Any water management plan used?	
30	Any water-saving techniques followed?	
31	Are there any signs reminding peoples to turn off the water?	
32	No. of water flow meters available	
33	Method of water consumption monitoring	
34	Breakup of daily water consumption	
35	Attach Month wise water bill for last 2 years	
36	Please attach recent water quality test reports for Bore well water, Drinking Water and STP processed water.	
37	What are the sources of hot water	
38	What are the usage areas of hot water	

Table 9-9: Water management details

2. STP information

STP details are collected from table 9-10

S. No.	Description	Details
1.	Number of STP plants installed	
2.	Capacity of STP	
3.	Technology of STP	
4.	Year of Installation	
5.	Schematic / Layout of STP	
6.	Water flow meters installed	
7.	Quantity of Sludge	
8.	Disposal of Sludge	

Table 9-10: Details of STP

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

3. RO Plant information

RO Plant details are obtained from table 9-11.

S. No.	Location	Quantity	Capacity
1.			
2.			
3.			

Table 9-11: Details of RO Plant

9.1.3. Energy consumption details:

1. Energy consumption details:

The energy consumption details required for the audit is collected, the brief format of the same is given in table 9-12.

S. No.	Type	Units		Value	Cost in Rs.
1	Electricity	kWh	2019		
			2020		
2	LPG	Cylinders			
3	Diesel	Litres (Month wise consumption for the last two years)			
4	Others resources (Please specify)				
5	Total connected load	kW			
6	Contract demand	kVA			
7	Maximum demand recorded	kVA			
8	Average power factor				
9	Energy charges	Rs./kWh			
10	Demand charges	Rs./kVA			
	*** Attach Electricity Bill Copy of last 2 years**				

Table 9-12: Details of Energy consumption

2. Solar Energy details:

The solar energy details required are collected from table 9-13.

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

S. No.	Building No./ Name	Solar water Heater			Solar PV System		
		Capacity	Working / Not working	Year of Installation	Capacity	Working / Not working	Year of Installation

Table 9-13: Details of Solar Energy

3. Solar Street lights details:

a. Quantity -
b. Capacity -
c. Year of Installation –

4. Electrical Equipment details:

Electrical Equipment like transformers DGs UPS Capacitor Bank, AC, Computers, water coolers, fans, exhaust fans are obtained from the table 9-14.

S. No.	Description	Details	
1.	Number of Transformers Installed	Nos.	
2.	Number of Electrical Panels / Electrical Panel Rooms	Nos.	
3.	Whether Diesel Generator Set Backup Power is Available	Yes / No	
4..	How many number of DG Sets available in the campus (If S.No.3 is Yes)	Nos.	
5.	Whether UPS is available for labs, computers and/or any equipment	Yes / No	
6.	Number of UPS installed with location and capacity (If S.No.5 is Yes)	Nos.	
7.	Whether Capacitor Banks is installed in the electrical panel rooms	Yes / No	
8..	Whether Air Conditioning Units have been installed in the campus	Yes / No	
9.	Type of AC units (split, cassette or packaged) available, capacity and installed location (If S.No.8 is Yes)	Nos.	

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

S. No.	Description	Details	
10.	Total number of computers available in the campus	Nos.	
11.	Type of computer monitors available (CRT, LCD, LED)	Nos.	
12.	Whether water coolers are installed in the academic blocks	Yes/No	
13.	Type of lamps (Fluorescent Tube Light, CFL, LED, Incandescent, Sodium / Mercury lamps, etc.,) installed in the campus	Nos.	
14.	Type of fans (ceiling, wall mount, standing, exhaust, etc.,) installed in the campus	Nos.	
15.	Whether exhaust fans are installed in hostel / kitchen.(If Yes, share the quantity and installed location)	Yes /No	
16.	Any other electrical equipment's in college buildings.		

Table 9-14: Details of Electrical Equipment

5. List of energy saving initiatives implemented
6. List of energy saving initiatives in plan for future

9.1.4. Waste management details:

Waste management includes the activities and actions required to manage waste from its inception to its final disposal. The various data/ information required for the assessment of waste management is as collected from the following set of questionnaires.

1. Basic information

Basic information for waste management is collected from table 9-15.

S. No.	Description	Yes/ No
1	Whether wet and dry garbage segregation is done inside the campus?	
2	Whether garbage is given to external agencies / municipal agencies?	

Table 9-15: Basic details of waste management

2. Types of Waste generated

Types of waste generated in the college are obtained from table 9-16.

S. No.	Description	Yes / No	Remarks
1	E-Waste (Computers, electrical and electronic parts)		
2	Hazardous / Chemical Waste		
3	Solid Waste (Damaged furniture, paper waste, paper plates)		
4	Dry Leaves		
5	Food Waste		
6	Waste Water (Washing, urinals, bathrooms)		
7	Glass Waste (Broken glass wares from the labs)		
8	Unused Materials		
9	Plastic Waste (Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc.)		

Table 9-16: Types of waste generated

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

3. Segregation of waste

Segregation of waste information at different locations with quantity is gathered from table 9-17.

S. No.	Location	Bio-degradable	Non-Biodegradable	E-waste	Quantity, kgs/month
1	Office				
2	Labs				
3	Cafeteria / Kitchen				
4	College				

Table 9-17: Segregation of waste

4. Waste generation management

Waste generation management of the college was collected from table 9-18

S. No.	Description	Yes / No	Remarks
1	Composting / Vermicomposting		
2	Recycling		
3	Reusing		
4	Other ways		

Table 9-18: Waste Disposal methods

9.1.5. Green campus management details:

1. Total number of plants and trees

The total number of plantations, garden area, and many more are collected as per the set of questionnaires given in table 9-19

S. No	Description	Details
1	Total number of plant species identified	
2	Total number of plants on the campus	

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

3	Total number of Trees on the campus	
4	Garden area inside the college –	
5	Total number of medicinal plants /trees on the campus	
6	Total number of vegetables and fruits plantation in the campus	
7	Whether display boards are given to plants and trees for identification	
8	Does Institute celebrate World environment day?	
9	Does Institute celebrate World water day?	
10	Does Institute celebrate World ozone day?	
11	Does Institute celebrate World Earth day?	
12	Total number of aquatic water plants	

Table 9-19: List of plantation details

2. List of plants/ trees

List of plants/ trees with their scientific names obtained from table 9-20.

S. No.	Common/Local Name	Scientific name	No. of Trees/Plants

Table 9-20: List of plants/trees in campus

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

9.1.6. Carbon footprint management details:

The carbon emission from various activities such as transport, diesel generator usage, LPG consumption, and electricity consumption were collected, as per table 9-21.

S. No	Description	Details
1	Whether college provides transport facility for staff and students (Yes/No)	
2	Number (or Percentage) of staff using transport services provided by college	
3	Number (or Percentage) of students using transport services provided by college	
4	Number (or Percentage) of Staff using public transport	
5	Number (or Percentage) of Staff using Bike	
6	Number (or Percentage) of Staff using Car	
7	Number (or Percentage) of students using Public transport	
8	Number (or Percentage) of students using Car	
9	Number (or Percentage) of students using Bike	
10	Number (or Percentage) of students using Bicycles	
11	Average consumption of diesel per month	
12	Average electricity consumption per month	
13	Average LPG consumption per month	

Table 9-21: Details of Carbon footprint management

9.1.7. Photos required for Audit:

1. General Photos

In various sections, different types of photos are required to validate the existence of things, and hence they are collected from table 9-22.

S. No	Description	Details
1	Photos of student's NSS activities	
2	Photos of Safety policy	
3	Photos of the training program on the use of fire extinguishers	
4	Photos of environmental policies adopted by college	

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

5	Photos of MoUs for Waste management		
6	Photos of any other policies adopted by college		
7	Photos of water test report	Drinking Water	
		STP processed water	
		Bore-well water	
		Other water Sources (Like Tanker water and any other)	
8	Photos of use of Energy efficient devices like fan, bulbs etc.		
9	Photos of LCD/LED monitors used in Labs		
10	Photos of dry and wet waste collection bins		
11	Photos of celebrating World Environment Day		
12	Photos of celebrating World Water Day		
13	Photos of celebrating World Earth Day		
14	Photos of celebrating World Ozone Day		

Table 9-22: List of photos

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Smart Solutions for
Sustainable Tomorrow **Eco Energime Engineers LLP**

Certificate

This is to certify that M/s. Eco Energime Engineers LLP, Bengaluru has conducted **Quality Audit** of **"Padmashree Institute of Management and Sciences, Bengaluru"** during the April 2022 to May 2022. The Audit includes water audit, energy audit, waste management audit, green campus management audit and aspects of environment audit.

The audit involves field visit, measurements and observations, verification of bills, log books, data base, maintenance registers and interview with staffs, and this gives an overview of the existing system.

In an opinion and to the best of our information and according to the information given to us, said Quality Audit gives a true and fair view in conformity with auditing principles.

For Eco Energime Engineers LLP

Authorized Signatory

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

No.14, S-1, 3rd Main, 14th Cross, AECS Layout, B-Block, Singasandra, Bangalore - 560 068, Karnataka
80503 87500 www.eeellp.com info@eeellp.com

Action taken report based on the recommendations by Internal Green Audit committee

1. Usage of more LED & CFL bulbs executed in the institution for energy conservation

The institution is well equipped with electricity supply. Each department possesses computers, printers, fans, plug points, LED lights, bulbs, etc. Total LED lights are about 577 in the institute, which contributes to less energy consumption. In addition to this, the college also has Lab instruments. Electrical energy can be wasted by using inefficient or faulty equipment, therefore, the maintenance and condition of the instruments are assessed periodically.

Inventory details in PIMS

Science block

S. No.	Room	Description	LED				Spot Light 30W	Focus Light 50W	Fan		AC
			16	20	1x1 - 20	2x2 - 40			Ceiling	Wall mount	
1				1		3	31			3	
2				4		1	15		4		
3	3				1						
4	4		1						1		
5	5			1							
6	6			3					1		
7	7										
8	8			9					2		
9	9			4					2		
10	10			8					3		
11	12			12					4		
12		Passage	57	6			8				
13		Basement	2	42				4	4		
14		Staircase	10								
15	13			8					4		
16	14			8	3				2		
17	15			4					2		
18	16			4					2		
19	17			4					2		
20	18				1	3					1
21	19			4		3					1
22	20			4					2		
23	21			7					3		
24	22			9					4		

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

25	23			9					4		
26	24			8					3		
27	25			8					4		
28		Bathroom		7							
29		Passage	49								
30	26			8					4		
31	27			2							
32	28			4					2		
33	29			4					2		
34	30			8					4		
35	31			8					4		
36	32			6					2		
37	33			3					1		
38	34			4					1		
39	35			3					1		
40	36			6					3		
41	37			9					4		
42	38			9					3		
43	39			6					3		
44	40			6					3		
45	41			8					4		
46	42			8					4		
47		Bathroom	7								
48		Passage	31								
49	44			8	8				4		
50	45			4	4				2		
51	46			4	4						
52	47			4					2		
53	48			6					2		
54	49			8					4		
55	50			6					2		
56	51			6					3		
57	52			9					4		
58	53			9					4		
59	54			6					3		
60	55			6					3		
61	56			8					4		
62	57			8					4		
63		Bathroom		4							
64		Passage		31							

Management block

S.No.	Room No.	Fn	Point	L+	L+Point	LED -	FTL -	Computer	Projector

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Scienc

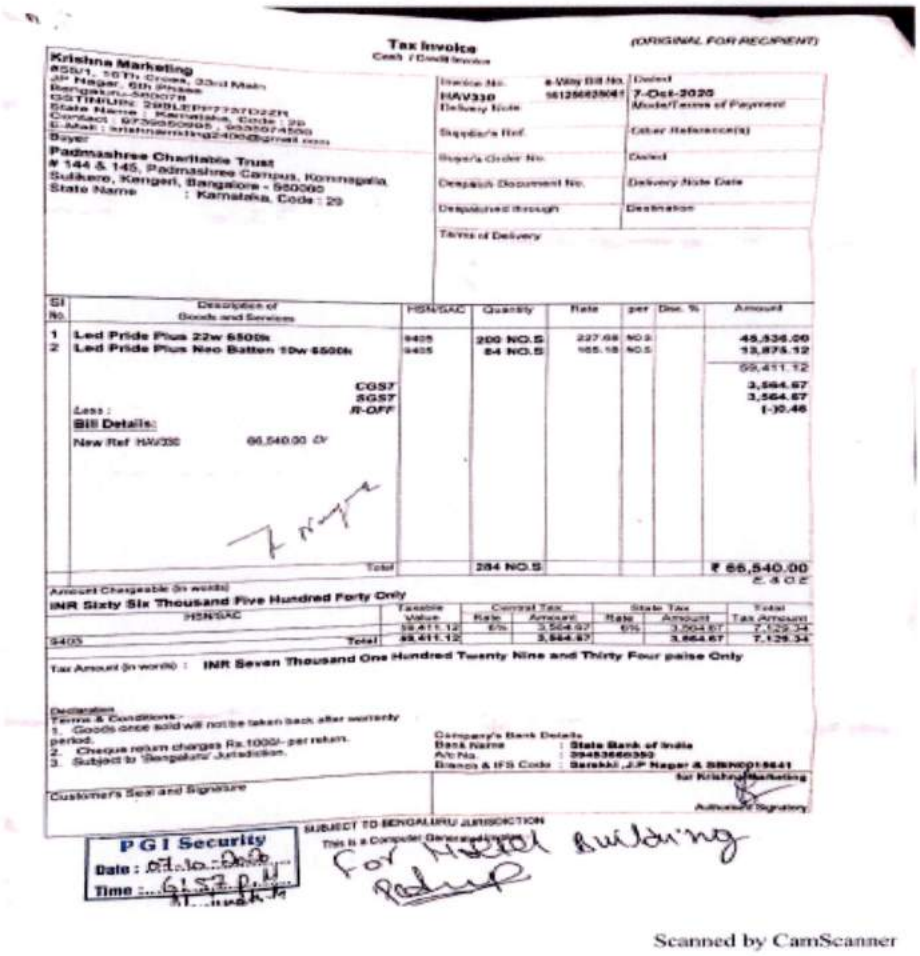
			Fn			20W	40W		
1	301	2		2	5		2		
2	302	4				1	6		
3	303	2		5	7	2	3		
4	304	4	4	4	8	1	3		
5	305	4	4	4	8		4		1
6	306	2	2	2	4	1	1		
7	308	2	2	2	4		2		
8	309	2	2	2	4	1	1		1
9	310	4	4	4			4		
10	311	4	4	6	8	2	4		
11	312	4	4	6	8	1	5		
12	313	2	2	2	5		2	1	
13	201			7	8	1	6		
14	202	4	4	8	8	3	5		
15	203	1	2	5	8		5		
16	204	2	2	5	8		5		
17	205	4	4	8	8	4	4		
18	206	2	2	5	5	2	3		
19	207	2	2	3	5	2	1		1
20	208	8	12	7	7		7		1
21	209	4	4	8	8	2	6	3	
22	210	4	4	6	8		6		
23	211	1	1	3	4	1	2		
24	101	4	4	7	9		7		
25	102	3	4	7	9		7		
26	103	2	2	4	8		4		
27	104	2	2	4	8		4		
28	105	2	2	3	4		4		
29	106	2	2	3	4		4	2	
30	107	5	8	6	7		6		1
31	108	4	4	5	8	1	1		1
32	109	4	4	6	9		6		1
33	110	1	1	3	4		3		
34	1	1	1	3	4		3		
35	2	3	3	2	3	2		1	
36	3	3	4	7	8		7	2	
37	4	2	2	9	9		9	2	
38	5.1	2	2	5	5		5		
39	5	2	2	5	5		5		
40	6	4	4	10	10		10		
41	Library	10	10	25	25	5	20		

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Scien

42	Seminar Hall	2							
43	8	1		3		2			
44	9			8	8		1	1	

Purchase of LED bulbs



Tax Invoice

(ORIGINAL FOR RECIPIENT)

Krishna Marketing

Buyer:
Padmashree Charitable Trust
144 & 145, Padmashree Campus, Kommagatta,
Suddaguntepalya, Kengeri, Bangalore - 560060
State Name : Karnataka, Code : 29

Invoice No. HAV330 — Dated 7-Oct-2020

Sl No.	Description of Goods and Services	HSN/SAC	Quantity	Rate	per	Disc. %	Amount
1	Led Pride Plus 22w 6500k	9405	200 NOS	227.68	NOS		45,536.00
2	Led Pride Plus Neo Batten 10w 6500k	9405	84 NOS	165.18	NOS		13,875.12
							59,411.12
	CGST						3,564.67
	SGST						3,564.67
	R-OFF						(-)0.46
	Total		284 NOS				₹ 66,540.00

Less :
Bill Details:
New Ref HAV330 66,540.00 Dr

Amount Chargeable (in words)
INR Sixty Six Thousand Five Hundred Forty Only

HSN/SAC	Taxable Value	Central Tax Rate	Central Tax Amount	State Tax Rate	State Tax Amount	Total Tax Amount
9405	59,411.12	6%	3,564.67	6%	3,564.67	7,129.34
Total	59,411.12		3,564.67		3,564.67	7,129.34

Tax Amount (in words) : INR Seven Thousand One Hundred Twenty Nine and Thirty Four paise Only

Declaration
Terms & Conditions:-
1. Goods once sold will not be taken back after warranty period.
2. Cheque return charges Rs.1000/- per return.
3. Subject to 'Bangalore' Jurisdiction.

Company's Bank Details
Bank Name : State Bank of India
A/c No. : 39483660392
Branch & IFS Code : Barakhi J.P Nagar & SBIN0018641

for Krishna Marketing
Authorised Signatory

Customer's Seal and Signature

SUBJECT TO BENGALURU JURISDICTION
This is a Computer Generated Invoice

PGI Security
Date : 07.10.2020
Time : 6:32 P.M

for Hostel Building
Padmashree

Scanned by CamScanner

2. Installation of Solar water heater and solar power supply for energy conservation

Renewable sources of energy such as solar energy have been harnessed by using solar street lights. Around 4 solar street lights are installed for illuminating the campus area. The institute has installed 40

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

solar panels with 4000 liters' capacity in the girl's hostel for water heating purpose. The college has solar panels installed for power supply.

Solar Facility in the campus

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Purchase of solar water heater system

TAX INVOICE ORIGINAL FOR RECIPIENT

ARROW POWER CONTROLS

Mfrs. of : UPS, Invertors & Energy Saving Products

No # 50, Sonnappaa Layout Kereguddadahalli', Chikkabanavara Post
Near Rainbow International school Bangalore - 90
080-23253180, 9845079931,9945679931,9945079931.
info@arrowups.in

GSTIN No : 29AFGPB0937E1ZS PAN No : AFGPB0937E	Transportation Mode :
Invoice No : 474/20-21 Date : 24/02/2021	Vehicle no.
P.o. No P.o. Date :	Date & Time of Supply : 24/02/2021 10:16 am
D.c. No D.c. Date :	Place of Supply E Way Bill No :
Details of Recipient (Sold/Bill to)	**Details of Consignee (Shipped to)**
Name PADMASHREE CHARITABLE TRUST	Name PADMASHREE CHARITABLE TRUST
Address PADMASHREE CAMPUS, KOMMAGATTA, SULIKERE, KENGERI,BANGALORE-60. PH: 080-28485206/07	Address PADMASHREE CAMPUS, KOMMAGATTA, SULIKERE, KENGERI,BANGALORE-60. PH: 080-28485206/07
GSTIN No	GSTIN No :

Sl No.	Item Description	HSN /SAC Code	Qty	Uom	RATE/ Item	Taxable Value	CGST %	CGST Amt (Rs.)	SGST %	SGST Amt (Rs.)	IGST %	IGST Amt (Rs.)	Total
1	SUPPLY AND INSTALLATION OF [illegible] FPC FLAT PLATE COLLECTOR [illegible] INNER TANK SS PRESSURIZED SOLAR WATER HEATING SYSTEM INCLUDING 500LPH HEAT PUMP BUILT IN CIRCULATING PUMP	8419	2	SETS	4,09,904.76	819,809.52	2.5	20,495.24	2.5	20,495.24			8,19,809.52
2	SUPPLY OF BOOSTER PRESSURE PUMP TANK	8413	2	NO	29,464.28	58,928.56	6	3,535.71	6	3,535.71			58,928.56
3	BEVA STABILIZER FOR HEATPUMP	9032	2	NO	14,067.79	28,135.58	9	2,532.20	9	2,532.20			28,135.58
4	TRANSPORTION CHARGES & LIFTING CHARGES	9968	2	SET	8,474.57	16,949.14	9	1,525.42	9	1,525.42			16,949.14
5	INSTALLATION CHARGES	9954	2	SET	8,474.57	16,949.14	9	1,525.42	9	1,525.42			16,949.14
		Total	10			940,771.94		29,614.00		29,614.00			9,99,999.94

Bank Details :-
Bank Name : State Bank of India
A/c No. : 30021108372
Branch Name : Gokul
IFSC Code : SBIN0060338

Total	940,771.94
CGST TOTAL	29,614.00
SGST TOTAL	29,614.00
Invoice Total	10,00,000.00

PAID
Cash/Cheque No 000158 / 000159
Date
Amount 100000 / 500000

Invoice Value (In Words)
Ten Lakhs Only

Terms & Conditions :
1. All disputes subject to Bangalore Jurisdiction only
2. No Claim for damage of goods will be Considered unless made within 24 hours from receipt of goods.
3. Interest @ [illegible]% per annum will be charged, if not paid on due date
4. certified that the particulars given above are true and correct.

For **ARROW POWER CONTROLS**

Signature :

Authorised Signatory

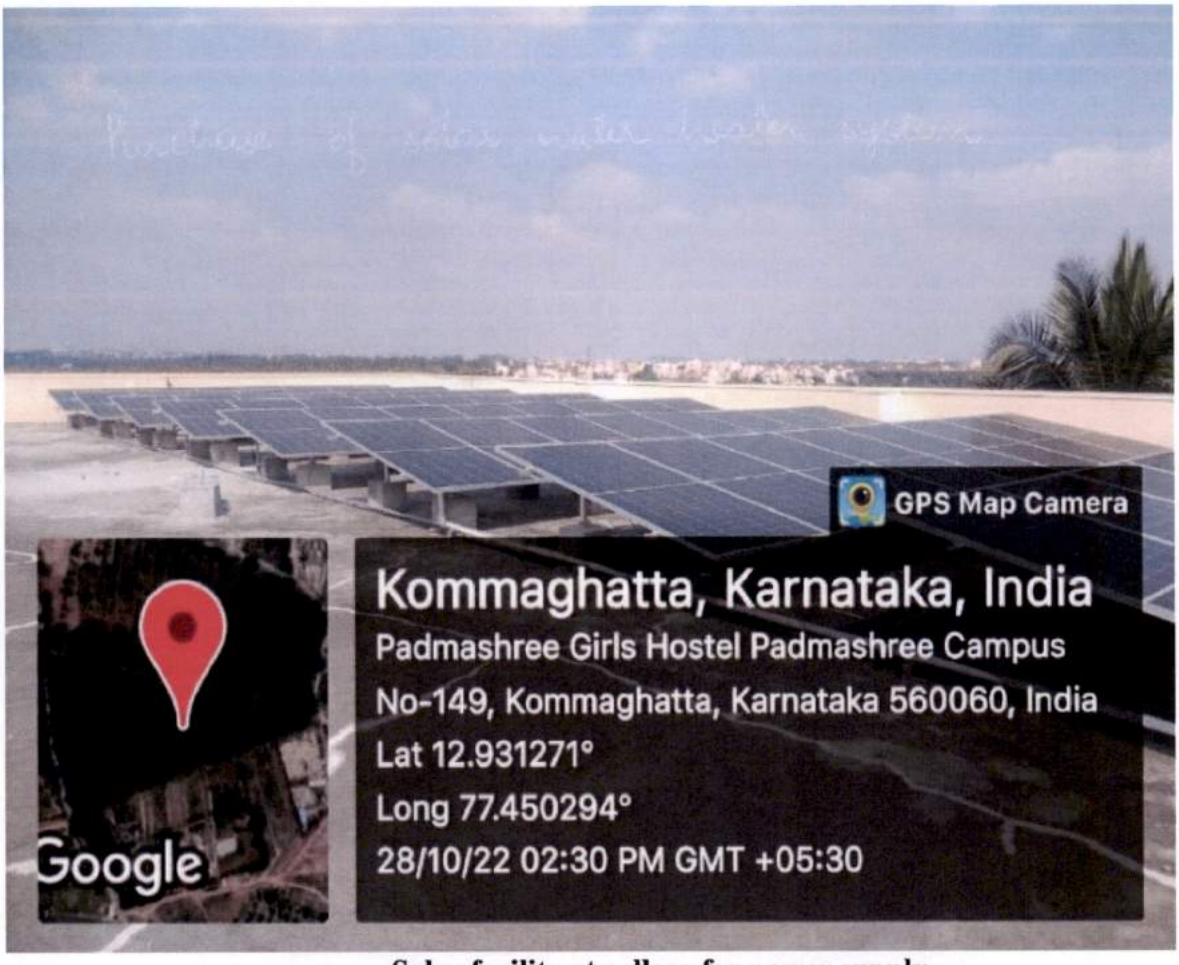
Name :
Designation :

Receiver's signature with seal

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences



Solar facility at college for power supply

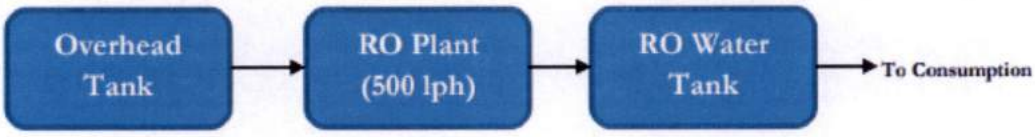
Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Science

2. Higher capacity water purifiers installed

Drinking water system – Hostel's:

To provide drinking water, RO plants were installed at boy's and girl's hostels. Three number of RO plants were installed (Boy's hostel – 1 No. and Girl's hostels – 2 No.s). The input water for RO plant is given from overhead tanks of the corresponding hostels. The permeate rate of RO plants are 500 lph. The RO drinking water is stored in 1000 litres RO tanks. From RO water tank, taps are provided consumption.

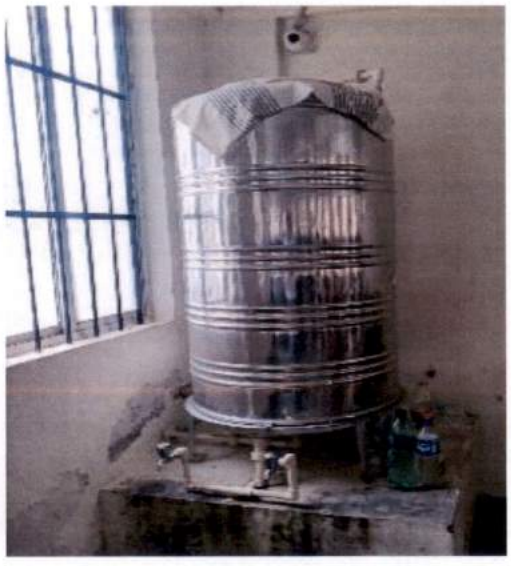


Schematic of RO drinking water system

RO System in boys hostel

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences



The RO plant (500 lph) installed at women's hostel

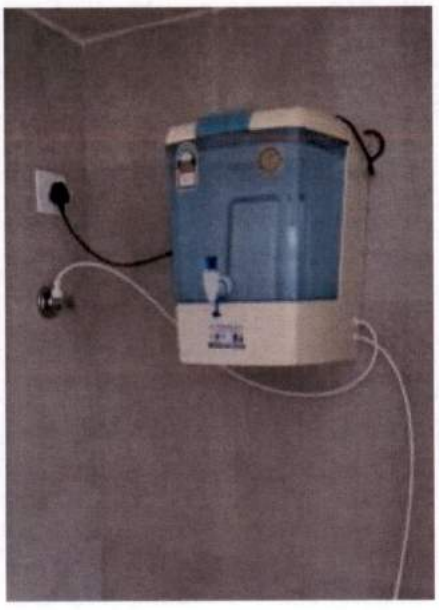
The RO plant (500 lph) installed at women's hostel new block

Padmashree Institute of Management & Sciences Bangalore-60

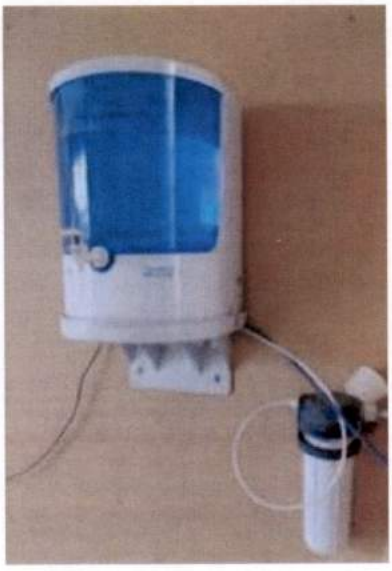
Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Drinking water system – Science Block & Management Block:

To provide drinking water, RO filters were installed at science block and management block. At science block, four RO filters were installed and in management block four RO filter were installed. The capacity of each RO filter is 8 Litres.



RO in Science Block



RO in Management Block

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Science

3. Green campus initiative

Green campus initiative was taken to promote the involvement of the staff and students in the environment conservation activities. Swatch Bharath Abhiyan campaign was conducted by Padmashree Institute of Management and Sciences in association with Bruhat Bengaluru Mahanagara Palike (BBMP). The theme of the campaign was 'Plastic Free Campus'. The principal of the institute Dr. Anuradha M, enlightened the staff and students regarding the hazardous impact of plastic degradation on the environment and how to work towards making the campus plastic free. The campaign began with the students taking oath to maintain plastic free campus. Students and the faculties were provided personal protective equipment for cleaning the campus.

Swacch Bharath Abhiyan in the campus

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Swacch Bharath Abhiyan promotion in campus

Tobacco free campus

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

4. Attempts to minimize carbon dioxide emission in the campus

The institute provides single mobility for students and staff in order to reduce the number of vehicles entering the campus to minimize the emission of carbon dioxide and other greenhouse gases. Carpooling is followed among the staff as an initiative to reduce carbon dioxide emissions.

Transportation and Single Mobility

Transportation Details	
No.of Buses	**Capacity**
4	**56**
1	**42**
2	**47**
1	**17**
1	**55**
All are diesel buses	
Cars	**3**
Bolero	1
Tempo	**1**
Ambulance	1

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Electric vehicles used by the staff to reduce carbon dioxide emission

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

CERTIFICATE OF REGISTRATION

INTERCERT hereby certifies that the Environmental Management System of

Padmashree Institute of Management and Sciences

#149, Padmashree Campus, Tavarekere- Kengeri Road Kommagatta, Kengeri, Bengaluru, Karnataka 560060, India

Has been successfully assessed as per the requirements of

ISO 14001:2015

For the scope of

Provision of Education in Management and Science Streams Leading to Award of Graduate and Postgraduate Degrees by Bangalore University.

Initial Certification Date	:	August 06, 2022
Certificate Issue Date	:	August 06, 2022
Surveillance Validity Date	:	August 05, 2023
Recertification Date	:	August 05, 2025

Registration Number: ICI-EM-2208002

Issued on behalf of InterCert
Head - Certifications

KAB-EC-66

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

ಚಿಕ್ಕಮುದುವಾಡಿ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ ಕಾರ್ಯಾಲಯ

ಕಚೇರಿ ಹೋಬಳಿ, ಕನಕಪುರ ತಾಲ್ಲೂಕು, ರಾಮನಗರ ಜಿಲ್ಲೆ.

ಗ್ರಾ.ಪಂ.ಸಂ.

ದಿನಾಂಕ :.....

Letter of Appreciation

This appreciation letter is being rendered to Dr Umalatha and Dr Anuradha, Padmashree Institute of Management and Sciences, Bengaluru for creating awareness and training to silk farmers regarding sustainable utilization and value addition of silk worm pupae waste on 2nd March 2022 under the project entitled "Utilization of silkworm waste for poultry and fish feed production: Technology optimization and transfer to silk farmers" supported by Department of Science and Technology, New Delhi.

ಪರಿಶಾಯಿತಿ ಅಭಿವೃದ್ಧಿ ಅಧಿಕಾರಿ
ಚಿಕ್ಕಮುದುವಾಡಿ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ
ಕನಕಪುರ ತಾ॥ ರಾಮನಗರ ಜಿಲ್ಲೆ.

Padmashree Institute of Management & Science Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

ಚಿಕ್ಕಮುದುವಾಡಿ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ ಕಾರ್ಯಾಲಯ

ಕಸಬಾ ಹೋಬಳಿ, ಕನಕಪುರ ತಾಲ್ಲೂಕು, ರಾಮನಗರ ಜಿಲ್ಲೆ.

ಗ್ರಾ.ಪಂ.ಸಂ.

ದಿನಾಂಕ :.....

Letter of Appreciation

This appreciation letter is being rendered to Dr Umalatha and Dr Anuradha, Padmashree Institute of Management and Sciences, Bengaluru for creating awareness and training to silk farmers regarding sustainable utilization and value addition of silk worm pupae waste on 23th March 2021 under the project entitled "Utilization of silkworm waste for poultry and fish feed production: Technology optimization and transfer to silk farmers" supported by Department of Science and Technology, New Delhi.

ಪಂಚಾಯಿತಿ ಅಭಿವೃದ್ಧಿ ಅಧಿಕಾರಿ
ಚಿಕ್ಕಮುದುವಾಡಿ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ
ಕನಕಪುರ ತಾ॥ ರಾಮನಗರ ಜಿಲ್ಲೆ.

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

ಬೆಂಗಳೂರು ನಗರ ಜಿಲ್ಲಾ ಪಂಚಾಯಿತಿ ಬೆಂಗಳೂರು ದಕ್ಷಿಣ ತಾಲ್ಲೂಕು ಪಂಚಾಯಿತಿ

ಸೂಲಿಕೆರೆ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ ಕಾರ್ಯಾಲಯ

ಸೂಲಿಕೆರೆ, ಸೂಲಿಕೆರೆ ಅಂಚೆ, ಕೆಂಗೇರಿ ಹೋಬಳಿ, ಬೆಂಗಳೂರು ದಕ್ಷಿಣ ತಾಲ್ಲೂಕು

ಸೂ.ಗ್ರಾ.ಪಂ/ /2022-23

Certificate of Appreciation

This is to appreciate Padmashree Institute of Management Sciences for their contribution towards creating awareness on air and water pollutionon 24th July 2022 at Government Primary School Kommagatta, Kengeri, Bangalore. We are thankful and appreciate for the green initiative rendered by the institute.

Panchayath Development Officer

Sulikere Village Panchayath

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sci...

ಬೆಂಗಳೂರು ನಗರ ಜಿಲ್ಲಾ ಪಂಚಾಯಿತಿ ಬೆಂಗಳೂರು ದಕ್ಷಿಣ ತಾಲ್ಲೂಕು ಪಂಚಾಯಿತಿ

ಸೂಲಿಕೆರೆ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ ಕಾರ್ಯಾಲಯ

ಸೂಲಿಕೆರೆ, ಸೂಲಿಕೆರೆ ಅಂಚೆ. ಕೆಂಗೇರಿ ಹೋಬಳಿ, ಬೆಂಗಳೂರು ದಕ್ಷಿಣ ತಾಲ್ಲೂಕು

ಸಂ..... ತಾ||
ಸೂ.ಗ್ರಾ.ಪಂ/ /2022-23

Certificate of Appreciation

This is to appreciate Padmashree Institute of Management Sciences for their contribution towards creating awareness about single plastic use and its ill effects on environmentatGovernment on 27th July 2022 at Primary School Kommagatta, Kengeri, Bangalore. We are thankful and appreciate for the green initiative rendered by the institute.

Panchayath Development Officer
ಪಂಚಾಯತ್ ಅಭಿವೃದ್ಧಿ ಅಧಿಕಾರಿ
ಸೂಲಿಕೆರೆ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ
ಕೆಂಗೇರಿ ಹೋಬಳಿ, ಬೆಂಗಳೂರು ದಕ್ಷಿಣ ತಾಲ್ಲೂಕು
Sulikere Village Panchayath

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

7.1.2 Environmental Consciousness and Sustainability initiatives

Green campus initiatives

Initiatives taken for pollution free green environment

- Green campus
- Ban on use of single use plastic in the campus premises
- Use of bicycles/ Battery- powered vehicles
- Usage of Natural sunlight

Green campus

The 34-acres campus of Padmashree Institute of Management and Sciences, is a home to rich flora and fauna, thus supporting biodiversity.

Being situated in the semi-urban area away from the city's hustle and bustle, the campus is a home to a variety of fauna such as Parrots (*Psittaciformes*), Pigeons (*Columba livia domestica*), Woodpecker (*Picidae*), Kingfisher (*Alcedinidae*), Crows (*Corvus splendens*), Swans (*Cygnus*), Erget (*Ardea alba*), owls (*Strigiformes*), Mongoose (*Herpestidae*), Squirrels (*Funambulus palmarum*), Dogs (*Canis familiari*) Cats (*Felis catus*), different types of Reptiles, Frogs (*Anura*), Butterflies, (*Euploea core*), Carpenter Ants (*Camponotus sp*), and a plethora of insects.

The campus also has a variety of trees (details given in the table below). The presence of plants and trees in the campus helps in reducing environmental pollution and soil erosion. They also improve outdoor air quality, increase oxygen level and decrease carbon dioxide. They also promote biodiversity conservation.

Ban on use of single use plastic in the campus premises

A policy is drafted for ban on single use of plastic in the college premises with an objective

- To create awareness about the zero-plastic environment
- To ensure well organized and support system for the environment protection
- To segregate plastic from other waste
- To use biodegradable materials as an alternate
- To stop using small plastic consumables like-pens, plastic files, plastic folders, cups, plates, straws and so on
- To ensure that all stakeholders follow the policy
- To have strict monitoring by the Environment Cell
- Any misconduct by stakeholders would be fined based on the intensity of the misconduct.

Use of bicycles/ Battery- powered vehicles

Few staff members use battery operated bikes and cars to commute to college there by contributing to green initiative. Few of our staff use bicycles to commute there by conserving fuel.

Natural light in the classrooms

Most of the classrooms and laboratories in the Padmashree Institute of Management and Sciences are well ventilated and have access to natural light thereby reducing the requirement of artificial light. This can help in saving energy. All the instruments are in working condition and are maintained well. Therefore, there is no energy wastage

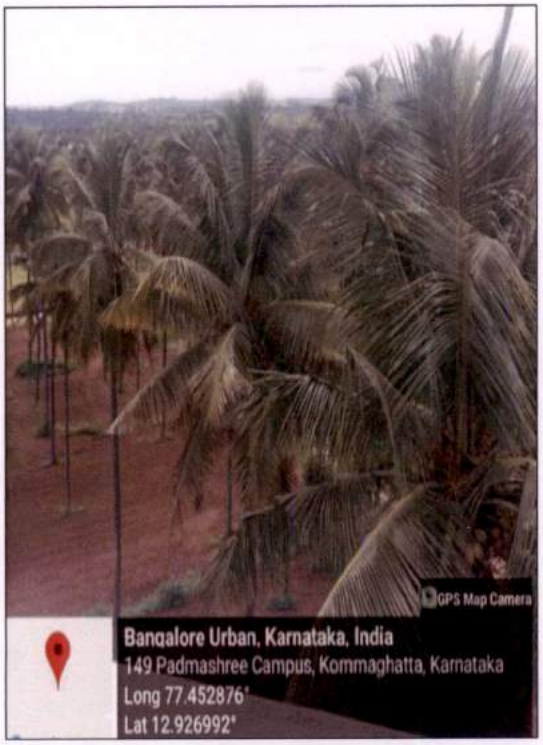
All the diesel generators installed are characterized by low emission and high efficiency engines. They are designed to meet the 'Central Pollution Control Board' norms to protect the environment by reducing the emission and improving the emission quality.

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

7.1.2 Environmental Consciousness and Sustainability initiatives

Green campus initiatives



Green campus with variety of trees

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Ban on use of single use plastic in the campus premises

Plastic free Campus

Use of bicycles/ Battery- powered vehicles

Electric Bike

Electric car

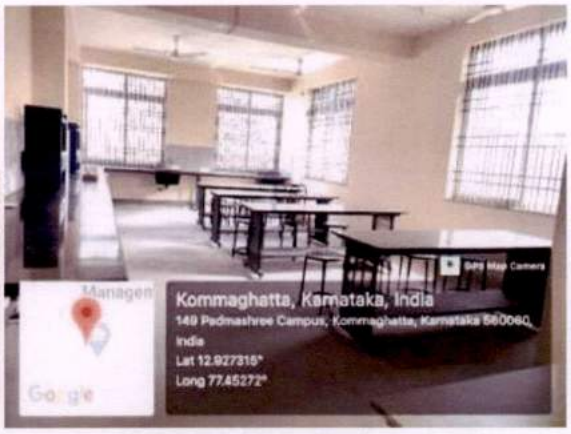
Bicycles used by staff of our institution

Bicycles used by staff of our institution

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Natural light in the classrooms



Classroom and lab having ample natural light and ventilation

Class rooms and Seminar Hall with natural light ventilation

Natural light and ventilation in admin office

Natural light and ventilation in library

The College building was planned to utilize the natural lighting effectively

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Details of Flora in the campus

Common Name	Botanical Name	Family Name	Number
Block Code Right-1 (R1) : Main gate to complex			
Pink trumpet tree	*Tabebuia rosea*	*Bignoniaceae*	23
Coconut	*Cocos nucifera*	*Arecaceae*	42
Teak	*Tectona grandis*	*Lamiaceae*	173
Avacado	*Persea americana*	*Lauraceae*	2
Gum tree	*Eucalyptus globulus Labiil*	*Labill*	3
Mango	*Mangifera indica*	*Anacardiacaea*	7
Indian cork tree	*Millingtonia hertensis*	*Bignoniaceae*	4
Ceylon wood	*Manilkara hexandra*	*Sapotaceae*	3
Sago palm	*Cycas*	*Cycadaceae*	1
Champa	*Plumeria alba*	*Apocyanaceae*	3
Neem	*Azandirachta indica*	*Meliaceae*	1
Jungle flame	*Ixora*	*Rubiaceae*	7
Royal palm tree	*Roystonea regia*	*Arecaceae*	20
Guava	*Psidiun guajava*	*Myrtaceae*	3
Pteridium aquilinum	*Bracken*	*Dennstaedtiacea*	6
pome granate	*Pumica granatum*	*Lythraceae*	2
leadworts	*Plumbago*	*Plumbaginaceae*	2
Jack fruit	*Artocarpus hrterophyllus*	*Moraceae*	1
		Total	**303**
Right-2 (R2) : Complex to Ug Hostel			
Pink Trumpet tree	*Tabebuia rosea*	*Bingnoniaceae*	111
Sugar applr	*Anonus squamosa*	*Annonaceae*	2
Teak	*Tectona grandis*	*Lamiaceae*	132
Coconut	*Cocus nucifera*	*Arecaceae*	162
Ficus nuda	*Ficus benjamina*	*Moraceae*	10
Guava	*Psidiun guajava*	*Myrtaceae*	4
Mango	*Mangifera indica*	*Anacardaceae*	1
Orchis tree	*Bauhinia parpuria*	*Fabaceae*	5
Mountain cassia	*Senna occidentalis*	*Fabaceae*	13
Queen's crape myrtle	*lagerstroemia speciosa*	*Lythraceae*	26
Neem	*Azandirachta indica*	*Meliaceae*	7

Gooseberry tree	*phyllanthus acidus*	*Eupharbiaceae*	
Bread fruit	*Artocarpus integrifolia*	*Moraceae*	5
Indian almond	*Terminallia*	*Combretaceae*	1
Drumstick	*Moringa oleifera*	*Moringaceae*	15
Pome granate	*Pumica granatum*	*Lythraceae*	1
Lemon	*Citrus limon*	*Rutaceae*	1
Hibiscus	*Hibiscus*	*Malvaceae*	5
Jasmine	*Jasminum officinale*	*Jasminaceae*	2
Jack fruit	*Artocarpus hrterophyllus*	*Moraceae*	3
Curry leaves	*Murraya koenigii*	*Rutaceae*	1
java Palm	*Syzygium cumini*	*Myrtaceae*	4
Nerium	*Oleander*	*Apocyanaceae*	2
Whie frangipani	*Plumaria Alba*	*Apocyanaceae*	4
Lance leaf coreopsis	*Coreopsis Auriculata*	*Asteraceae*	1
Amla	*Embellia officinale*	*Phyllanthaceae*	1
Golden webdrop	*Duranta*	*Verbenaceae*	1
Rose	*Rosa*	*Rosales*	2
		Total	**522**
Right-3 (R3) : New Girls hostel to Boys hostel			
Silver oak	*Grevillea Robusta*	*Proteaceae*	85
Papaya	*Carica papaya*	*Caricaceae*	4
coconut	*Cocus nucifera*	*Arecaceae*	
Banana	*Musa*	*Musaceae*	10
Pink trumpet tree	*Tabebuia rosea*	*Bignoniaceae*	17
Teak	*Tectona grandis*	*Lamiaceae*	46
Neem	*Azandirachta indica*	*Moraceae*	6
Guava	*Psidiun guajava*	*Myrtaceae*	2
Halfa Grass	*Desmostachya bipinnata*	*Poaceae*	
		Total	**183**
Left-1 (L1) : Main gate to Science Block			
Pink trumpet tree	*Tabebuia rosea*	*Bignoniaceae*	16
Silver oak	*Grevillea Robusta*	*Proteaceae*	21
Melia	*Melia dubia*	*Meliaceae*	1
Butter fruit	*Persea americana*	*Lauraceae*	2

Mango	*Mangifera Indica*	*Anacardaceae*	19
Neem	*Azandirachta indica*	*Moraceae*	5
Tabubuia pentaphylla	*Bignonia Pentaphylla*	*Bignoniaceae*	5
Common lantana	*Lantana camera*	*verbenaceae*	
Connonball tree	*Couroupita guianensis*	*Lecythidaceae*	4
Santa maria feverfew	*Partanium Hysterophorus*	*Asteraceae*	1
Turkey berry	*Solanum tarvum*	*Solanaceae*	1
Common Purslane	*Portulaca Oleracea*	*Portulacaceae*	1
Touch me not	*Mimosa pudica*	*Legumes*	
Tree of heaven	*Ailanthus Excelsa*	*Simaroubaceae*	6
Bamboo	*Bambusa vulgaris*	*Poaceae*	1
indian beech	*Pongamia pinnata*	*Fabaceae*	1
Broom creeper	*Cocculus hirsutus*	*Menispermaceae*	1
Passion flower	*Plasiflora foetida*	*Passifloraceae*	1
wild Jute	*corchorus trilocularis*	*Tiliaceae*	1
Royal poinciana	*Delonix regia*	*Fabaceae*	1
wild Jute	*Cupressus*	*Cupressacea*	5
Bread fruit	*Artocarpus Communis*	*Moraceae*	1
Teak	*Tectona grandis*	*Lamiaceae*	10
Jack fruit	*Artocarpus hrterophyllus*	*Moraceae*	1
Guava	*Psidiun guajava*	*Myrtaceae*	2
Coconut	*Cocos nucifera*	*Arecaceae*	111
Emperor's candle sick	*senna algata*	*Fabaceae*	4
		Total	**216**
Left-2 (L2) : Science Block to ground			
Tavellers palm	*Ravenella madagascariensis*	*Strelitziaceae*	2
Tarlmounia	*vernonia Eliagniforia*	*Asteraceae*	1
Red Ginger	*Alpenia Per[urata*	*Zingiberaceae*	1
Rangoon Creeper	*Combratum indicum*	*Combretaceae*	1
Blue mahoe	*Taliparíti elatum*	*Malvacea*	1
Queen's crape myrtle	*lagerstroemia speciosa*	*Lythraceae*	16

Australia umbrella	*Brassia Ctinophylla*	*Araliacea*	1
Frangipani	*plumeria pudica*	*Apocyanaceae*	5
Spider plant	*Chlorophytum Comusum*	*Apocyanaceae*	1
Common lantana	*Lantana camera*	*verbenaceae*	1
West indian jasmine	*Ixora*	*Rubiaceae*	1
Mediterranean Cypress	*Cupressus Sempervirens*	*Cupressaceae*	4
Guava	*Psidiun guajava*	*Myrtaceae*	3
Custerd apple	*Anonus squamosa*	*Annonaceae*	2
Java plum	*Sysygium cumini*	*Myrtaceae*	11
Papaya	*Carica papaya*	*Caricaceae*	2
Indian acalypha	*Acalypha Indica*	*Euphorbiaceae*	1
Henna	*Ficus benjamina*	*Lythraceae*	2
FIG	*Ficus carica*	*Moraceae*	10
Sansevieria	*Dracaena Trifasciata*	*Asparagacee*	1
Nettlespurges	*Jatropha*	*Euphorbiaceae*	1
Crape Jasmine	*Tabernaemontana divaricata*	*Apocyanaceae*	2
indian beech	*Pomgamia pinnata*	*Fabaceae*	5
Champa	*Plumeria alba*	*apocyanaceae*	1
Alexandrian laurel balltree	*Conophyllum Inophyllum*	*Colophyllaceae*	1
Indian elm	*Holoptera intergrifolia*	*Ulmaceae*	6
Cape Honeyscuckle	*Tecoma Capensis*	*Bignoniaceae*	23
Mosaica	*Acalypha wikwsiana*	*Euphorbiaceae*	2
wild Jute	*Cupressus*	*Cupressacea*	9
Indian Spurge tree	*Polyanthae neriifolia*	*Euphorbiaceae*	1
Sacred tree	*Butea monosperma*	*Fabaceae*	4
Pome granate	*Pumica granatum*	*Lythraceae*	3
Malabar nut	*Justicia adhatoda*	*Acanthaceae*	3
Portia tree	*Thespesia populnea*	*Malvacea*	1

Neem	*Azandirachta indica*	*Meliaceae*	1
Buah cheri	*Muntingia calabura*	*Teliaceae*	5
Tree od heaven	*Ailanthus excelsa*	*Simaeoubaceae*	9
Termarind	*Tamarindus indica*	*Fabaceae*	1
Amruta	*Mappia foetida*	*Lacinaceae*	7
Coconut	*Cocus nucifera*	*Araliacea*	18
Silver oak	*Grevillea Robusta*	*Proteaceae*	20
Trumpetbush	*Tectoma Grandis*	*Bignoniaceae*	3
Ashoka tree	*Saraca asoca*	*Fabaceae*	3
Blume	*Brassaiopsis Glomerulata Regel*	*Araliacea*	1
Henna tree	*Lawsonia Inermis*	*Lythraceae*	19
		Total	**166**

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

GREEN AUDIT INSIDE THE CAMPUS

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

CLEAN AND GREEN CAMPUS INITIATIVES

VAN MAHOTSAVA DAY CELEBRATION ON 1ST JULY, 2018

VANA MAHOTSAVA DAY CELEBRATION

1ST JULY, 2018

Title of the program	Vana Mahotsava Day	
Organization committee	Organized by NSS committee, PIMS Dr. Anuradha M. Dr. Thammaiah R.B. Mrs. Nethra S Ms. Rajini J Students: MS. Deepika Ms. Ranjitha Mr. Dhanajaiah Mr. Naveen Mr. Nishanth	
Supported/Sponsored by	NSS Committee, Bangalore University	
Program schedule	1. Informal Welcome speech 2. Program Addressal 3. Saplings Planting 4. Vote of thanks	3.00 PM 3.10 PM 3.20 PM 4.00 PM
Participants	NSS Volunteers Teaching staff- 25 Students - 80	

Program Summary:

Van Mahotsav Day is celebrated every year from 1st July to 7th July to create awareness aboutthe conservation of forest to save the environment.

PIMS NSS committee organised Vana Mahotsava Day to make students realize the importance of planting trees and save our planet. The programme commenced with talk by Dr. Anuradha M, the talk was about the importance of Vanamahotsava Day celebration and how it plays an important role in balancing the environment.

The name Vana-Mahotsava means **'The Festival of Trees'**. It began after the July 1947 tree planting drive in Delhi heralded by national leaders like Dr Rajendra Prasad and Jawaharlal Nehru participated. She explained how it plays an important role

- To increase production of fruits, which could be added to the potential food resourcesof the country
- Help create shelter-belts around agricultural fields to increase their productivity.
- Provide fodder leaves for cattle to relieve intensity of grazing over reserved forests.
- Boost soil conservation and prevent further deterioration of soil fertility.

After the talk all were instructed to take an oath of saving our forests, and create awareness about the ill effects of deforestation. All the participants and the faculties planted the saplingsin the campus to keep our environment in a harmony marking the "Festival of Trees". The students showed great eagerness while planting saplings. They were also enlightened that the "Van Mahotsav Day" is celebrated at the onset of monsoon, because saplings planted during that season shows great survival.

A "Go Green" initiative was started to promote growth of trees to balance eco system in the campus. Many activities were planned where the individual students were asked to plant one sapling and take the responsibility of maintaining it on daily basis, they were also given freedom to study in detail about the beneficial effects of planting that particular sapling andits medicinal uses.

Padmashree Institute of Management & Sciences ★ Bangalore-60

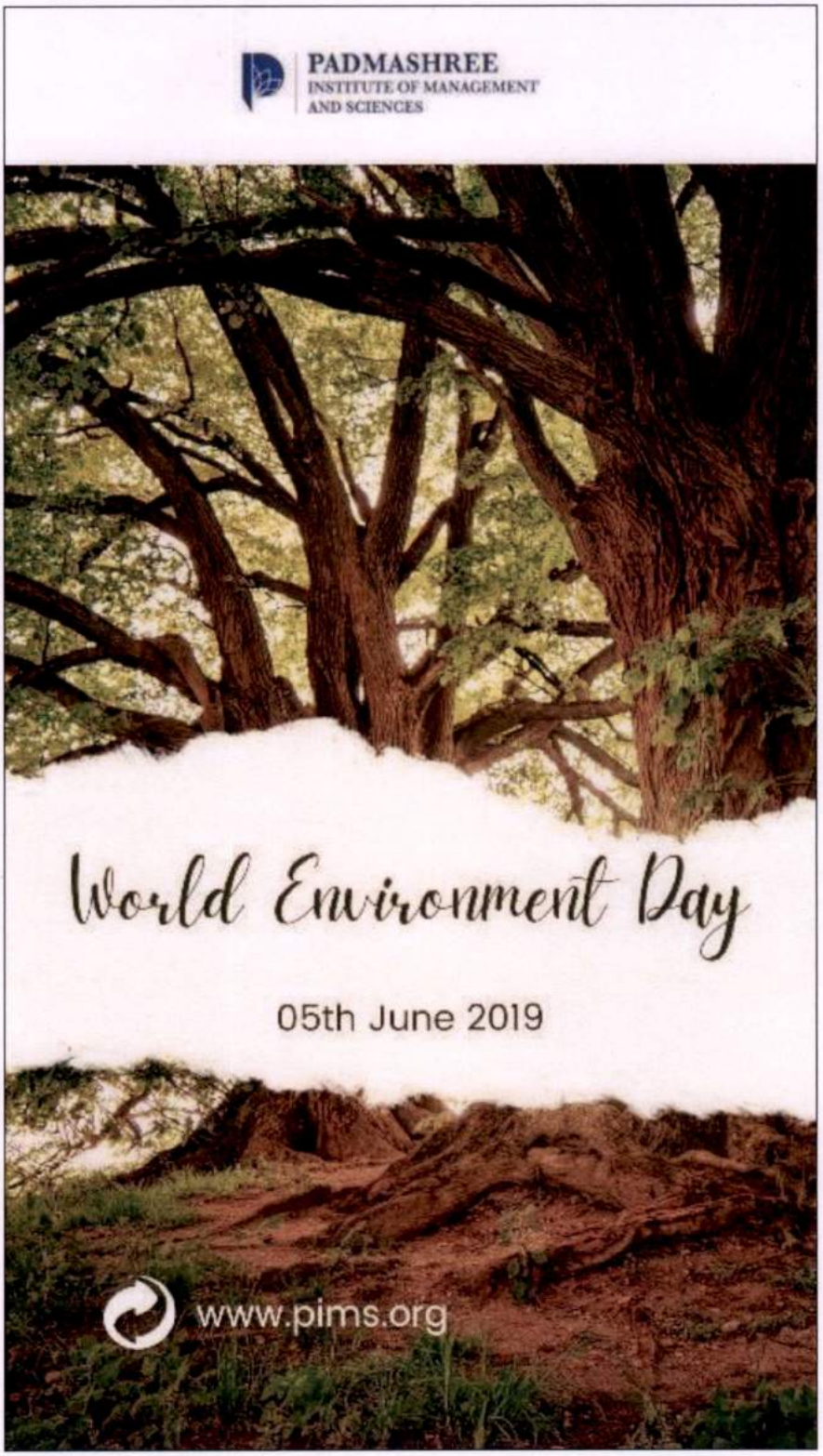
Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

VAN MAHOTSAVA DAY CELEBRATION

Padmashree Institute of Management & Sciences
Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

PLANTING OF SAPLINGS OUTSIDE THE CAMPUS ON THE OCCASION OF WORLD ENVIRONMENT DAY



PLANTING OF SAPLINGS OUTSIDE THE CAMPUS ON THE OCCASION OF WORLD ENVIRONMENT DAY

Program Details:

Organization committee	Organized by NSS committee, Padmashree Institute of Management and Sciences	
Supported/Sponsored by	NSS Committee, Bangalore University	
Program schedule	1. Informal Inauguration	11.00 AM
	2. Interaction with students	11.10 AM
	3. Vote of thanks	12.30 PM
Participants	NSS Volunteers Teaching staff- 25 Students-70	

The world environment day Celebration started with planting of small plants around the campus by students and faculties, later continued by innovative and provoking talk by our beloved principal Dr. Anuradha M, on how to protect our mother nature, what we can do as a thanks giving to mother nature, assigned different activities to students around the campus and encouraged the students to take step to preserve our mother nature.

Summary of the Program

The world environment day Celebration started with planting of small plants around the campus by students and faculties, later continued by provoking talk by our beloved principal Dr. Anuradha M, on how to protect our mother nature, what we can do as a thanks giving to mother nature, assigned different activities to students around the campus and encouraged the students totake step to preserve our mother nature.

Students were motivated to plant trees and also come out with different ideas for waste management in the college and college campus, which is one of the major challenges to protect the environment. Few students expressed their views on how can we manage waste generated like food waste, plastic waste, paper waste, how to utilize those waste and also few students expressed their taught on proper disposal of waste.

The environment day was also made special by the faculty members, who came forward to sing agroup theme song on "Why and how we have to protect our environment". The event came to an end by taking a oath to protect environment.

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Photo Gallery: World Environment Day

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Padmashree Institute of Management & Sciences ★ Bangalore-60

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

CELEBRATION OF WORLD ENVIRONMENT DAY

CELEBRATION OF WORLD ENVIRONMENTAL DAY

' LIVING SUSTAINABLY IN HARMONY WITH NATURE '

ORGANISED BY NSS & IQAC

PADMASHREE INSTITUTE OF MANAGEMENT AND SCIENCES

03RD - 06 TH JUNE 2022

Azadi Ka Amrit Mahotsav

ECO-FRIENDLY ACTIVITIES THEMES:

I. GENERAL THEMES

A. MODEL MAKING
B. ART & CRAFT
C. PAINTING (USING VEGETABLE DYES)
D. PLANTS SELLING
E. ANY OTHER ACTIVITY RELATED TO "ENVIRONMENT"

II. WORK BENCH THEMES

A. VERMICOMPOSTING
B. ECO FRIENDLY DISHWASH
C. SEGREGATION OF WASTE
D. JEWELLERY MAKING
E. HYDROPONICS DEMO
F. PAPER BAG MAKING
G. ANY OTHER DEMO ACTIVITY RELATED TO "ENVIRONMENT"

NOTE: DRESS CODE FOR THE DAY IS "GREEN COLOR"

DAY 1 : 03/06/2022 TIME : 10.00 AM - 12.30PM	**SWACCH CAMPUS ABHIYAN** Students, PIMS
DAY 2 : 04/06/2022 TIME : 10.00AM - 12.30PM	**PREPARATION OF ECO-FRIENDLY ACTVITIES** Teachers & Students, PIMS
DAY 3 : 05/06/2022 TIME : 10.00AM - 12.30PM	**PREPARATION OF ECO-FRIENDLY ACTVITIES** Teachers & Students, PIMS
DAY 4: 06/06/2022 TIME : 09.30AM - 10.30AM	**ENVIRONMENTAL SUSTAINABILITY & RENEWABLE ENERGY.** **SHAMSUNDAR SUBBARAO** **Head -CREST, NIE Mysuru.**
TIME : 10.30AM -12.30PM	**AWARENESS TO SCHOOL CHILDREN : BEYOND CAMPUS**

WEBSITE: WWW.PIMS.ORG.IN YouTube

CELEBRATION OF WORLD ENVIRONMENT DAY

Program Schedule

Date	Time	Activity
03-06-2022	10 am-12.30 pm	Swacch Campus Abhiyan
04-06-2022	10 am-12.30 pm	Preparation of Eco-friendly Activities
05-06-2022	10 am-12.30 pm	Preparation of Eco-friendly Activities
06-06-2022	9.30 am -10.30am 10.30am-12.30pm	Talk by Shri Shamsundar Subbarao on the topic "Environment Sustainability and Renewable energy" Awareness to school children: Beyond campus

Program summary

On the eve of World Environment Day, a four-day event was held to promote eco-friendly activities. On day one, a "Swachh Campus Abhiyan" was organized, which involved cleaning the campus to maintain an eco-friendly environment and raise awareness among students about saving the environment.

Days two and three were dedicated to conducting eco-friendly activities such as creating models and crafts using sustainable materials. These creations were later exhibited to school children to create environmental awareness in the community.

On day four, a talk was given by Shri Shamsundar Subbarao on the topic of "Environment Sustainability and Renewable Energy." This was followed by an exhibition of the eco-friendly models and crafts created by the students and staff. The event aimed to raise awareness about the environment among school children and the local community.

The celebration was enjoyed by all, and the participants gained a greater understanding of the importance of protecting the environment.

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

PHOTO GALLERY OF WORLD ENVIRONMENT DAY- 2022

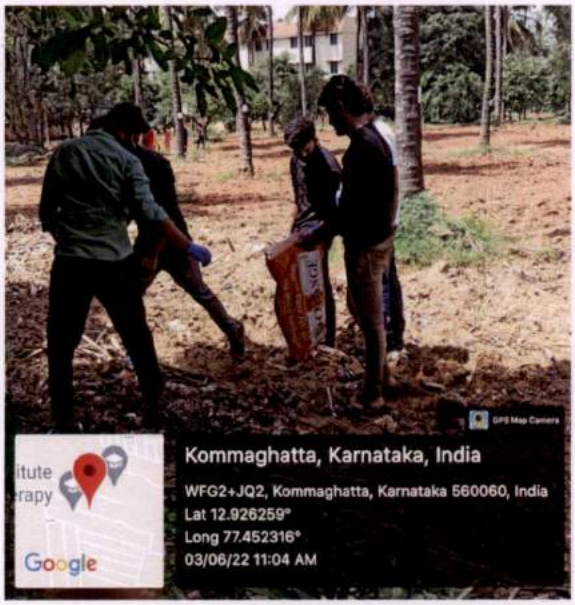
DAY 1 ACTIVITY - SWACHH CAMPUS ABHIYAN

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Photo gallery: World Environmental day

Swachh Campus Abhiyan - Campus cleaning- 2022



Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

DAY 4 - ENVIRONMENTAL SUSTAINABILITY AND RENEWABLE ENERGY

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Padmashree Institute of Management & Sciences ★ Bangalore-60

Eco week- Environment, Sustainability, Practices and Management -A Key to Conserve

21st-26th February 2022

Venue: Science Block, Padmashree Campus

Eco week- Environment, Sustainability, Practices and Management -A Key to Conserve

Program Schedule

Date	Time	Speaker	Topic
21-02-2022	10.30 am	Dr. Nethra Subramanya, PIMS	Environment sustainability and fascinating ecosystems
21-02-2022	12.00pm	Msc Biotechnology I year Students	Skit on Environmental Awareness
22-02-2022	10.30am	Dr. Nethra Subramanya, PIMS	Climate Change and Global Warming
23-02-2022	10.30am	UG first year Students	Model Making, Quiz on Environmental Awareness
24-02-2022	10.30 am	Dr. Sanjay, KC General Hospital	Natural Disasters: Risk, Assessment and Management.
24-02-2022	11.30 am	Prof Pullaiah, S K University	Biodiversity and Conservation
25-02-2022	10.30 am	Ms. Tejaswini, Chikkamagaluru	Environmental Communication and Public Awareness
25-02-2022	11.30 am	Dr.Anuradha M, Principal, PIMS	Water: The Elixir of Life
25-02-2022	2.00 pm	Dr. Sridevi, GDC, Anantapur	Soil-The Precious Natural Resource
26-02-2022	10.30 am	Dr. Sudipta Kumar Mohanty, VP, PIMS	Global Environmental Policies and Practices followed by Field Activities

Program Summary

The Speakers gave insights about the Environment and ecosystems, Biodiversity and Conservation, Natural calamities, Global environmental issues, Environmental communication and public awareness, Policies for the protection of the environment. Information on water and soil conservation was given. A skit on saving environment was played by Msc Biotechnology sem 1 student. The attendees were assigned with group discussions and also participated in quizzes.

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Photo gallery : Eco week- Environment, Sustainability, Practices and Management -A Key to Conserve

Padmashree Institute of Management & Sciences ★ Bangalore-60

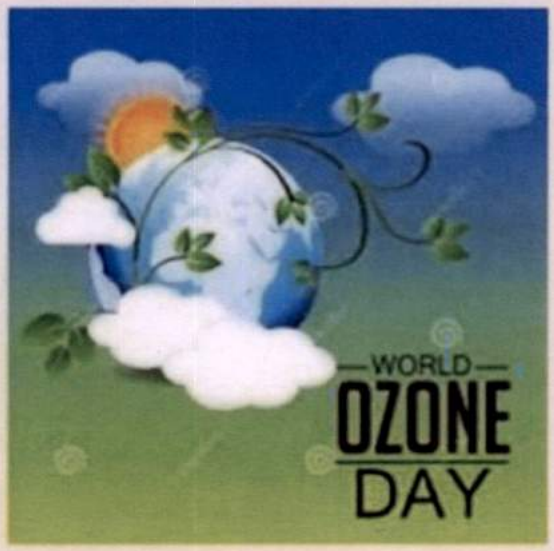
Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

BEYOND THE CAMPUS ENVIRONMENTAL PROMOTION ACTIVITIES

Awareness on protection of Ozone Layer

PADMASHREE
INSTITUTE OF MANAGEMENT AND SCIENCES

is organizing



in collaboration with Poornayurdhama

September 16th, 2018

Venue: Seminar Hall, Padmashree Campus,PIMS

Resource Person:

Dr. Prapulla SG
Rtd. Chief Scientist & Head
CFTRI ,Mysore

www.pims.org

Awareness on protection of Ozone Layer

Title	Awareness on protection of Ozone Layer
Event conducted on	16-09- 2018
Resource person	Dr. Prapulla, Former Scientist, CFTRI
Participants	25 Students, 3 faculties of PIMS, 10 outside villagers
Event	World Ozone Day: Extension activity

Program Summary

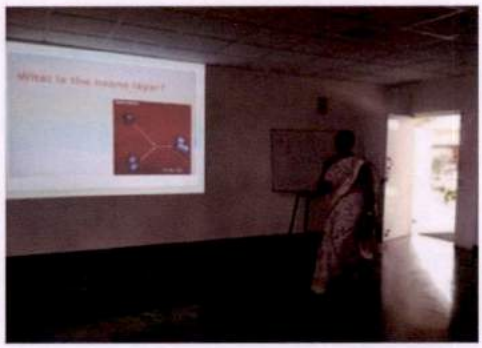
On account of World Ozone Day, there was an environmental awareness program organized for the students. The session commenced with a scientific talk by Dr. Prafulla, Retd scientist at CFTRI, enlightened students about the importance of the ozone layer and its depletion. The Speaker also emphasized on the various solutions for the protection of ozone layer. All students were given an insight about important causes of the depletion of ozone layer. The session included discussions on the chemicals discharged into the environment are affecting the ozone layer.

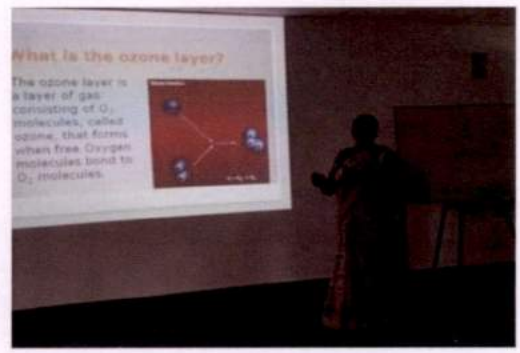
As a part of this, an extension activity - Plantation of trees was planned in Poornayurdhama. All the students visited Poornayurdhama and planted trees along with the people of the neighborhood villages around the college. Students extended their willingness to provide an insight about the effectiveness of plants in reducing pollutants that are causing damage to the ozone layer and also discussed measures to prevent pollution.

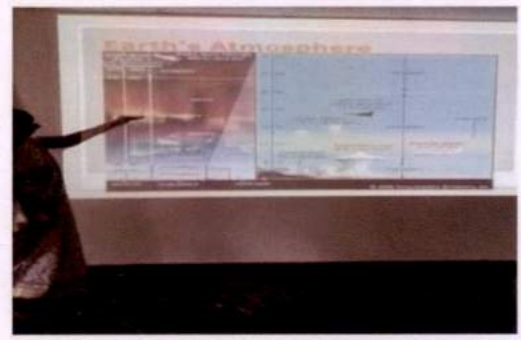
Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Photo Gallery: Awareness on protection of Ozone Layer







Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Padmashree Institute of Management & Sciences ★ Bangalore-60

POORNAYURDHAMA: 2 DAY NATURE CAMP

14-12-2019 – 15-12-2019

"Poornyayurdhama is a place where Poornayu Ayurveda Centre is established for the benefit of both urban and rural communities. All kind of general and chronic disease are treated here by Ayurvedic expert Doctors." Poornyayurdhama organized two-day Nature camp in association with Adamya Chethana and Vibhu foundation. Students from Padmashree Institute of Management and Sciences were volunteers (25 students) for this program.

2 days Nature Camp held on 14th and 15th December in Poornayurdhama in association with Adamya Chetana & Vibhu Foundation. In two days, first day was on Life style Education program including yoga and some lecturers from on Maharaj ji and Ayurveda lecture and demonstration from an Ayurveda doctor Dr. Murli.

Second day was "**Green Sunday**" celebration including environment awareness program & planting of medicinal and other plants. Planting of different medicinal and others plants were followed by some awareness program by delivering speeches from leaders of some foundation about environment like how reduce waste, how reuse waste etc. Students of our college participated in planting trees, and medicinal plants and giving awareness to public.

Program Summary

Poornyayurdhama is a place where Poornayu Ayurveda Centre is established for the benefit of both urban and rural communities. All kind of general and chronic disease are treated here by Ayurvedic expert Doctors." Poornyayurdhama organized two days (14-15, December, 2019) Nature camp in association with Adamya Chethana and Vibhu foundation.

Students of PIMS participated as volunteered in this program. They helped the program coordinators in organizing the program, in planting saplings and medicinal plants . Further, the program was concluded formally with a vote of thanks by thanking all the organizers, teachers and participants for making the program a success.

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

POORNAYURDHAMA: 2 DAY NATURE CAMP

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

SWACHH BHARATH ABHIYAAN

SWACCH BHARATH ABHIYAAN – A BEYOND CAMPUS INITIATIVE

27th August, 2018

Title	Swacch Bharath Abhiyaan – A beyond campus initiative
Event conducted on	27-08-2018
Participants	NSS Volunteers, 67 students
Organizing committee	**Organized by NSS committee, PIMS** Dr. Anuradha M. Dr. Thammaiah R.B Dr. Nethra S. Ms. Rajini J. **Student co-ordinators:** Ms. Deepika Ms. Ranjitha Mr. Dhanajaiah Mr. Naveen Mr. Nishanth
Event	Extension program

Program schedule

Program	Time
Inauguration	10:00 AM
Welcome Speech	10:10 AM
Key note address	10:15 AM
Cleaning activity in village	10:15-11.30 AM
Refreshment break	11.30-11.45 AM
Continuation of cleaning activity	11.45-12.30 PM
Oath taking	01:00 PM
Vote of thanks	01.05PM

Photo Gallery: Swachh bharath abhiyaan

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

The session ended by oath taking of students and staffs to maintain plastic free environment

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Program summary

This program was organized to enlighten participants to save our planet by eradication the usage of plastics. The program commenced with talk by Dr. Anuradha M., Principal, Padmashree Institute of Management and Sciences, on how to maintain the plastic free environment and the hazards caused by use of plastics. She also stressed that it is the responsibility of every individual to completely eradicate the use of plastic. Staff, NSS volunteers and students actively participated in the event.

A total of 67 students, NSS volunteers and 25 staff participated in the programme. Dr. Thammaiah R.B., welcomed the gathering. Along with NSS programme officers the organizing committee-initiated cleaning activities. Students were motivated towards 'Clean India' by the inspirational talk by Dr. Anuradha M., Principal, Padmashree Institute of Management and Sciences. She enlightened volunteers about the importance of cleanliness, starting from one's home to the entire country. The volunteers were asked to make the nearby villages Hossabyrohalli and Kommagatta, clean and plastic free.

The NSS volunteers divided the students into 2 groups, who worked on collection of plastics in nearby villages. Each group was headed by NSS volunteers and faculty. The session came to an end with a pledge by students and staff to maintain "Plastic free environment".

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Awareness Program on Air and Water Pollution

24-07-2022

1	Organization committee	Organized by NSS committee, PIMS Dr. Anuradha M. Dr. Thammaiah Mrs. Shruthi A.M. Ms. Greeshma Ms. Mahalakshmi
2	Participants	55

Program Schedule

Date	Time	Program
24-07-2022	10.30 AM to 11.30 AM	Kommaghatta village visit
	11.45 AM to 12.45 AM	Govt. School, Kommaghatta

ಬೆಂಗಳೂರು ನಗರ ಜಿಲ್ಲಾ ಪಂಚಾಯತಿ ಬೆಂಗಳೂರು ದಕ್ಷಿಣ ತಾಲ್ಲೂಕು ಪಂಚಾಯತಿ

ಸೂಲಿಕೆರೆ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ ಕಾರ್ಯಾಲಯ

ಸೂಲಿಕೆರೆ, ಸೂಲಿಕೆರೆ ಅಂಚೆ, ಕೆಂಗೇರಿ ಹೋಬಳಿ, ಬೆಂಗಳೂರು ದಕ್ಷಿಣ ತಾಲ್ಲೂಕು

ಸೂ.ಗ್ರಾ.ಪಂ/ /2022-23

Certificate of Appreciation

This is to appreciate Padmashree Institute of Management Sciences for their contribution towards creating awareness on air and water pollutionon 24th July 2022 at Government Primary School Kommagatta, Kengeri, Bangalore. We are thankful and appreciate for the green initiative rendered by the institute.

Panchayath Development Officer
Sulikere Village Panchayath

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Photo Gallery: Awareness Program on Air and Water Pollution

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Program summary

On 24th July 2022, the NSS unit of Padmashree Institute of Management and Sciences organized an awareness program on air and water pollution as a part of their NSS activity. Dr. Thammaiah R.B. and Dr. Nethra S., accompanied the 1st year undergraduate students to Kommaghatta village to create awareness among the local community and school children about the importance of keeping their surroundings healthy.

The team arrived at the village at around 10:15 am and visited Kommaghatta lake to educate the locals about water pollution and how to prevent it. They emphasized the need to keep the water bodies clean and free from pollutants. From 10:30 am to 11:30 am, the volunteers interacted with the people nearby the lake, educating them about the consequences of water pollution and the steps to be taken to prevent it.

From 11:45 am to 12:45 am, the team visited a government school in Kommaghatta to create awareness among the students about air and water pollution. They emphasized the need to maintain a clean and healthy environment, and encouraged the students to take small steps towards creating a pollution-free future.

The program was successful in creating awareness among the local community and students about the importance of maintaining a clean and healthy environment. It was a positive step towards creating a sustainable and pollution-free future for all.

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Single use plastic awareness and household waste management program at Kommaghatta School

Event	Extension activity
Date	27-07-2022
Participants	33 Students of B.Sc. IV semester Clinical Nutrition and Dietetics Department
Place of Activity	Primary school, Kommaghatta village, Kommaghatta, Kengeri Hobli, Bangalore.

School visit

On 27th July 2022, students of B.Sc. Clinical Nutrition and Dietetics 4th semester conducted awareness program at Kommaghatta School. The topics selected were, single use plastic awareness and household waste management. 6th and 7th standard children were selected for the program.

Single use plastic awareness: Students discussed the harmful effect of plastic and how they can reduce the usage of plastic

Household waste management: Students discussed the importance of waste segregation, how to recycle things and how wet waste is used to make compost.

Certificate of Appreciation from Suilikere Grama Panchayat

ಸೂಲಿಕೆರೆ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ ಕಾರ್ಯಾಲಯ

/2022-23

Certificate of Appreciation

This is to appreciate Padmashree Institute of Management Sciences for their contribution towards creating awareness about single plastic use and its ill effects on environmentatGovernment on 27th July 2022 at Primary School Kommagatta, Kengeri, Bangalore. We are thankful and appreciate for the green initiative rendered by the institute.

Panchayath Development Officer

Suilikere Village Panchayath

Padmashree Institute of Management & Science Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Photo Gallery: Single use plastic awareness and household waste management program at Kommaghatta School

Students of Kommaghatta School

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Students discussing the topics with children

Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

Program summary

On July 27th, 2022, B.Sc. Clinical Nutrition and Dietetics students from the 4th semester conducted an awareness program at Kommaghatta School. The program was aimed at educating 6th and 7th standard students about two important topics - single-use plastic awareness and household waste management.

During the single-use plastic awareness session, the students discussed the harmful effects of plastic on the environment and ways in which they could reduce their usage. They highlighted the fact that plastic is not biodegradable and can take hundreds of years to decompose. The students also explained how plastic waste is polluting our oceans, harming marine life, and affecting our food chain. They suggested some practical tips such as using reusable bags, water bottles, and straws to reduce the use of single-use plastic.

In the second session on household waste management, the students discussed the importance of waste segregation and explained how it can help in recycling and reducing the amount of waste that goes to landfills. They emphasized the importance of segregating waste into wet and dry waste and explained how wet waste can be used to make compost. They also shared some useful tips on recycling different types of waste such as paper, plastic, and glass. The awareness program was successful as the students from B.Sc. Clinical Nutrition and Dietetics were able to effectively communicate the importance of reducing single-use plastic and managing household waste. The program was well-received by the 6th and 7th standard students who showed a keen interest in adopting the suggested practices in their daily lives.

Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of
Management & Sciences

WEBINAR ON SUSTAINABLE URBAN WASTE MANAGEMENT

ON
20TH JUNE 2020
@ 09:30 AM

Jointly Organised by

RESEARCH CELL, DEPARTMENT OF LIFE SCCIENCES, PADMASHREE INSTITUTE OF MANAGEMENT AND SCIENCES, BANGALORE

PADMASHREE INSTITUTE OF MANAGEMENT AND SCIENCES K-tech BiSEP

Resource Persons

Presidential Address

Mr. Satish
Chairman,
Padmashree Institute of Management and sciences, Bengaluru

Waste is our responsibility, ways to reduce and recycle household waste in urban living

Ms. Vani Murthy
Founding Member, Solid Waste Management Round Table (SWMRT), We Care for Malleswaram and Clean Green Workshops, Bengaluru

Practices to Convert and Recycle Household Organic Matter into Black Gold Compost

Dr.Rajendra Hegde
founder member of Garden City Farmers (GCF), Co-founder and Chairman at Biological Research Innovation Centre and Solutions LLP (BRICSLLP),Bengaluru

Pre-register and join the group

REGISTRATION LINK
https://forms.gle/f3nuu8rjxoynKqga6

E-Certificates will be provided to the participants who attends webinar till the end

website: www.pims.org.in

WEBINAR: SUSTAINABLE URBAN WASTE MANAGEMENT

DATE: 20th June 2020 at 09:30AM

Padmashree Institute of Management and Sciences, Bangalore

Online Platform: ZOOM & YouTube live stream

https://youtu.be/jnv_Rl7MYsM

Time	Topic	Speakers
9.30-10.00	Presidential address	Mr. Satish, Chairman, PGI
10.00-11.00	Waste is our responsibility, ways to reduce & recycle the household waste in urban living	Ms. Vani Murthy
11.00-11.10	Discussion & interaction with students.	
11.15-12.15	Practices to convert & recycle household organic matter into black gold compost	Dr. Rajendra Hegde
12.15-12.30	Discussion & interaction with students.	

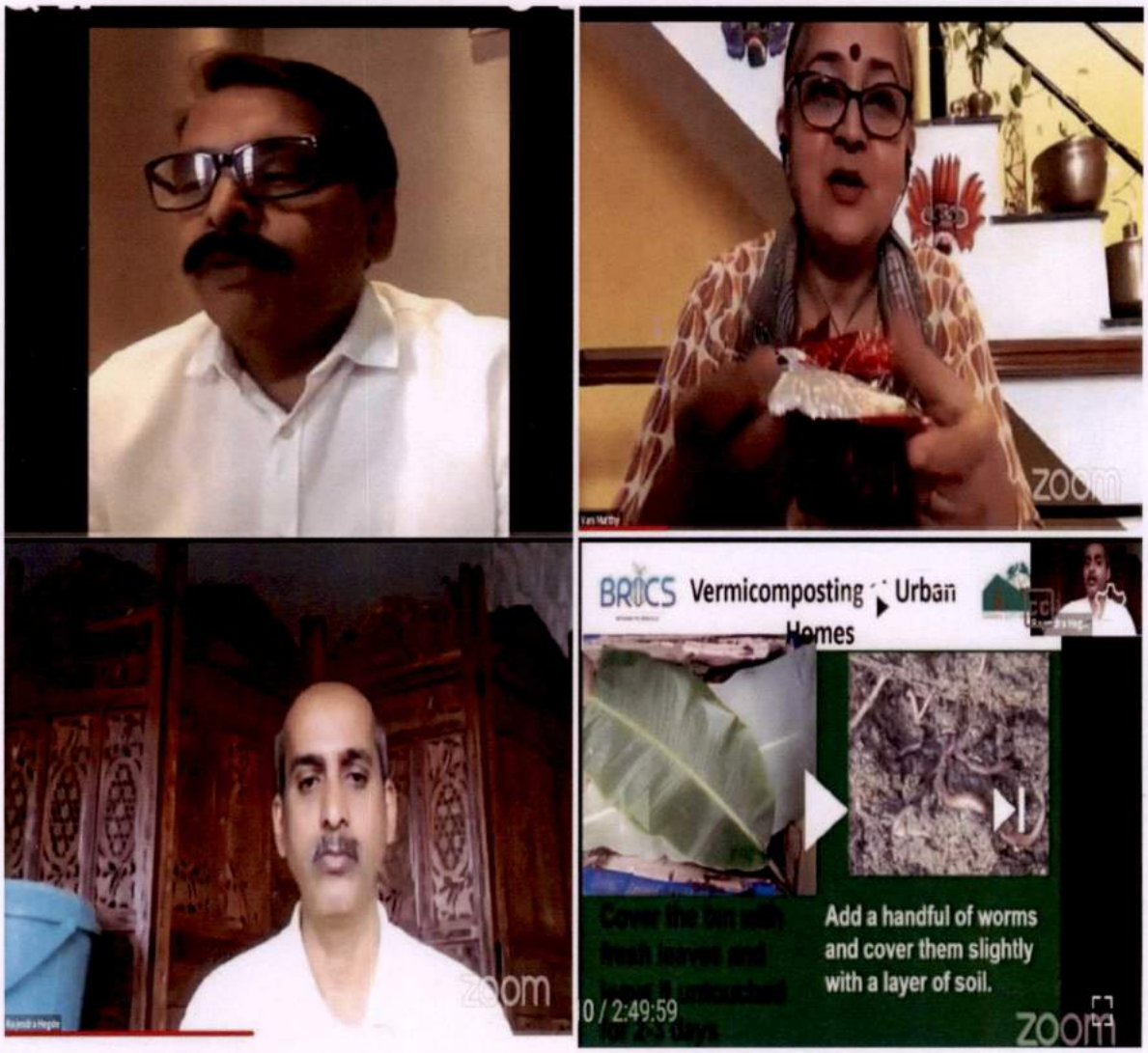
SUMMARY OF THE PROGRAM

The webinar titled "Sustainable Urban Waste Management" was organized by Padmashree Institute of Management and Sciences on 20th June 2020. **The program was open to the public**. There were more than 800 registration for the program and more than 600 participants obtained the benefits. Urban waste management is the key to the secular future. It entails the entire system of collecting, sorting, treating, utilizing and ultimately disposing of waste, and when properly facilitated it can provide a source of energy and resources, while significantly reducing pollution. The environmental impacts of the construction industry can be reduced through sustainable waste management (SWM). Speakers discussed the best way to manage urban waste. Towns and cities generate huge volumes of waste that are often disposed of as landfill. Our eminent speakers explain that sorting urban waste into organic and inorganic streams, which can be turned into energy and fertilizer, offers a much more efficient and environmentally friendly solution. The webinar was very useful. The organizers thanked all the speakers and participants for making the event a grand success.

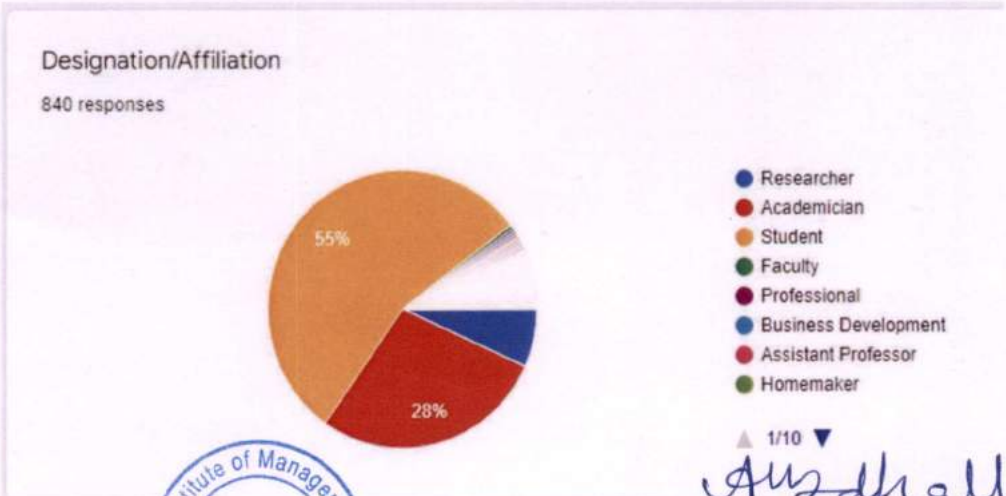
Padmashree Institute of Management & Sciences ★ Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences

Photo Gallery Webinar: Sustainable Urban Waste Management



REGISTRATION RESPONSES



Padmashree Institute of Management & Sciences Bangalore-60

Dr. Anuradha. M
Principal
Padmashree Institute of Management & Sciences