



**GREEN AUDIT REPORT
FOR
JAIPUR ENGINEERING COLLEGE AND
RESEARCH CENTRE**



Elion Technologies & Consulting Private Limited

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Acknowledgment

Elion Technologies and Consulting Pvt Ltd places on record it's thanks to Jaipur Engineering College and Research Centre, Rajasthan for entrusting the task of conducting green audit study.

We acknowledge with gratitude the whole hearted support and cooperation extended by all team members while carrying out the study.



Site Information

Name of College	Jaipur Engineering College And Research Centre
College Address	Opp. Epip Gate, Near Sanganer Sadar Thana Tonk Road Jaipur, Rajasthan, 302022
Execution Partner	ELION Technologies & Consulting Pvt Ltd
Communication Address	307, 3rd Floor DDA Lal Market H-Block Vikas Puri, New Delhi - 110018
Date of Audit	17 th December 2024
Year of Audit	2024-2025
Audit Participants from Site	Mr. Mukesh Kumar Agrawal Mr. Yogendra Sharma Mr. Neeraj Prakash Shrivastava Mr. Sumit Saini Mr. Rajesh Mr. Ramsevak
Total College Area	10.54 Acre
Total Green Area	5.58 Acre



Overview of Institute

A journey of Two decades for JECRC, having more than 4000 students on campus under 7 UG programs, has earned laurels to their students, faculty members and for the institute in many ways. More than 10000 alumni's spread over the globe has climbed the ladder to leadership positions and providing mentorship to their juniors by way of skill development, incubation, startup, research and angel funding. Faith by government agencies for providing grant of more than 2 crores for setting up centre of excellence, state of art facilities for startup & incubation and providing platform to the students to develop their technical and managerial skills that is helping students to get placement in a reputed organization. Contribution towards International publications, technical activities, co-curricular activities by faculty members, students and delivery of Outcome based education is recognized by National Board of Accreditation and AICTE.

Socially rich atmosphere at the campus enabling fourfold grooming of students that is recognized at National and International level and enabling students to work as interns with personalities recognized in their field of expertise. JECRC has become synonymous to placements and JECRCians have made their presence felt at every reputed company / government organization. To improve the quality of teaching learning, the institute on regular basis is getting the appreciations from Government and Non Government Organizations viz., NITTTR Chandigarh, National Board of Accreditation, Rajasthan Technical University, AICTE, ASSOCHAM, Computer Society of India, The Week, Outlook, India Today etc. and two programs Mechanical Engineering and Electronics & Communication Engineering are accredited by the National Board of Accreditation for providing outcome based education.

Our Vision

Vision To become a renowned centre of outcome based learning, and work towards academic, professional, cultural and social enrichment of the lives of individuals and communities.

Our Mission

- Focus on evaluation of learning outcomes and motivate students to inculcate research aptitude by project based learning.
- Identify, based on informed perception of Indian, regional and global needs, areas of focus and provide platform to gain knowledge and solutions.
- Offer opportunities for interaction between academia and industry.
- Develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a range of professions.

List of courses offered by the institute:

- B.Tech In Computer Science & Engineering
- B.Tech In AI &DS
- B.Tech In CSE(AI)



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- B.Tech In Information Technology
 - B.Tech In Mechanical Engineering
 - B.Tech In Civil Engineering
 - B.Tech In Electronics Engineering
 - B.Tech In Electrical Engineering



Introduction

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of institute. It aims to analyze environmental practices within and outside of the concerned place, which will have an impact on the eco-friendly atmosphere. Green audit is a valuable means for a college to determine how and where they are using the most energy or water or other resources; the college can then consider how to implement changes and make savings. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students' better understanding of Green impact on campus. If self-enquiry is a natural and necessary outgrowth of a quality education, it could also be stated that institutional self-enquiry is a natural and necessary outgrowth of a quality educational institution. Thus it is imperative that the college evaluate its own contributions toward a sustainable future. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent.

The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institutes which will lead for sustainable development and at the same time reduce a sizable amount of atmospheric CO₂ from the environment. The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory that all Higher Educational Institutions should submit an annual Green Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through carbon footprint reduction measures.

Advantages of Green Audit:

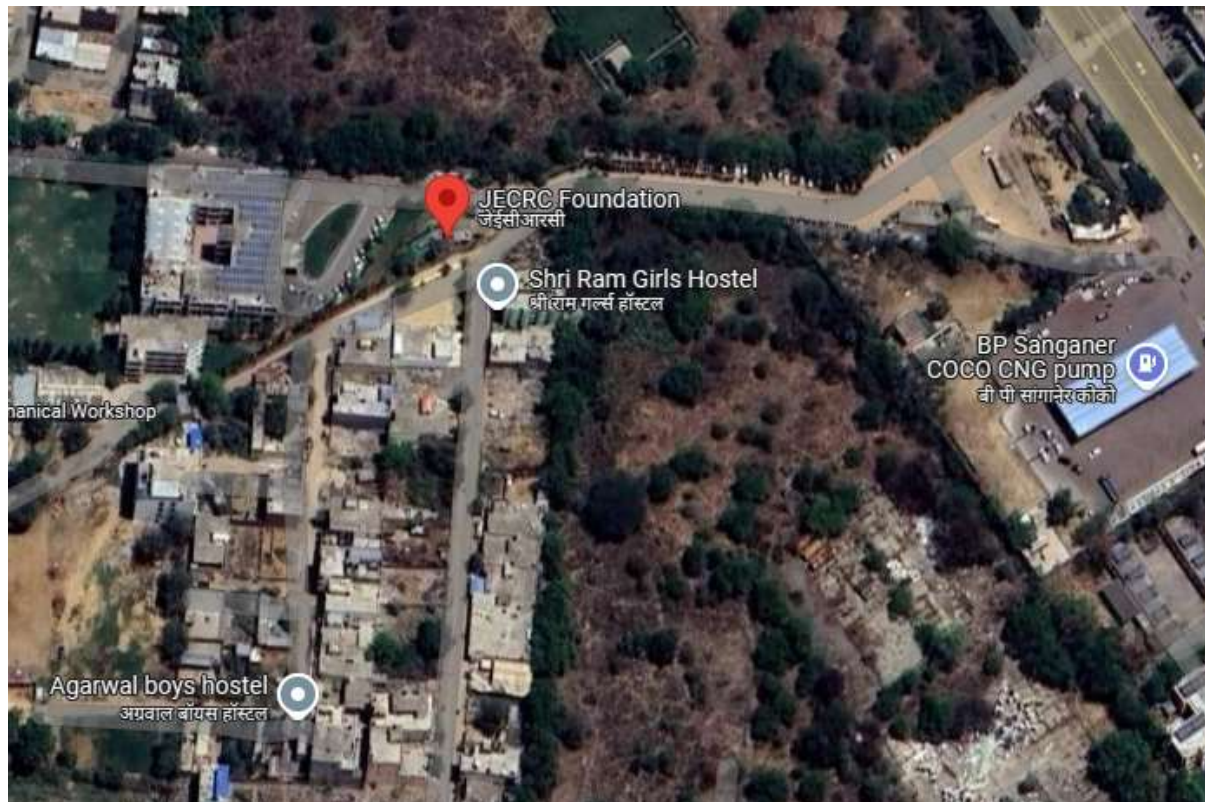
Green Audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India that declares the institutions as Grade A, Grade B or Grade C according to the scores assigned at the time of accreditation. Some main advantages of green Audit are:

- It helps to shield the environment.
- Minimizing the waste and managing the cost.
- Authenticate conformity with the implemented laws.
- Minimizing the energy consumptions and focus on green and clean energy.
- Ambient Environmental Condition.
- Awareness and Training on Sustainability for Students.
- Awareness about environmental guidelines and duties.

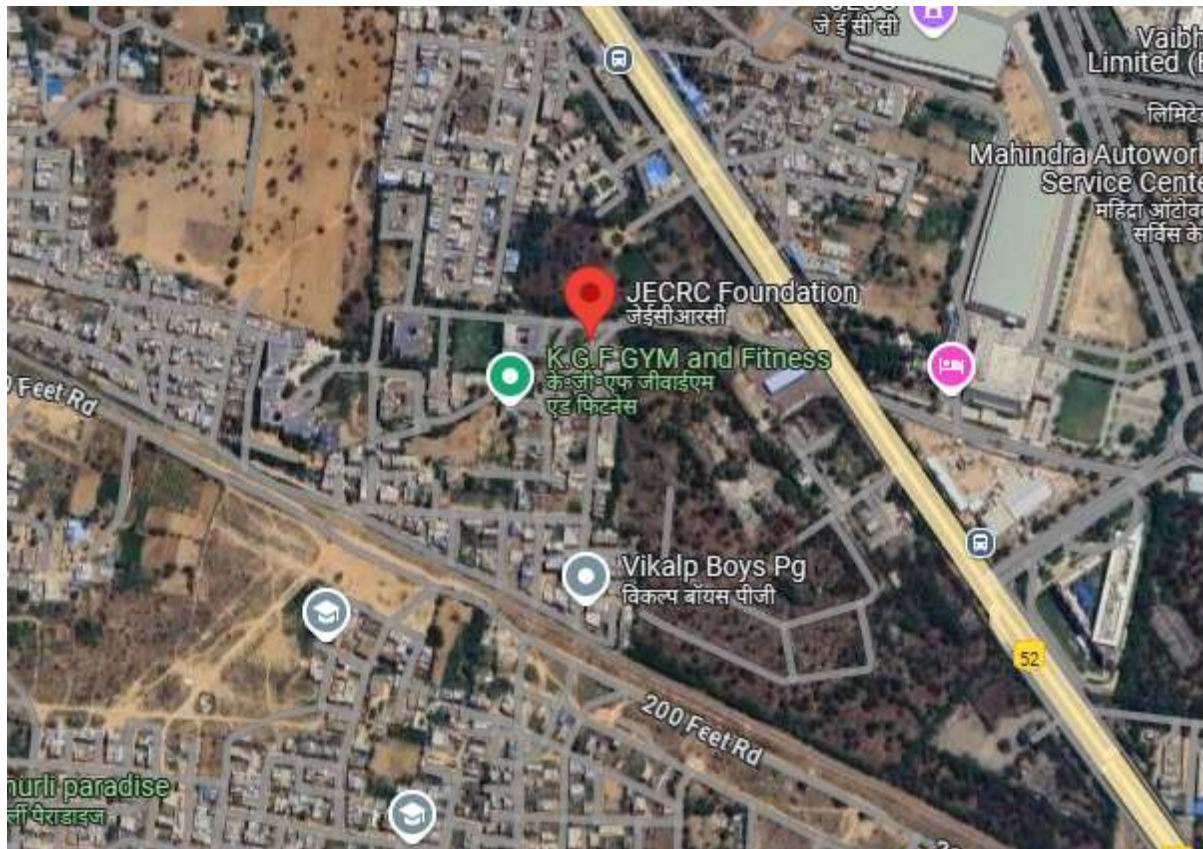


Environment Setting

The land use around the campus is mix of commercial and residential use. Schools, Restaurants, Commercial complexes, restaurants and industries are present around the campus.



Jaipur Engineering College And Research Centre



Location of Jaipur Engineering College And Research Centre



Green Audit

For Green Audit following 13 major areas (including their subsections) were covered and compliance/ initiatives under these areas were verified/ validated.

- a) Good Daylight Design and Ventilation
- b) Water Efficiency
- c) Wastewater Management
- d) Indoor Air Quality
- e) Energy Efficiency
- f) On-site Energy Generation
- g) Temperature and Acoustic Control
- h) Paper Waste Management
- i) E-Waste Management
- j) Canteen and Solid Waste Management
- k) Universal Access and Efficient Operation and Maintenance of Building
- l) Green Belt
- m) Green Programs (Green initiatives)

3.1 Good Daylight Design and Ventilation

- a) Corridors are wide with good ceiling height. All the corridors receive good daylight.
- b) Classrooms, Labs and Library have large windows. Adequate daylight is received through the windows during daytime.
- c) Classroom walls, corridors and labs are white-washed, this enhances the daylight received.
- d) Laboratories and washrooms are provided with exhaust fans to disperse heat, fumes and odors.
- e) Stair cases receive daylight through windows provided at various levels.
- f) Curtains are provided on some of the windows to avoid glare.



Laboratory



Classroom



Staircase



Corridor



3.2 Water Efficiency:

- a) Groundwater is the source of water supply in the campus.
- b) Groundwater is stored in an underground tank

Location	Tank Capacity (Liters)	Type (Underground/Overhead)
B-Block	70000 litre	Underground water tank

- c) For drinking, water coolers are provided at various locations.
- d) Normally mops are used for floor cleaning and hose is used for cleaning once a week.
- e) Dual flushing system is provided in the washrooms.
- f) Signages are provided in washrooms emphasizing water conservation.
- g) Water from air conditioning unit and reject water from water purifiers is used for watering plants and trees in the garden.
- h) Rain water harvesting system is available and rainwater is stored in a tank and reused further as and when required.



Borewell



Tank



Water Cooler



Faucets used in Washroom

3.3 Wastewater Management:

- Water treatment plant or water recycling plant is available in the campus.
- Treated water from the STP is used in the garden.



Tank for STP

3.4 Indoor Air Quality;

Indoor Air Quality (IAQ) refers to the air quality within and around buildings and structures, as it relates to the health and comfort of building occupants. Some common indoor pollutants are listed as below:

- Molds and other allergens – This may arise from water seeping into the building envelope or skin, plumbing leaks, condensation due to improper ventilation, or from ground moisture penetrating a building part.
- Carbon monoxide – Sources of carbon monoxide are incomplete combustion of fossil fuels.
- Volatile organic compounds (VOCs) – VOCs are emitted by paints and lacquers, paint strippers, pesticides, office equipment such as copiers and printers, correction fluids



and carbonless copy paper, graphics and craft materials including glues and adhesives, permanent markers, and photographic solutions etc.

- Carbon dioxide – Due to human respiration
- Particulate matter – Due to construction and maintenance activities

Major observations under indoor air quality are as below:

- a) Split Air Conditioner, Window AC and Tower AC is used in the college.
- b) Indoor plants are present in the campus. Indoor plants can be plotted not only for the aesthetic appearance but also for health benefits. Refer Annexure 1 for details.
- c) Indoor air quality testing is not conducted using proprietary equipment. It is advised to retain documentation for these assessments.
- d) Exhaust fans are provided in washrooms to dissipate heat and odour.



Indoor Plants



AC

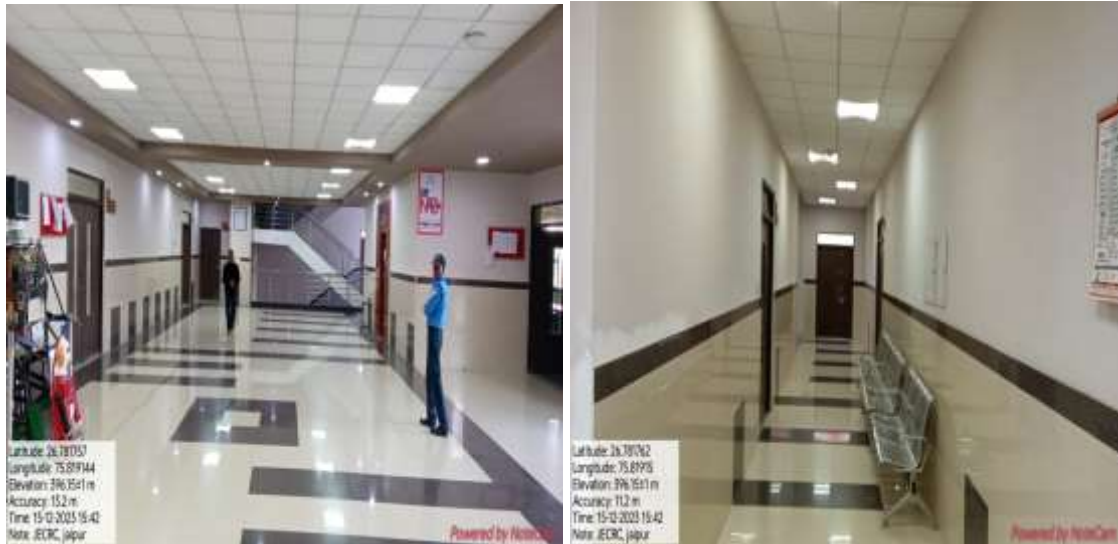
3.5 Energy Efficiency:

The major electricity consuming equipment installed in the campus are Air Conditioners, Water Coolers, Lighting, Desktop, Printers etc.



It was observed that:

- a) LED lights are installed in the entire campus.
- b) Campus has air conditioners which are in good working condition.



3.6 On Site Energy Generation (usage of LPG/ Natural Gas):

- a) LPG is used for cooking in canteen/pantry.
- b) Yes, Diesel Generator available in the campus.



DG set



3.7 Temperature and Acoustic Control

- a) White washed rooms & corridors and white/off-white flooring improve the lighting conditions.
- b) The campus has done tree plantation front of the building, garden and play garden.
- c) There is no noise pollution inside and around the campus.



Trees and Plants in JECRC Campus



Parking Area



Main Gate



Playground Area

3.8 Paper Waste Management:

Being academic institution, waste paper is the main solid waste generated in the premises. The College has taken steps to minimize and avoid paper usage. It was observed that:

- Prints and photocopies are taken on both sides of the pages to avoid excess paper usage. Rather than photocopy, digitalization (scanning) is practiced.
- Internal notices and communications are through E-mail/WhatsApp.
- Faculty and administration staff uses old papers and envelopes for internal usages as rough work, file markers, page separators etc.
- Old papers and answer sheets are kept in a separate storage room and disposed off as per college policy.



Communication by Emails

3.9 E-Waste Management:

- a) No such e-waste is generated in the campus.

3.10 Solid Waste Management:

It was observed that:

- a) Wet waste and dry waste segregation is practiced in the premises. Separate bins are provided for wet biodegradable and dry recyclable waste.
- b) Septic tank and soak pits are used for liquid waste.
- c) The daily waste is collected and disposed off through contractual vendors.
- d) Biodegradable waste is mainly generated in canteen.





3.11 Universal Access and Efficient Operation and Maintenance of Building:

It was observed that:

- College is easily accessible. Staircase and ramps are provided for staff and students.
- Since the access and staircases are wide and uncluttered, it is possible to have a safe evacuation during emergency.
- Fire extinguishers and Fire hose reel are provided for emergency. They are inspected and serviced by fire protection Service Company annually.
- Directional exit signages and floor markings are present on every floor of the campus.
- Regular Fire Safety Trainings is given to staff and students on annual basis.



Ramps



Staircase



Signages



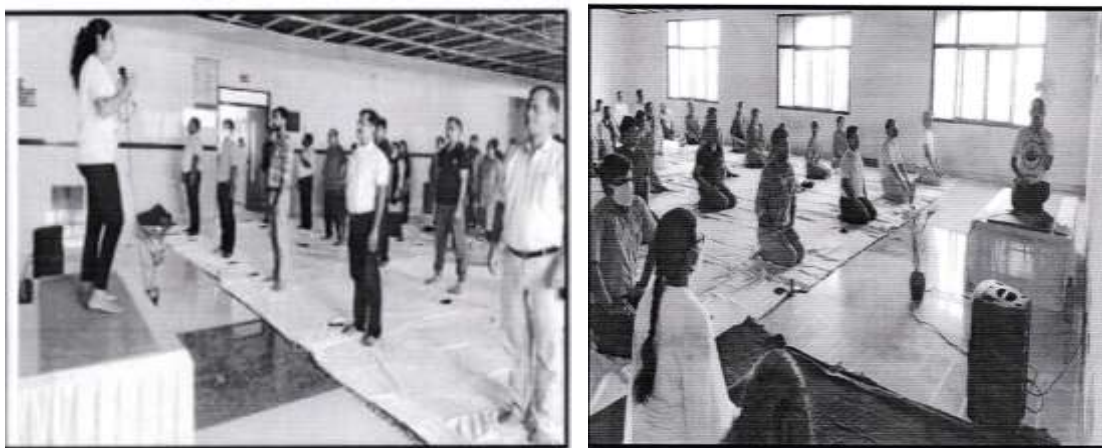
Fire Extinguisher

3.12 Green belt/ Landscaping:

- a) Large trees and plants are planted in the premises. Plantation also helps maintaining lower temperatures of the area.

3.13 Green Initiatives:

College is regularly celebrating important days such as Environment Day, Yoga Day, Earth Day etc as well as other cultural programs.



Yoga Day Celebration



Glimpses of the Event



Tree Plantation on World Environment Day

The team eagerly awaits the arrival of the guest, ready to extend a warm welcome.



World Nature Conservation Day



Solar Panel



Recommendations/Suggestions

For Improving Energy Consumption:

- a) Every classroom and lab with central switch board can have a diagram linking location of a tube light, fan etc. with corresponding switch. This will ensure that correct fitting is switched on/ off and can save time & unnecessary operation.
- b) Installation of automatic lights with sensors can be considered.
- c) Standard Operation Procedures (SOPs) should be prepared and followed for green purchasing. Equipment with star rating, using eco-friendly materials; with safe disposal policy to be preferred. Policy of returning equipment at the end of life span to the supplier to be preferred.
- d) For purchasing new electronic appliances, star rating provided by Bureau of Energy Efficiency (BEE) should be considered. The equipment which has maximum star ratings could be purchased, which will consume less energy, ensure environmental sustainability and also operate at low cost.
- e) Usage of light reflectors is recommended as the reflectors can spread light to relatively large areas.
- f) If possible, computers should be switched off from main power connections.
- g) Notices/signages can be put up/displayed near switches and on notice boards, informing students and staff to switch off all electricals when not in use.
- h) Control sensors can help to reduce consumption by automatically dimming lights when people are not around, and keeping blinds open to use natural light & reduce energy consumption.
- i) Raise awareness:
 - Encourage students to help in monitoring energy consumption & implement corrective actions.
 - Integrate energy education into classroom learning.

Water Conservation:

- a) Provide information on water usage and savings to students/ staff through notices, screen savers in computer labs.
- b) Dry sweep or use a sponge broom, when possible, instead of using a hose to clean floors, sidewalks, or other hard surfaces.
- c) Minimize/ reduce water usage by installing water saving faucets such as pressmatic taps, tap aerators, jet sprays etc.
- d) Installation of waterless urinals can be considered to reduce water consumption.
- e) Water balance diagram can be prepared to quantify the water consumption by installing water meters at key points. Based on data gathered, appropriate measures can be taken to reduce the water consumption.



Paper and other Solid Waste Reduction:

- a) Inventories of all solid waste generated in the premises must be maintained.
- b) Enhance recycling. This can be done by creating a group where students can recycle books, personal clothes and other material to needy students. This can be an initiative under green program.
- c) Standard Operating Procedures (SOP) for Solid and E-waste management and for recycling of waste should be prepared & practiced. The SOP's may include collection, segregation and reuse of different types of wastes, if any (e.g. biodegradable waste for composting). This will help in safe disposal of waste to recycle agencies.
- d) Training as well as awareness programs should be organized on segregation of biodegradable waste and recycling of waste. Efforts should be taken to inform students about recycling options and signs should be posted on appropriate bins indicating what could be dumped in each bin.
- e) The college can introduce online app, which can be useful for conducting internal exams, assignment/ reports submission. This system can also be used for displaying important notices, timetables.
- f) Paper usage shall be monitored to understand the impact of digitization in the facility.

Others:

- a) Water from air conditioning unit and reject water from water purifiers is not used anywhere, same should be utilized.
- b) Indoor Air Quality tests have not been carried out. Same needs to be carried out at least once a year.
- c) Environmental advisory committee could be formed. The discussions/ information sharing among different departments can generate lot of ideas and awareness on green issues.
- d) Maintain minutes of meetings of environmental committees; evaluate the effectiveness of various environmental programs conducted by the institutes. Set annual targets for Green Initiatives & monitor them closely. Create 'Green Champions'.
- e) Since each student uses computer lab, the screen savers can be set up for creating environmental awareness. (Ergonomics, water conservation etc.). Short 30 second pop up can be displayed on computer screens when they are on standby mode. Or wallpapers informing students about environment conservation can be created.
- f) Consider detailed energy audit (energy consumption, thermal emission, visual comfort) and water audit.
- g) Adopt environmentally responsible purchasing policy, and work towards creating and implementing a strategy to reduce environmental impact of its purchasing decision.



Annexure 1 – Indoor Gardening Details

Indoor plants are commonly used for their aesthetics benefits but they also have vital role reducing airborne pollution. The right choice of plants can be an excellent way of improving indoor air quality and general health. Local landscape contractor can be contacted for supply and rotation of these plants.

Plants	VOC it removes	Indoor source of VOC's	Plant care
 Aloe Vera	Formaldehyde, Trichloroethylene and Benzene	Chemical based cleaners and paints	Easy to grow with enough sunlight
 Bamboo Plant	Formaldehyde, Trichloroethylene and Benzene	Paints, Plastics, Wood products etc.	Thrives under low light conditions as well as easy to maintain
 Chinese Evergreen	Benzene	Paints	Low maintenance plant that prefers low light conditions.



 English Ivy	Formaldehyde, Benzene, Air borne fecal matter particles	Wood, Paper products, Air borne fecal – matter particles from pests	Easy to maintain
 Janet Craig	Formaldehyde, Benzene and Trichloroethylene	Paints, Plastics, Wood products etc.	Medium to low light tolerant plant. Requires little water for growth.
 Golden Pothos or Devils Ivy	Formaldehyde, Cleanses air	Exhaust fumes, carpeting materials, panelling and furniture products made with particle board	Extremely easy to maintain under low to bright light conditions. Fast growing and grows well under Fluorescent light.
 Mass Cane	Formaldehyde, benzene and trichloroethylene	Paints, Plastics, Wood products etc.	Medium to low light tolerant plant. Requires little water for growth.



 Snake plant	Formaldehyde and trichloroethylene	cooking fuels, wood products, facial tissues, personal care products and waxed papers	Drought resistant and Tolerates a variety Of light conditions. Hard to damage or kill.
 Peace Lily	Formaldehyde, benzene and trichloroethylene	Paints, Plastics, Wood products etc.	Relatively easy to maintain. Survives in low light conditions.
 Red-edged Dracaena	Formaldehyde and trichloroethylene	cooking fuels, wood products, facial tissues, personal care products and waxed papers	Drought resistant and Tolerates a variety of light conditions. Hard to damage or kill.
 Spider Plant	Formaldehyde, benzene, carbon monoxide and xylene	cooking fuels, wood products, Printing	Easy to maintain under medium to bright light condition.



 Parlor Palm	Purifies indoor air	-	Easy to maintain
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