7.1.2

Geo-tagged photographs/videos of the facilities

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7.1.2 Geo-tagged photographs/videos of the facilities

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7.1.2.1 ALTERNATE SOURCES OF ENERGY AND ENERGY CONSERVATION MEASURES

Embracing the core value of AISSMS COE Vision: “Service to Society," the college is dedicated to positively impacting the community. AISSMS College of Engineering shows its commitment to sustainability and actively contributes to cleaner and greener energy solutions by using solar power in its operations and connecting it to the grid.

In alignment with this vision, AISSMS College of Engineering is at the forefront, striving to reduce carbon emissions by embracing solar energy. The college leverages solar technologies not only to contribute to environmental conservation but also to diversify energy sources, enhance efficiency, and cut costs.

1.Solar Energy Plant

The solar power plant, commissioned on April 4, 2019, has a capacity of 300 KW DC (260 KW AC) and features 938 solar PV panels with 320 Wp and 72 cells each. The plant is equipped with six Delta make 50kW inverters, functioning as Grid Tied Transformer Less Solar Inverters with Dual MPPT and an Energy Logger. The plant has generated a total of 16,58,694 units of electricity over 56 months until December 2023. Notably, it has resulted in a significant cost saving, with Rs 1,56,77,285 (approximately 1 crore 56 lakhs) saved on the MSEB bill. The initial investment for the solar plant was Rs 1,48,19,935 (approximately 1 crore 48 lakhs), yielding an average electricity saving of 48%.

Solar panels

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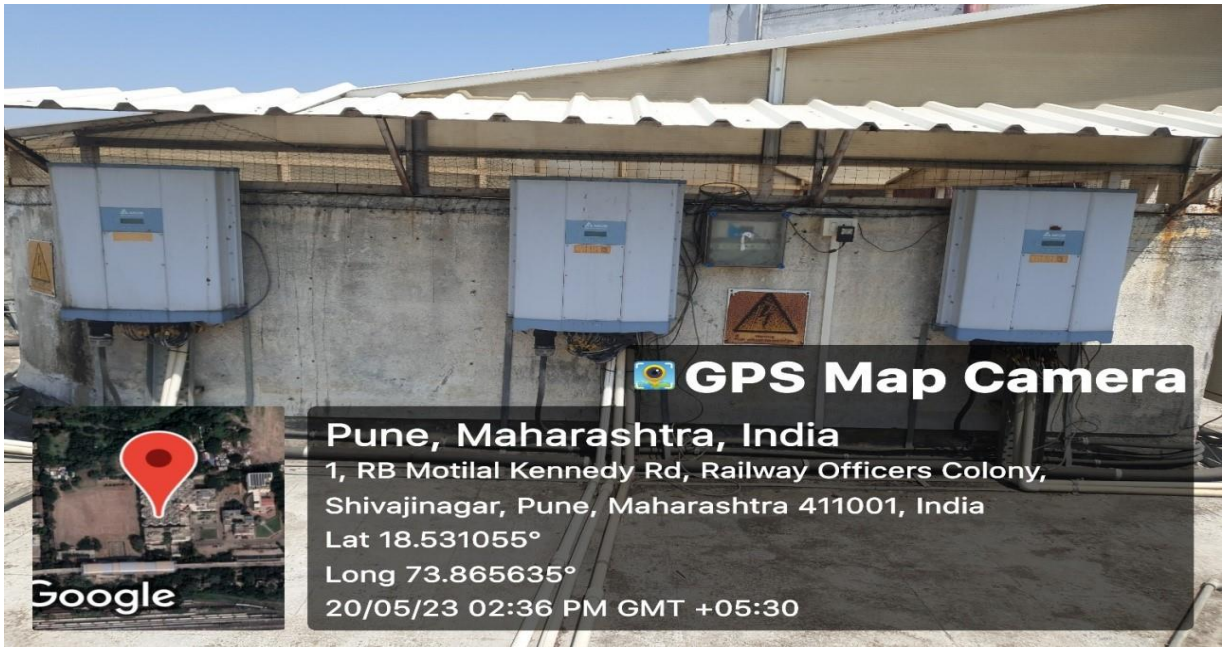

Bi directional energy meters

2. Wheeling to Grid

The energy generated by solar panel is connected to MSEB grid.

Project Details: 300 kwp grid connected rooftop solar pv plant

EED/811/2024/15

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ज्ञानम् सकलजनहिताय
Approved by AICTE, New Delhi, Recognized by Government of Maharashtra
Affiliated to Savitribai Phule Pune University and recognized 2(f) and 12(B) by UGC
(Id.No. PU/PN/Engg./093 (1992))
Accredited by NAAC with "A+" Grade | NBA - 6 UG Programmes

Date – 08 JAN 2024

AISSMS RTO CAMPUS SOLAR GENERATION / MSEDCL BILLING DETAILS

The solar generation / MSEDCL consumption details is as follows (*Ref - MSEDCL monthly bills*) –

Sr no	Details	DEC 2023
		57 MONTHS
1	Total Solar Generated Units	29125
2	Net MSEB Electricity units billed-paid	43901
3	MSEDCL Monthly Bill Amount Rs. (Previous month arrears not included)	807618
4	solar power used by RTO Campus in units	25020
5	Total electricity required by RTO Campus in units	72895
6	Solar power exported to MSEB in units	4105
7	Solar power adjusted by MSEB in units	4106
8	Solar units in energy bank	0
9	% Saving given due to solar installation	39.95%
10	Amount saved this month in MSEB Bill due to solar installation = 29125 units * 10.40 rate in Rs.	3,02,900
11	**Total MSEB bill amt saved till today after 57 months of solar system installation Rs.**	**1,56,77,285**

With regards

V V Kulkarni
Assistant Professor
Electrical Dept

Head
Department of Electrical Engineering
Electrical Dept

Principal
AISSMS COE

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Solar Energy Consumption details

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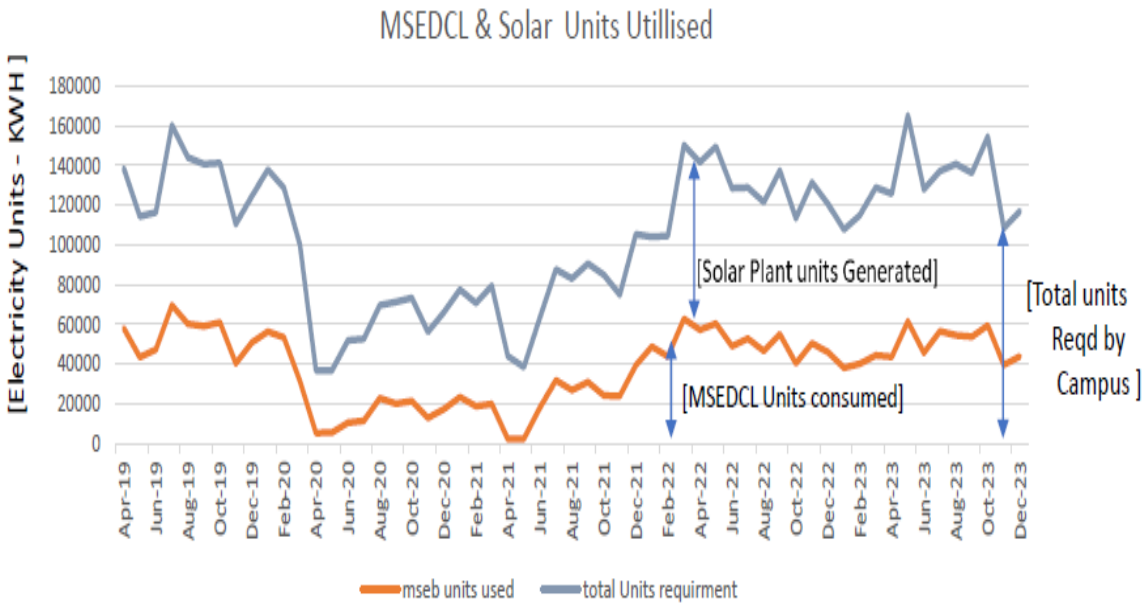
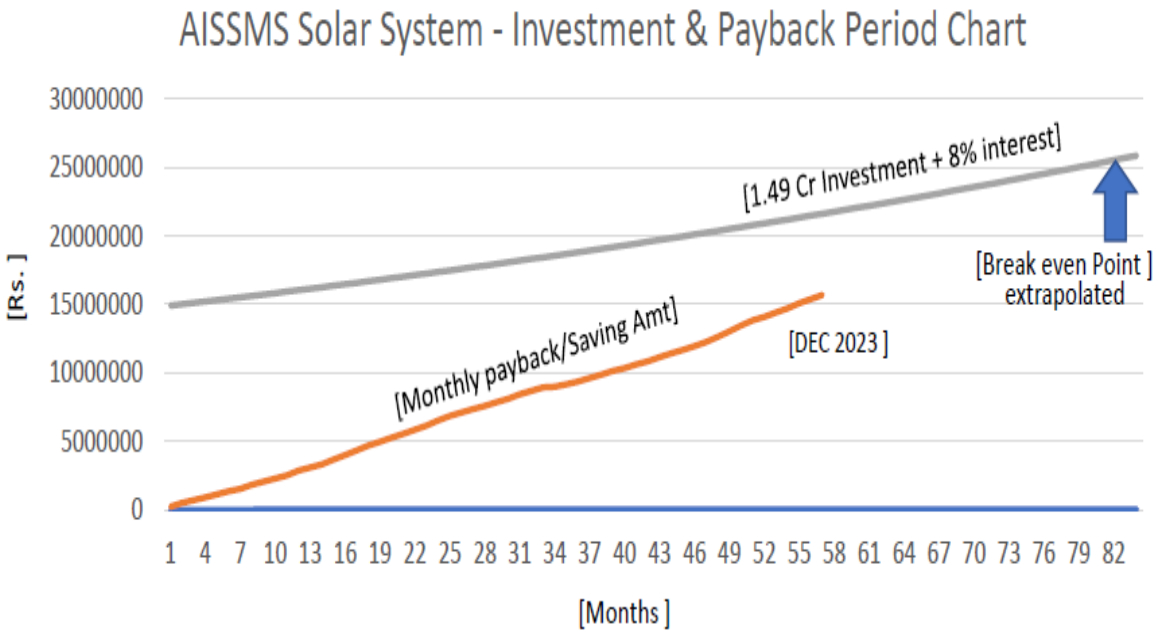
3. Solar PV System Analysis



Month Wise Analysis of MSEDCL & Solar Units



Solar System Investment & Payback Period Chart

4.Use of LED Tubes

The Institute has embraced LED tubes, requiring less energy and offering up to 50% more efficiency than fluorescent tubes. Installed across various campus areas for optimal lighting,

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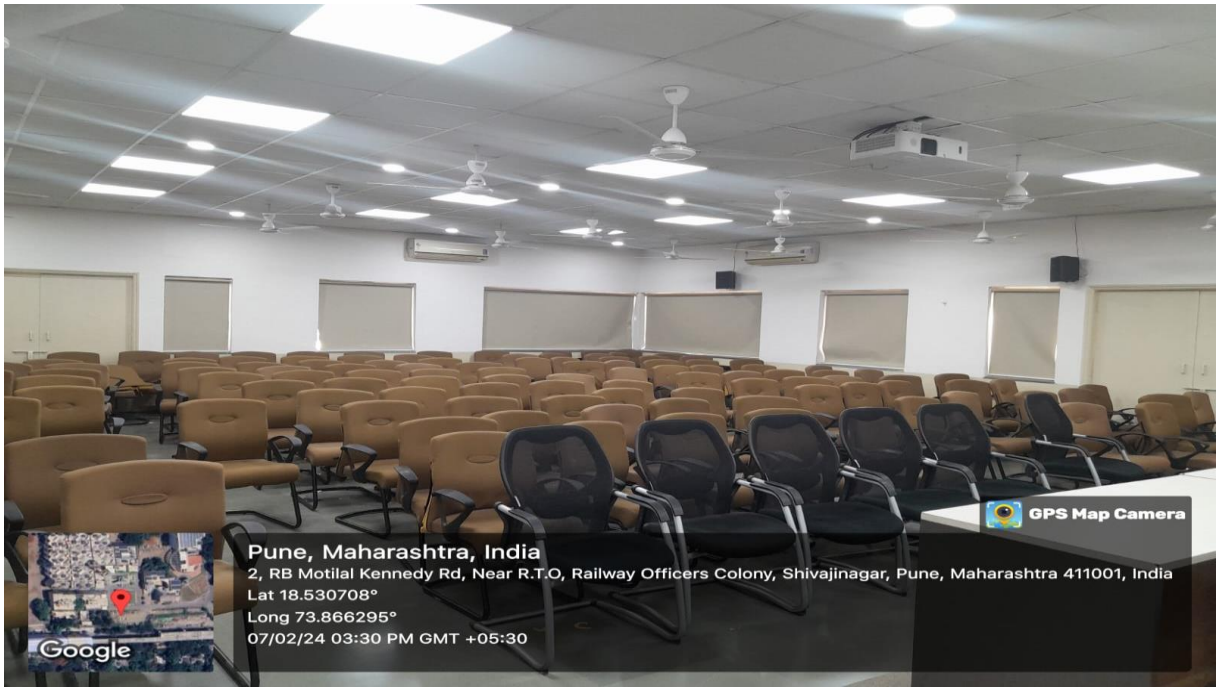
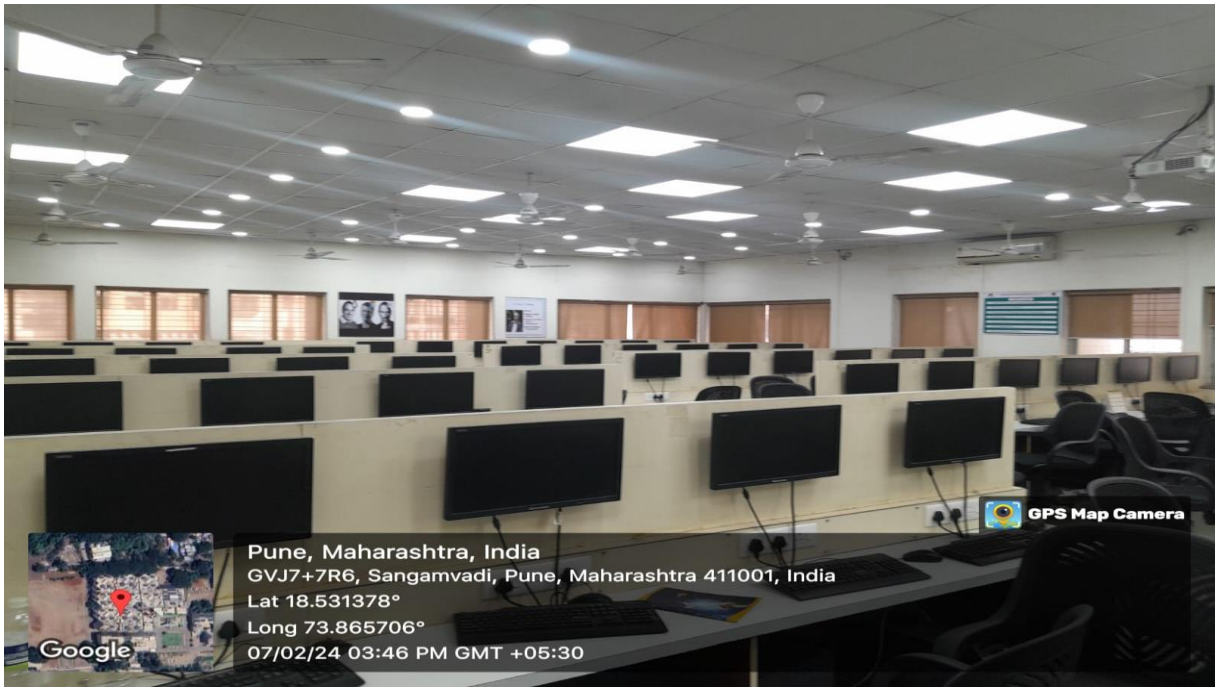
they replaced higher-wattage fluorescent tube fittings with lower-wattage LED fittings, maintaining brightness. This aligns with the Institute's initiative to adopt LED tubes and energy-efficient equipment for alternative energy sources while implementing conservation measures.

1. LED Tubes in the Seminar Halls



LED Tubes fitted in Computer Centre



LED tubes in computer center

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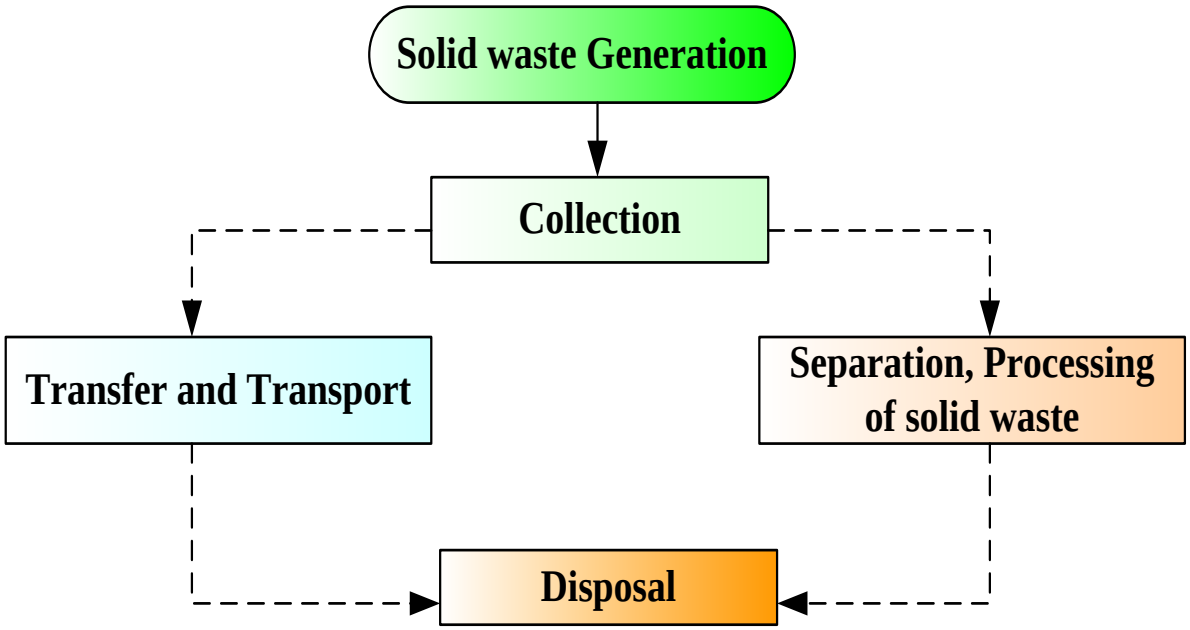
7.1.2.2 MANAGEMENT OF THE VARIOUS TYPES OF DEGRADABLE AND NON-DEGRADABLE WASTE

AISSMS COE prioritizes effective waste management for the well-being of everyone on campus and in the surrounding area.

1.Solid Waste Management:

The Institute segregates solid waste into dry and wet categories right from the source. Dustbins for dry and wet waste are strategically placed throughout the campus, including classrooms and offices. Waste collection takes place once daily, with a specific emphasis on separating items such as paper, plastic, and dry leaves. An external professional agency is engaged to handle the collection and disposal of both degradable and non-degradable waste. This initiative underscores AISSM Society's dedication to responsible waste management.



Flow Diagram of Solid Waste Management

A.Collection and Segregation of Dry and Wet Waste

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Dustbins for Dry Waste & Wet Waste

Dustbins are provided in college premise

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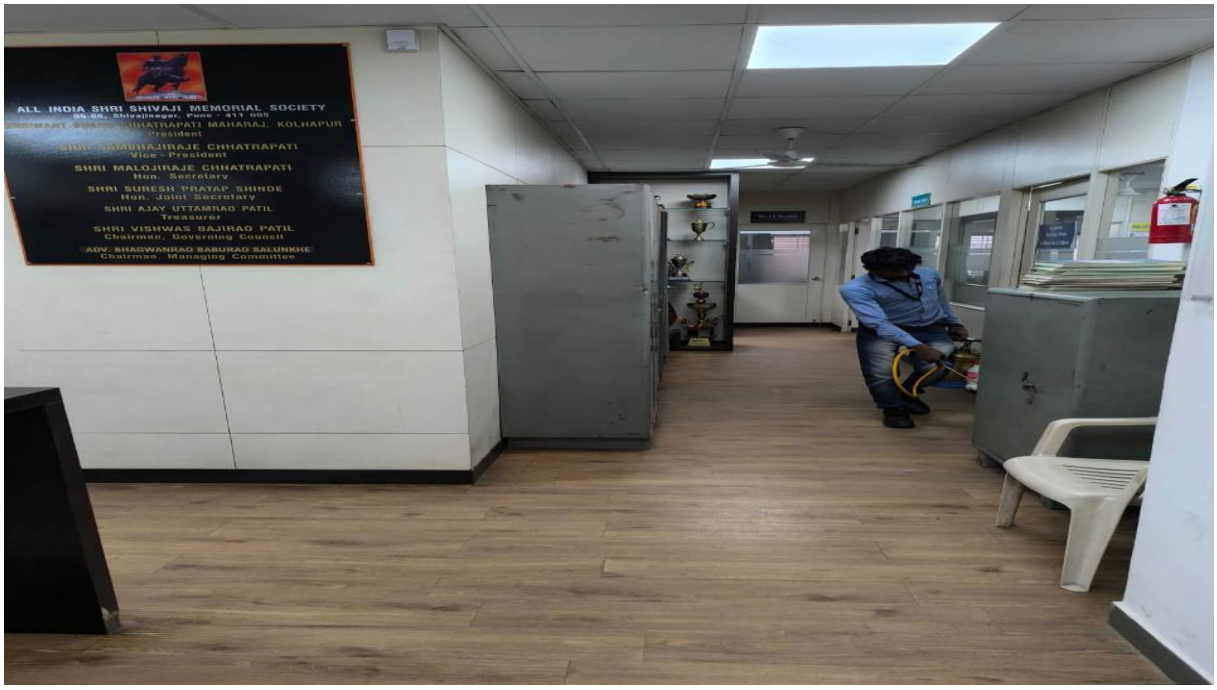
Cleaning of college premise by external agency



Sanitization during COVID Period

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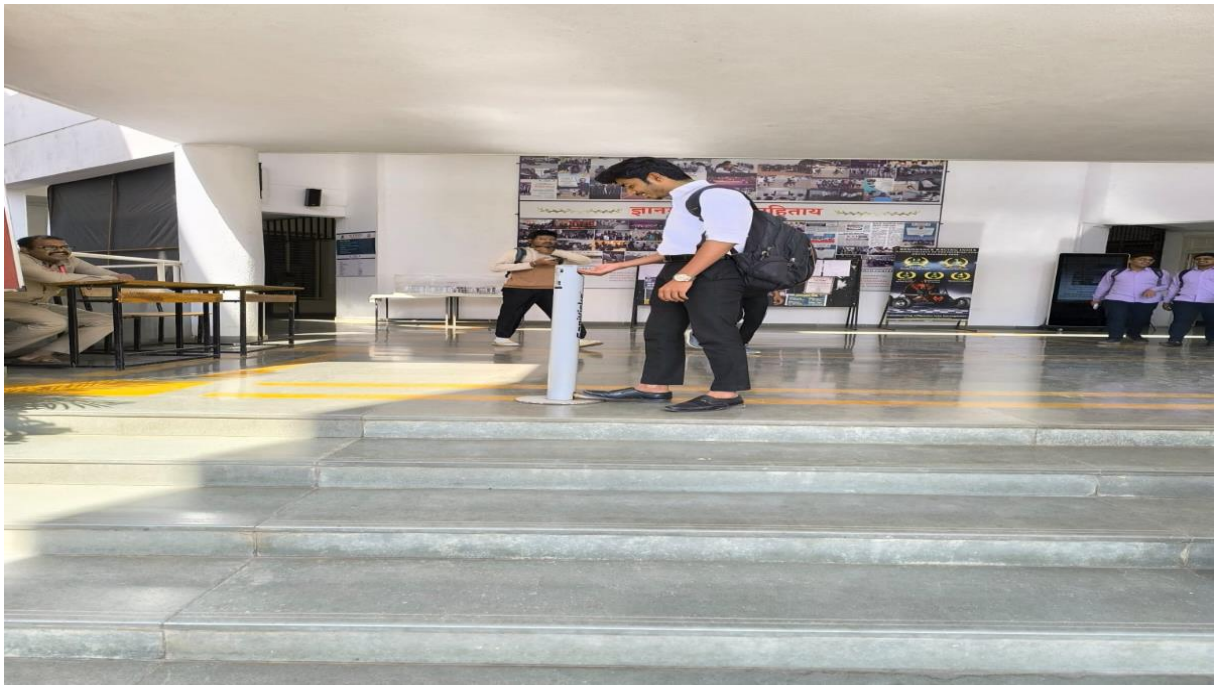

Hand sanitizer for students & Staff during COVID Period

2. Liquid Waste Management:

Sewage wastewater has been collected from All India Shri Shivaji Memorial Society's College of Engineering, Pune campus. Ozone was produced on site using water cooled corona discharge ozonation (Capacity of 10g/hr max, Concentration of 50-100 gm/m^3) was procured from Ozone Engineers. Hydrogen Peroxide (30% w/v industrial grade, with remaining water) was used. More than 5000 litres of waste water was generated from building every day. The capacity of pilot plant was 9000 litres per day. The present experiment work was performed with 1m^3 of waste water for 45 mins of treatment at 28^{0}C. The inlet pressure was 4 bar. Ozonator was run at a capacity of 10gm/hr. During the experiment samples were withdrawn before and after treatment to analyse the process of treatment. The treatment effects in quantitative terms of COD and BOD reduction. The initial COD of 1200 mg/L with sewage was reduced to 200 mg/L after 45 mins of treatment. The BOD was also reduced from10 mg/L to 4 mg/. Sewage of All India Shri Shivaji Memorial Society's College of Engineering, Pune was efficiently treated using hydrodynamic cavitation and ozone. The foul smell emanating from the water was removed after 45 mins of treatment. These effects were sufficient for removal of colour, bacteria as well as organic contaminants present in the sewage. In scientific terms major reduction of COD (83.33%) and BOD (60%) was observed.

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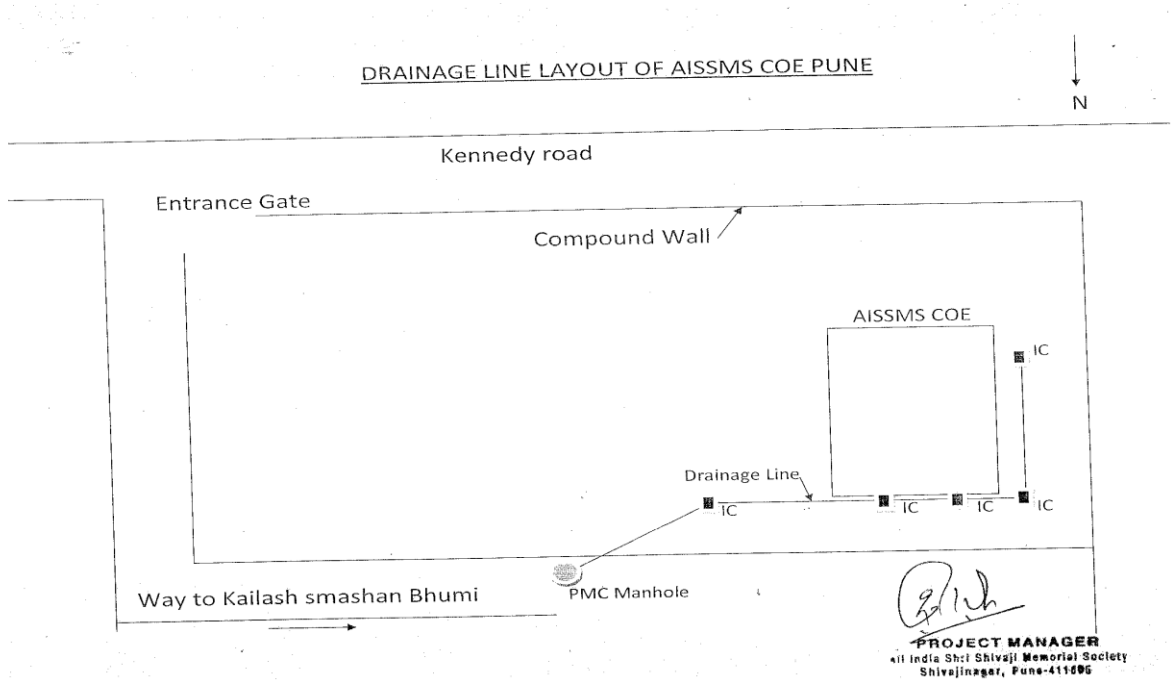
A. Drainage line Layout



Drawing of Drainage Line of college connected to corporation line.

B. Waste Water Treatment plant

Waste Water Treatment plant installed in the Campus

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Tanks for the Water Treatment Plant

3. E-Waste Management:

The Institute has an efficient mechanism for disposing of E-waste generated from various sources, including computer labs, science laboratories, academic, and administrative offices. This E-waste encompasses out-of-order or obsolete items such as lab instruments, circuits, desktops, laptops and accessories, printers, Wi-Fi devices, display units, UPS, practical instruments, etc. All these items have been written off by the AISSMS Society.

Dustbins for collection of E-waste

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7.1.2.3. WATER CONSERVATION FACILITIES:

The Institute has implemented two effective water conservation methods. Firstly, rainwater harvesting involves collecting rainwater from rooftops or open areas and storing it for future use. This practice not only reduces dependence on external water sources but also aids in water conservation and replenishes underground water stores and recharge borewells vital for accessing groundwater. This initiative facilitates the percolation of rainwater into the ground, ensuring the preservation of water levels in borewell and establishing a sustainable, self-renewing water supply for the Institute.

1. Rain Water Harvesting

Sump for collecting rain water and borewell

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2. Sprinklers System to save water wastage

Sprinklers are used to irrigate the lawns

Sprinklers are used to irrigate the lawns

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3. Drip Irrigation System to save water wastage

Drip Irrigation System to save water wastage

7.1.2.4 FACILITIES FOR PROMOTING GREEN CAMPUS INITIATIVES

The Institute actively promotes an eco-friendly campus through its Green Campus Initiative.

AISSMS College of Engineering shows its commitment to sustainability and actively contributes to cleaner and greener energy solutions by using solar power in its operations and connecting it to the grid. In alignment with the Institute vision, we are striving to reduce carbon emissions by adopting solar energy. The college leverages solar technologies not only to contribute to environmental conservation but also to diversify energy sources, enhance efficiency, and cut costs.

In collaboration with the National Service Scheme (NSS), the Institute involves students in planting and nurturing trees to enhance the campus's green and healthy appearance. These trees not only provide shade but also contribute to a healthier environment by producing oxygen.

As part of a strategic move, the Institute is transitioning to LED lights from traditional ones. This not only results in cost savings but also aligns with environmentally friendly practices. Additionally, the Institute is committed to raising awareness about sustainability among students, staff, and faculty members. Programs led by the Solar Energy Society of India (SESI) chapter educate both students and faculty on eco-friendly practices. SESI's energy literacy

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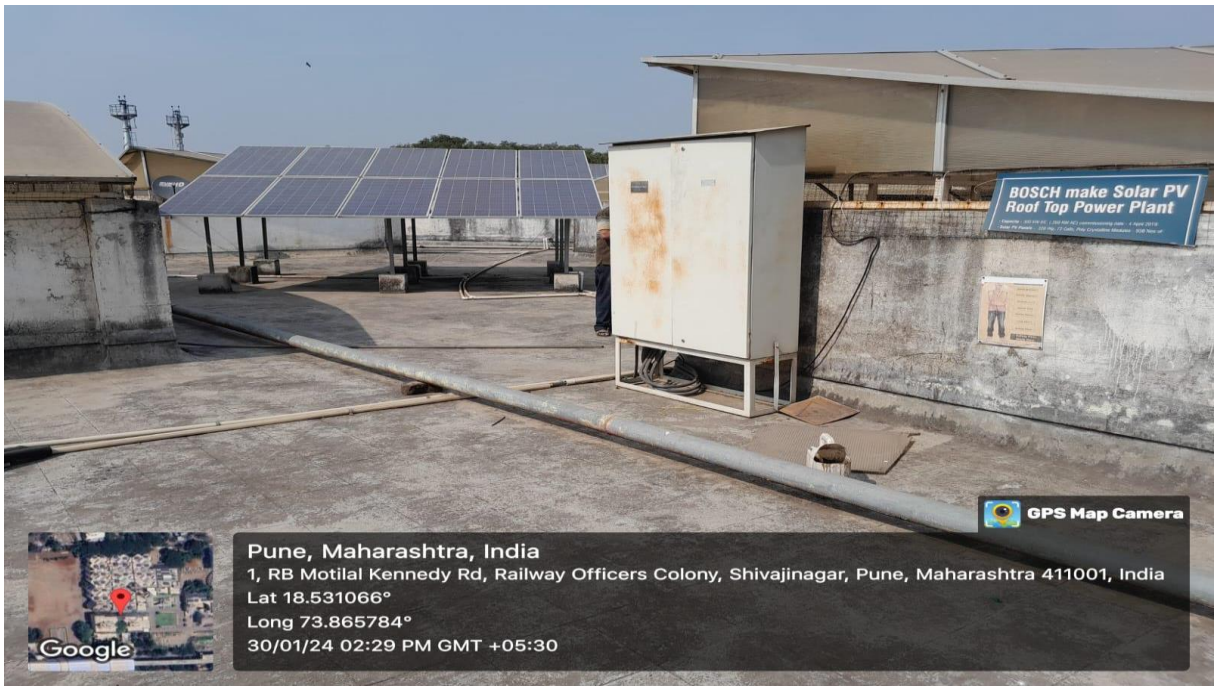
programs emphasize resource conservation and encourage mindfulness regarding their environmental impact. Through our initiatives, we have motivated students, faculty, and non-teaching staff to complete a 3-hour online course on Energy Literacy Training, an initiative by Energy Swaraj Foundation. AISSMSCOE has been awarded the Gold Certification for Energy Swaraj Foundation and is proud to be honoured as one of the top 5 organizations in India for having the highest number of Energy Literate individuals participating in "Action for Climate Correction". Institute played a key role in registering 4656 participants, with 2350 successfully obtaining certification as energy literates. Preferences are given to use non-plastic items in the institute campus. ERP system is implemented in the institute for academic and administrative works to reduce paperwork. Emphasis is given for using public transport, e-vehicles, bicycles and metro.

1. Solar PV System

The solar power plant, commissioned on April 4, 2019, has a capacity of 300 KW DC (260 KW AC) and features 938 solar PV panels with 320 Wp and 72 cells each. The plant is equipped with six Delta make 50kW inverters, functioning as Grid Tied Transformer.



Solar Panels at Rooftop

2. Use of LED lights Tubes

The Institute has embraced LED tubes, requiring less energy and offering up to 50% more efficiency than fluorescent tubes. Installed across various campus areas for optimal lighting, they replaced higher-wattage fluorescent tube fittings with lower-wattage LED fittings, maintaining brightness. This aligns with the Institute's initiative to adopt LED tubes and

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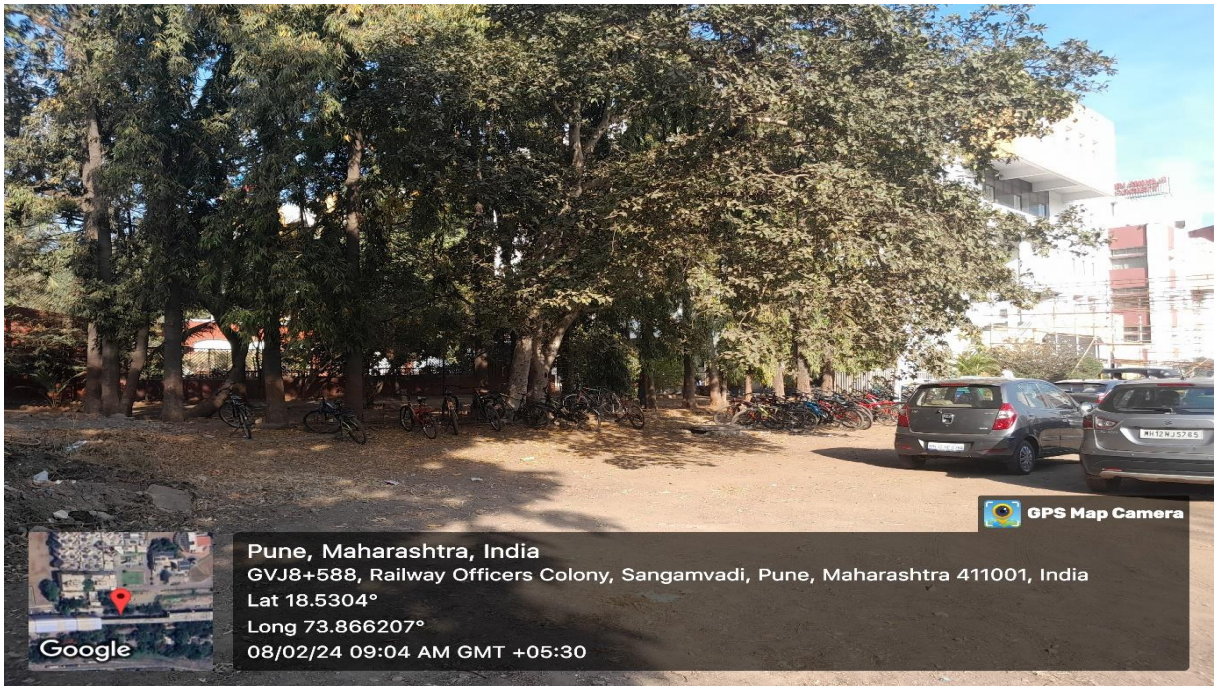
energy-efficient equipment for alternative energy sources while implementing conservation measures.

LED tube lights at the Conference Hall

3. Green & Clean Campus



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Green trees at Campus

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4. Metro Station near Campus.

As Metro station situated near the college campus, Students and staff use this facility.

Metro Station

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5.Promoting use of Bicycle

Students and staff uses bicycle

6. Awareness Signboards

Signboards for Do Not Use Carry Bag

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7. Climate Clock to aware stake holders about Global warming.

Climate Clock installed in the institute

7 Solar Energy Society of India (SESI) Green Award-2023

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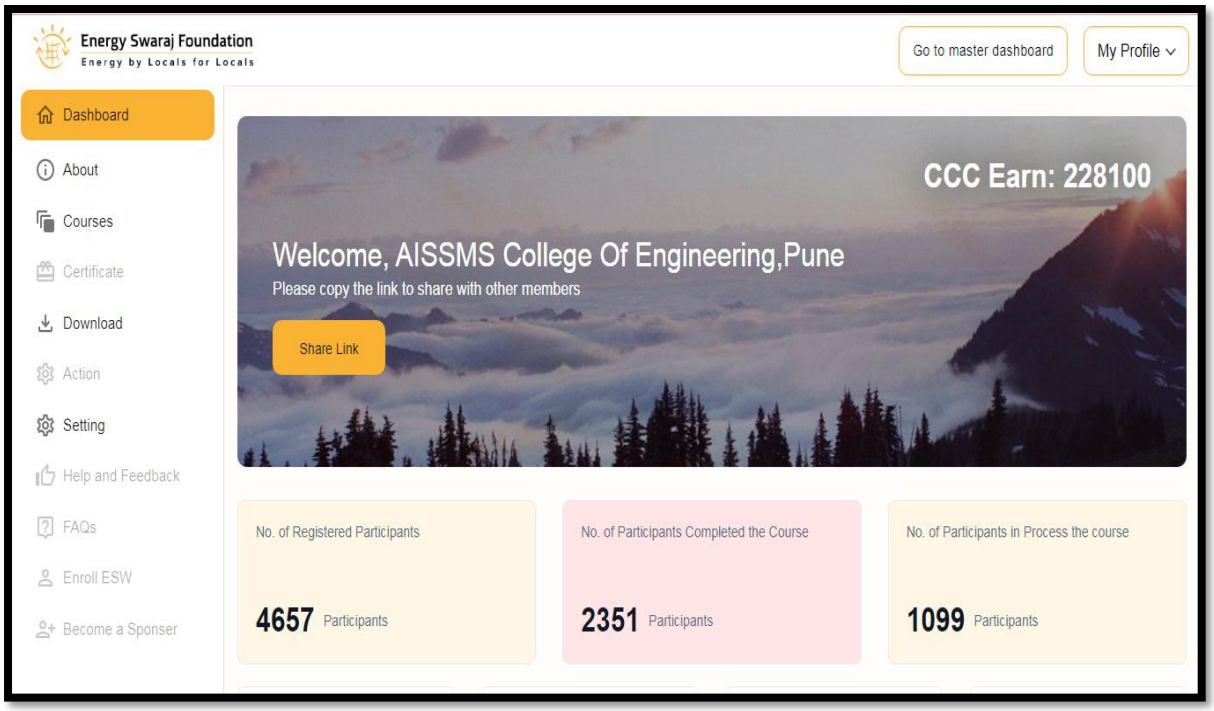
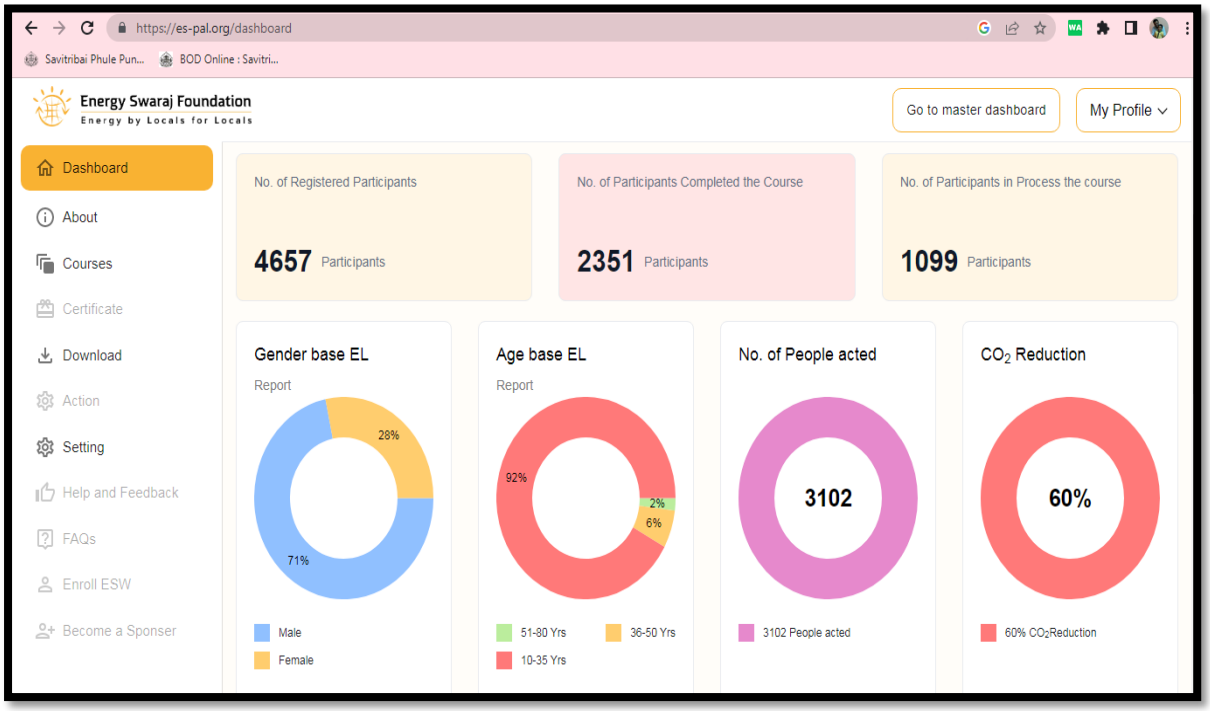
9. Energy Literacy Training (ELT) completed by AISSMS College of Engineering, Pune





Details of Energy Literacy Training (ELT)

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10.International Conference on Green Energy (ICOGE2023)

Flyer of International Conference on Green Energy (ICOGE2023)

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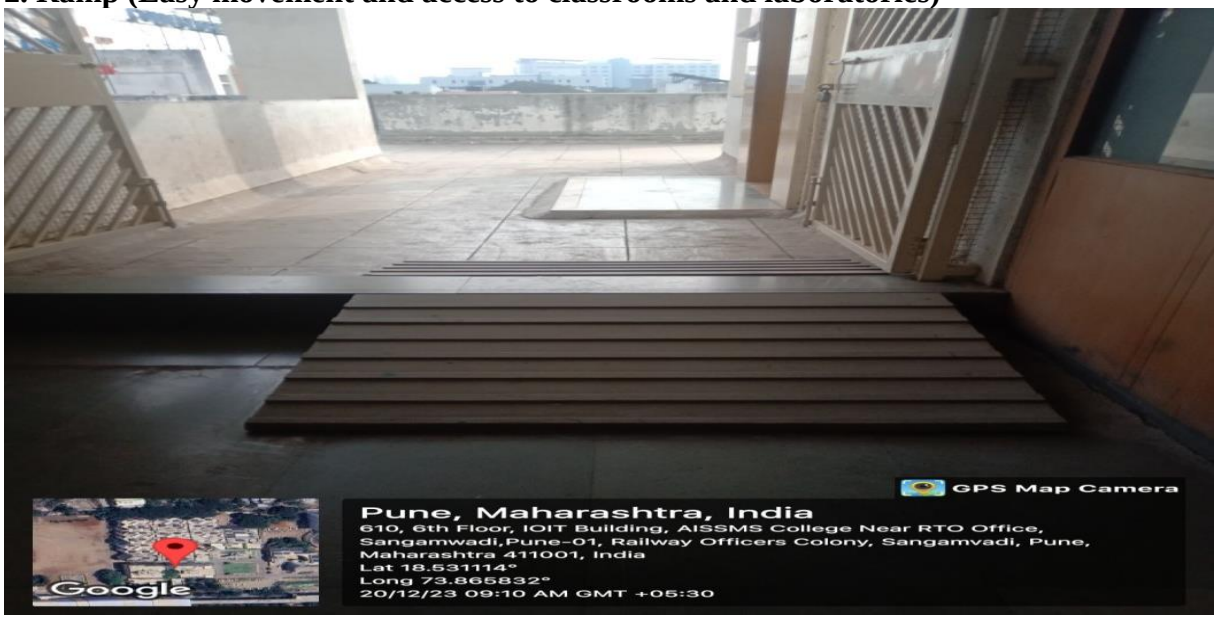
7.1.2.5. DISABLED-FRIENDLY (DIVYANGJAN), BARRIER FREE ENVIRONMENT

Creating a differently abled-friendly, barrier-free environment is a priority for our Institute. To make our facilities welcoming to Divyangjan we have designed thoughtful features that cater to diverse needs. A key element is the installation of elevator, providing easy access between floors for Divyangjan, including those using wheelchairs or facing challenges with stairs. Ramps have been strategically placed to offer smooth paths for using mobility aids, making it easier for them. Washrooms are equipped with handles for their help.

1. Wheel Chair for Divyangjan

Wheel Chair for Divyangjan

2. Ramp (Easy movement and access to classrooms and laboratories)



Ramp for Easy movement and access to classrooms

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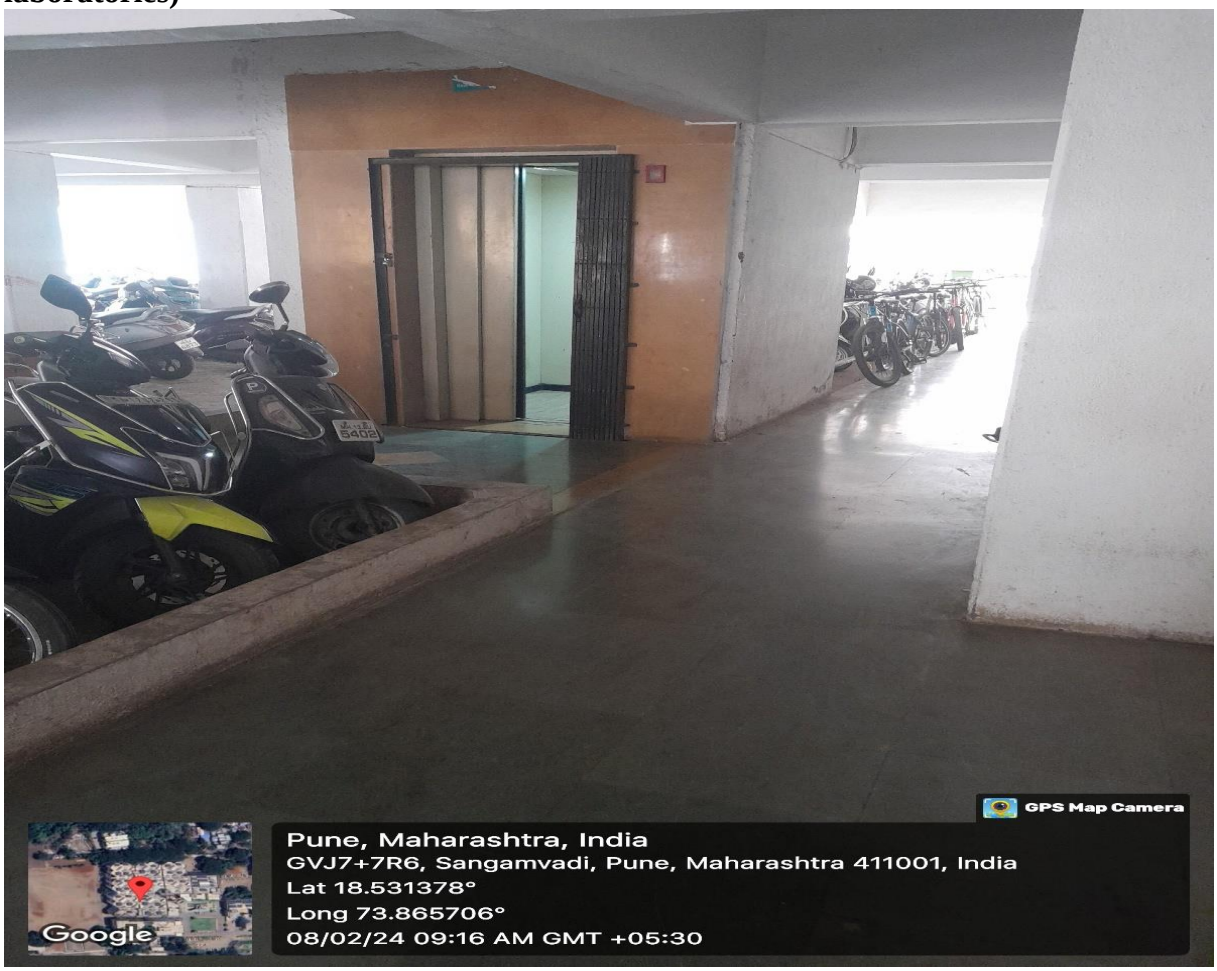
3. Provision for lift (Easy movement and access to classrooms and laboratories)



Lift at ground floor with passage for Divyagjan

Way to lift at ground floor

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Lift on the 1st floor

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4. Diyangjan accessible washrooms

5. Signage including tactile path, display boards and signposts

A Sign/Display boards

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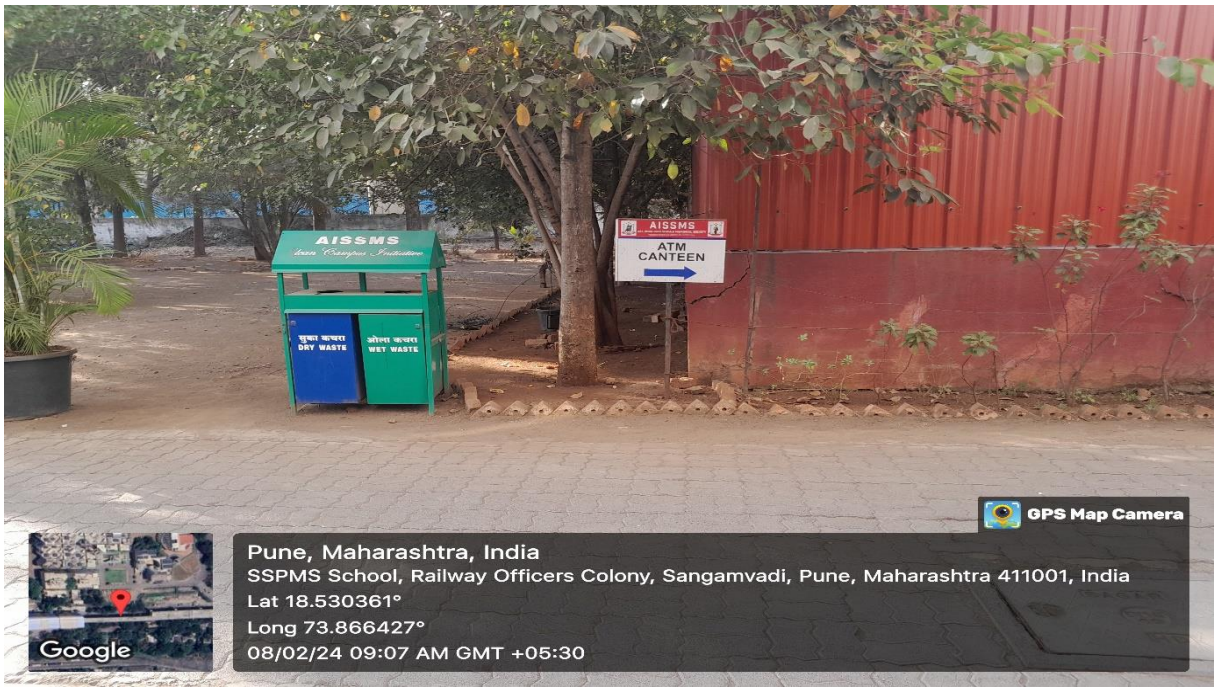
Sign board showing way to AISSMS COE



Sign board showing way to Canteen

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Principal

Sign board showing ways to various facilities

B Tactile Paths

A separate path is provided for walking

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Clean and tidy internal roads for vehicle movements

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