



ASSESSMENT REPORT

ON

GREEN & ECO-FRIENDLY CAMPUS

FOR

AJEENKYA D Y PATIL
SCHOOL OF ENGINEERING
LOHEGAON, PUNE, MAHARASHTRA

Prepared By
CAMPUS MARK

OUR CREDENTIALS: ISO-9001:2015, IGBC, MSME



Acknowledgement:

We at Campus Mark, Pune, express our sincere gratitude to the management of Ajeenkya D Y Patil School of Engineering, Lohegaon, Pune, Maharashtra for their support and co-operation during field study and certification.

Assessment Report on Green and Eco-Friendly Campus

Institute Name: Ajeenkya D Y Patil School of Engineering

Location: Lohegaon, Pune, Maharashtra

Year: 2024-25

Executive Summary

Ajeenkya D Y Patil School of Engineering demonstrates excellent efforts and initiatives to maintain a Green and Eco-Friendly Campus. The college does excellent work for waste management and water conservation. The college maintains a good amount of green cover ensuring good clean air for its students. The college arranges various trainings/awareness sessions to spread awareness about Green and Conservation practices amongst its students.

Distinction Factors:

- College has 80kWp Capacity Solar PV Plant generating 96000 kWh/year Renewable Energy.
- The Renewable Energy Solar Plant offsets 76.8 Metric Tons of CO₂ emissions in a year.
- The college has a big green cover further offsetting CO₂ emissions.

Note: Ajeenkya D Y Patil School of Engineering is situated in Dr. D Y Patil Group Ajeenkya D Y Patil University Campus in Lohegaon, Pune-412105, Maharashtra. The campus, which nests multiple colleges and buildings like engineering, dental college, school of Management, school of architecture, etc. is spread across 100 acres and hence, some resources are shared amongst different colleges within the campus.

Shared resources within the campus are:

1. Solar Plant
2. Trees and Green Cover
3. E-waste management
4. Organic waste management
5. Water supply

Exact energy consumption - purchased electricity and solar energy usage by school of engineering building is not available. Hence, we calculate energy consumption through connected load as per college energy audit reports and approximate the energy sources.



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I) Carbon Footprint

Carbon footprint is the total amount of Greenhouse Gas Emissions (GHGs) caused by an individual, organization, product or event.

Understanding and managing the carbon footprint is crucial for mitigating climate change and reducing environmental impact. By measuring carbon emissions, educational institutes can identify areas where they can reduce energy consumption, promote sustainability, and make informed decisions to minimize their contribution to global warming. Lowering the carbon footprint is essential for achieving climate goals and ensuring a healthier planet for future generations.

Maximum marks - 15

Observations

Sr No	Category	Type	Source	Amount/Qty (per year)	Unit	Emissions
1	Fossil Fuels	Generator	Diesel	10,000 (Total diesel use for entire campus is approx. 35000 ltrs.)	Liters	Scope 1
2	Electricity	Coal/Thermal	Purchased	85800	kWh	Scope 2
3	Electricity	Solar	Self-Produced	96,000	kWh	Scope 2
4	Fugitive	AC	--	7	Nos	Scope 3
5	Fugitive	Refrigerators	--	3	Nos	Scope 3
6	Water	Supplied Water	Supplied + Rainwater Harvested consumed	1,21,875 (Assuming 1 person consumes 125-liter water/day Total campus water consumption is approx. 7lakh liters per day)	cu.m	Scope 3
7	Waste	Solid + Organic	Generated	3,00,000 (Assuming 1 person produces 100kg waste/year in college)	Kg	Scope 3
8	Trees		Carbon Sequestration	750 (Total trees on campus is 3500. We assume surrounding green cover)	Nos	--

India aims to achieve a Net-Zero Carbon Economy by 2070.

Considering the importance of GHG reduction and carbon footprint management, the Central Government has established Indian Carbon Market (ICM) through the Carbon Credit Trading Scheme (CCTS). Within this scheme under the offset mechanism, an entity shall be able to trade its carbon credits (the amount of GHG emissions it saves through afforestation projects, clean energy projects, etc). Hence reducing your own carbon footprint, as well as mitigating the overall country's carbon footprint through carbon offsets is beneficial for the institute in terms of social and monetary value as well as betterment of the planet.

We calculate your institute's carbon footprint and measure your carbon offsets against carbon emissions.¹

Marking scheme is according to the percentage of carbon offsets

Carbon offset percentage:

0-10% - 4 marks

11-20% - 8 marks

21-30% - 12 marks

>30% - 15 marks

¹ We are majorly focusing on Scope 2 emissions (Electrical Energy) and few main Scope 3 emissions (water, waste & fugitive). Due to their complex nature of calculations, Scope 3 emissions which include personnel commute of students and faculty, production activities, procurement activities, etc are not considered as a part of this study.

Results²:

i) Total CO₂ Emissions: 301.97 Metric Tonnes/year

Component Wise CO₂ distribution:

Electricity produced: 26 MT/year

Electricity purchased: 77.22 MT/year

Water: 48.75 MT/year

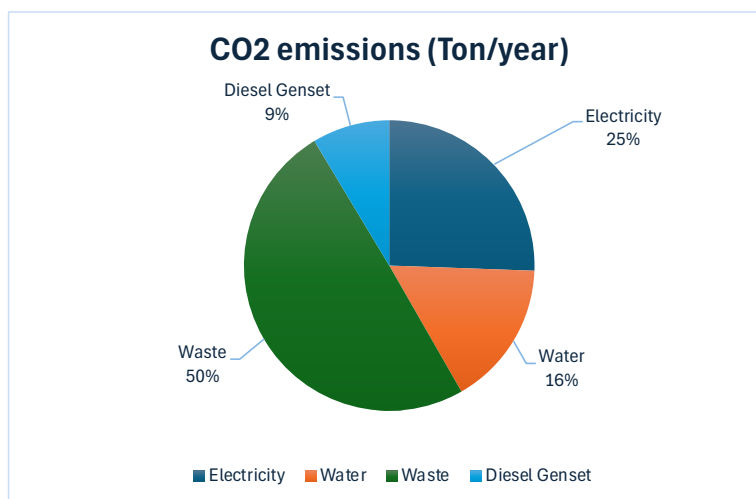
Waste: 150 MT/year

Scope Wise CO₂ Distribution:

Scope 1: (power generated): 26 MT/year

Scope 2 (purchased energy): 77.22 MT/year

Scope 3 (all others): 198.75 MT/year



ii) Total CO₂ offset: 95.55 MT/year

Offset due to Absorption of CO₂ by Green Cover: 18.75 MT/year

Offset due to Renewable Energy: 76.8 MT/year

iii) Net Carbon Footprint: 206.42 MT/year

The net carbon footprint is 206.42 MT/year

iv) Carbon Offset percentage = 31.64%

Note: The carbon footprint is calculated on an approximate basis since the college is part of a big 100-acre campus. Specific college data for energy consumption, water consumption, waste generation, solar power generation, etc is not available. Hence approximate values are taken considering college surrounding green cover, building rooftop solar, number of students and faculty, etc.

The overall campus has 3500+ trees and 650 kWp solar plant which helps in offsetting the total carbon footprint of the campus on a bigger scale.

² References for Carbon Footprint Calculations:

1. ISO 14064 – International Standard for Greenhouse Gas Emissions
2. Bureau of Energy Efficiency
3. CO₂ emissions factor:
 - a. Fossil fuels: 2.6 kg CO₂/liter consumed
 - b. Electricity: 0.9 kg CO₂/kWh electricity consumed
 - c. Water: 0.4 kg CO₂/cubic meter water supplied
 - d. Waste: 0.65 kg CO₂/kg waste in landfill
 - e. Waste: 0.4 kg CO₂/kg waste organic
 - f. Solar energy (offset): 0.8 kg CO₂ absorbed/kWh produced
 - g. Trees (offset): 25 kg CO₂ absorbed/year by a tree

II) Indoor Well-being, Health & Hygiene³

Classroom environment is directly related to students' well-being and performance. We measure various parameters related to classroom air quality, visibility, noise, drinking water quality and sanitation, which directly account for a cleaner, safer environment essential for maximum productivity.

Maximum Marks – 15

Observations:

Q. No	Category	Question	Observation/Value	Remarks	Marks Allotted	Marks Obtained
2.1	2. Indoor Well-being, Health and Hygiene	Air quality index	Max: 21 Min: 14	In Great Range (0-50) as per Central Pollution Control Board	3	3
2.2		Lighting intensity	Max: 278 Min: 175	Recommended LUX is 250-300 as per IS 10894: 1984 Code of practice for lighting of educational institutions LUX level little less due to cloudy conditions	3	3
2.3		Noise level	Max: 67.1 Min: 46.4	Required: Occupied Classroom: 45-60dB Unoccupied classroom: under 35dB as per WHO	3	3
2.4		Drinking Water PH level & TDS ppm	pH: 8.26 TDS: 11	Safe drinking: 6.5-8.5 Excellent: 50-150	3	3
2.5		Number of urinals and toilets for men (Total male students- 1800)	Urinals: 50 Toilets: 30	Required urinals: 45 1 per 40 pupils as per IS 1172: 1993	1.5	1.5
2.6		Number of toilets for women (Total female students - 1200)	Toilets: 50	Required toilets: 48 1 per 25 pupils as per IS 1172: 1993	1.5	1.5

Photographs:



Fig1: Classroom AQI



Fig2: Classroom LUX level



Fig3: Classroom noise level



Fig4: Drinking water pH & TDS



³ References for standards and benchmarks:

1. Central Pollution & Control Board (www.cpcb.nic.in)
2. IS 10894: Code of practice for lighting of educational institutions
3. World Health Organization (www.who.int)

IS 1172 (1993): Code of Basic Requirements for Water Supply, Drainage and Sanitation

III) Water Conservation & Management⁴

Water management and conservation in educational institutes are crucial for promoting sustainable practices and ensuring the responsible use of resources. By conserving water, educational institutes can reduce costs, minimize environmental impact, and set a positive example for students, fostering awareness and responsibility towards natural resources.

Maximum Marks – 15

Observations:

Q. No	Category	Question	Observation/Value	Remarks	Marks Allotted	Marks Obtained
3.1	3. Water Conservation	Does your institute have water-saving fixtures installed (e.g., low-flow toilets, faucets)?	Yes	Photos Attached	5	5
3.2		Does the campus have any highly efficient irrigation systems and techniques which help to keep evaporation loss minimized and plant health ensured	Yes, SMART irrigation facility with timer	Total 100-acre campus. The total Campus has drip irrigation to reduce evaporation	5	5
3.3		Does the campus have rainwater harvesting facility?	Yes	Rainwater used to replenish groundwater levels Photos Attached	5	5

Photographs:



Fig1: Rainwater Harvesting Pipe with sand filter



Fig2: Low water fixtures in toilets



Fig3: Drip Irrigation pipes

⁴ References for standards and benchmarks:

- IGBC (Indian Green Building Council) (www.igbc.in)
- LEED (Leadership in Energy and Environmental Design)
- BREEAM (Building Research Establishment Environmental Assessment Method)

IV) Waste Management⁵

Effective waste management in educational institutes is essential for reducing environmental impact, promoting recycling, and fostering a culture of sustainability among students. By implementing proper waste management practices, educational institutes can minimize waste generation, lower operational costs, and educate students on the importance of environmental responsibility.

Maximum Marks – 15

Observations:

Q. No	Category	Question	Observation/V alue	Remarks	Marks Allotted	Marks Obtained
4.1	4. Waste Management	Does your institute have separate bins to collect dry waste (paper, plastic, metals, glass, etc.,) and wet waste (Food)?	Yes, separate bins available	Waste is segregated at source and put into separate bins Photos Attached	5	5
4.2		In addition to dry and wet waste bins, does your university have separate bins for safe disposal of hazardous waste and e-waste, at the centralized facility?	Yes, proper methods and channels available for disposal of E-waste, paper waste, liquid waste	MOU available for safe disposal of E-waste. Biomedical waste is not generated. Chemical waste is not generated. Liquid waste is treated at 300 KLPD Sewage Treatment Plant Photos Attached	5	5
4.3		Does your institute have any composting facility for organic waste management?	Yes	Campus has extensive composting facilities.	5	5

Photographs:

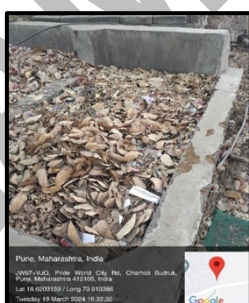
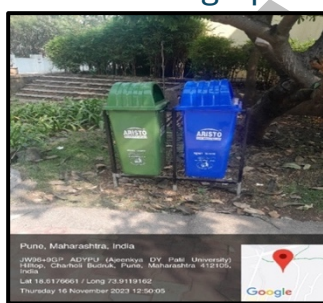


Fig1: Dry-Waste Bins

Fig2: Bio-composting Bed, vermicompost

Fig3: Liquid waste STP

Fig4: Biogas

⁵ References for standards and benchmarks:

7. Solid Waste Management Rules 2016 (central pollution control board)
8. E-Waste Management Rules 2016 (central pollution control board)
9. Plastic Waste Management Rules 2016 (central pollution control board)
10. IGBC (Indian Green Building Council)

V) Sustainable Transportation⁶

Sustainable transportation is vital for reducing carbon emissions, alleviating traffic congestion, and conserving energy. By promoting the use of eco-friendly transport options like cycling, public transit, and electric vehicles, educational institutes can improve air quality, reduce environmental impact, and enhance public health.

Maximum Marks – 10

Observations:

Q. No	Category	Question	Observation /Value	Remarks	Marks Allotted	Marks Obtained
5.1		Is your campus easily accessible by public transportation?	Yes	Campus accessible by public transportation	5	5
5.2	5. Sustainable Transportation	Is there any electric vehicle (EV) charging stations on campus? If so, how many and are they widely used?	Yes	EV charging stations available for two-wheeler electric vehicles. EV Car charging stations not available	5	5

Photographs:



Fig1: electric vehicle charging station

⁶ References for standards and benchmarks:

- Even though there is no set rule or standard for number of EV charging stations required per EVs in an educational campus, government encourages to set up EV charging stations within campus to promote electric vehicles.
- Bureau of Energy Efficiency – Revised Guidelines and Standards for Electric Vehicle Charging Infrastructure (www.beeindia.gov.in)

VI) Green Cover & Landscaping⁷

Green cover and landscaping in educational institutes are crucial for creating a healthy, conducive learning environment. They help reduce air pollution, lower ambient temperatures, and provide aesthetic and recreational spaces, while also promoting biodiversity and environmental awareness among students.

Maximum importance is given to maintain a good green cover throughout the campus.

Maximum Marks – 20

Observations:

Q. No	Category	Question	Observation/Value	Remarks	Marks Allotted	Marks Obtained
6.1	6. Green Cover and Landscaping	Total campus area (m ²)	16166 m ² (Approx area measured using google earth)	Green Cover: 37.11%	20	20
6.2		Number of trees	750	For dry region: 0-5% - 0 marks		
6.3		Tree covered area (m ²)	Approx 6000 m ² (tree cover + green cover)	5-10% - 5 marks 10-15% - 10 marks 15-20% - 15 marks >20% - 20 marks		
6.4		Are native plants used in landscaping to support local ecosystems?	Yes	Yes, native trees maintained		

Note: The college is part of big D Y Patil Ajeenkya University Campus. For our study, we are considering college building and nearby area and green cover. The total university campus area exceeds 30% green cover.

Photographs:

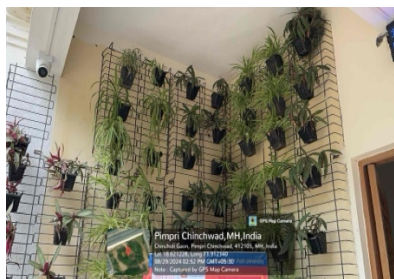


Fig1: Vertical plantation



Fig2: landscaping and Green Cover



⁷ References for standards and benchmarks:

- The recommended area of a college campus that should be under green cover typically ranges from 30% to 50%, depending on the size and location of the institution.
- There isn't a universally mandated standard that dictates the exact percentage of a college campus that must be under green cover. However, certain guidelines and certifications, such as **LEED (Leadership in Energy and Environmental Design)** and **GRIHA (Green Rating for Integrated Habitat Assessment)**, provide recommendations for sustainable site development, including green cover.

VII) Community Awareness & Engagement

Creating awareness and engagement activities, along with training on green campus initiatives, is crucial for fostering a culture of sustainability within educational institutions. These efforts empower students, staff, and faculty to actively participate in environmental conservation, promote sustainable practices, and ensure the long-term success of green initiatives on campus. Engaging the campus community in such activities helps build a shared commitment to sustainability, encouraging behaviour changes that reduce the institution's environmental footprint.

Maximum Marks – 10

Observations:

Q. No	Category	Question	Observation/ Value	Remarks	Marks Allotted	Marks Obtained
6.1	6. Community Engagement and Awareness	Does the institute participate in or support local or regional conservation efforts?	Yes	College helps in conducting tree plantations programs	5	5
6.2		Are there any awareness campaigns within campus to improve green cover and maintain green campus?	Yes	College has various boards and signs within campus to maintain green clean campus.	5	5

Photographs:



Fig1: Tree plantation program



Fig2: Green Campus Awareness

VIII) Evaluations

Evaluation Criteria:

Silver Level – For colleges with less than 1000 students

Gold Level – For colleges/universities with more than 1000 students

The college is evaluated against Gold Level Standards. Gold Level standards are set for colleges with students more than 1000 or area more than 10 acres to ensure the college efforts and practices are assessed fairly with respect to its size and resources.

Section No	Category	Maximum Marks	Marks obtained
1	Carbon footprint calculations	15	15
2	Indoor Well-being, health and hygiene	15	15
3	Water Conservation	15	15
4	Waste Management	15	15
5	Sustainable Transportation	10	10
6	Green Cover and Landscaping	20	20
7	Community Engagement and Awareness	10	10
	Total	100	100

STAR RATING:

The Campus has secured 100 marks out of a total of 100 and a **GOLD LEVEL 5 STAR RATING** for their Green and eco-friendly initiatives and processes.

Grading Rubric:

STAR RATING	
Marks	STAR
0-49	0
50-59	★
60-69	★★
70-79	★★★
80-89	★★★★
90-100	★★★★★

IX) Recommendations

Below are some easy-to-implement recommendations to enhance your Green & Eco-Friendly Campus

1. Communication from Top Management:

One of the essential pillars for bringing the change to create an Energy Efficient Campus is a push and involvement from Top Management.

- a. The Top Management (Principal/Director/etc.) should send an email to its staff and students highlighting both its achievements and a call to action to strive for more.
- b. Send the Energy Conservation Policy of the College to all staff, faculty and students.
- c. The college can provide some rewards of recognition to staff and faculty who helps in creative ways to save energy and improve sustainability initiatives.

2. Awareness:

College should create awareness about the importance of Energy Conservation, Sustainability and Green initiatives amongst its staff, faculty and students.

- a. Put up posters about energy conservation, water conservation, waste management, recycling and trees conservation throughout the campus.
- b. College should arrange awareness sessions about importance of energy conservation, carbon footprint and sustainability at least once a year.
- c. It will also contribute towards to college's CSR activities.

3. 'Green' gifts

College can provide gifts/rewards/tokens to its faculty, guests and even students which promote zero waste, plastic free, and sustainable practices. See below (links provided)

- a. [Plantable Pencils](#)
- b. [Plantable Stationary](#)
- c. [Metal bottles to replace plastic ones](#)
- d. Plant Saplings

X) Conclusion

Ajeenkya D Y Patil School of Engineering demonstrates excellent efforts and initiatives to maintain a Green and Eco-Friendly Campus as observed in the above report. All these efforts lead to an Energy Efficient Campus with a 5 STAR RATING as per Campus Mark Standards.



For Campus Mark
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