REPORT OF GREEN AUDITING

About the GITS:

The Geetanjali Institute of Technical Studies was established under the Registration of Society Act to work on the objective to provide quality education in the region and around. GITS is affiliated to Rajasthan Technical University Kota and offering courses in engineering, MBA & MCA. The campus has an area of about 26 acres, located on NH 76 in Dabok.

OUR VISION & MISSION

The GITS has set its goal through notifying and dissipation of its vision and mission statements. The statements have been dynamic in nature and last revised in 2017 following laid down procedure.

Our Vision

To achieve excellence in technical and management education through quality teaching and innovation.

Our Mission

- ***To provide an excellent learning environment to produce socially responsible and productive technical professionals.***
- ***To set up the state-of-the-art facilities for quality education and innovation.***
- ***To impart knowledge & skills leading to shaping a budding manager as a quality executive.***
- ***To encourage for life-long learning and team-based problem solving through learning environment.***

Routine Green Practices:

Celebration of the **World Environment Day – June 5:**

Every year, the day is celebrated to create awareness among the staff & students by holding talks, seminars or rallies on various environmental problems. Sometimes trees are also planted on the day.

Ozone Day – September 16:

The activities conducted included rallies, talks and holding competition among the students. Conducted poster competition, invited experts for lectures etc. The campus has been declared as a 'No Plastic' zone.

World Water Day - April 10:

The students present their views on need of saving water and harvesting rain water and visit to the nearby houses and talk and educate people about the importance of water and saving of water.

Course on Environment Education:

All the students of I year in Under-Graduate Programmes compulsorily study a course on Environmental Education, which included topics on air, water, solid waste and various practices with their impact.

Definition:

The assessment and study of the environmental performance is termed as Green Audit, which is achieved through a systematic, documented, periodic and objectively review. It is otherwise the systematic examination of the interactions between any operation, living being and its surroundings. This includes all emissions to air; land and water; legal constraints; the effects on the neighboring community; landscape and ecology; the public's perception in the local area. The Green Audit is a total strategic approach conducted objectively to obtain and evaluate evidence &correspondence between assertions and established criteria on organization's activities.

Objectives of this Green Audit:

1. To bring on record the activities on the campus and their effect on the environment.
2. To assess the impact of environment related activities carried out and their impact.
3. To identifying problems, detecting any leakage, spills or other such problems associated with the campus activity.
4. To formulate the environmental policy for the campus.
5. To identify environmental management system and their effectiveness.
6. To educate stakeholders about the environmental performance and future plan.

Pre-Audit Stage:

A pre-audit meeting was held on 13th June, 2019 with the members of the Quality Council of Geetanjali Institute of Technical Studies. Both sides agreed on the scope and objectives of the audit and discussions were held on the process associated with the audit. This meeting was seen as an important prerequisite for the Green Audit because it is the first opportunity to meet the persons responsible for maintaining the environment and to formulate environment related policies. The meeting was an opportunity to gather information required for making audit plan, which was finalized in the presence of the host institution.

Scope and Goals of Green Auditing:

A clean and healthy environment aids effective learning and provides a conducive learning environment to the students. There are various efforts around the world to address environmental education issues. Green Audit is the most efficient and ecological way to manage environmental. It is a kind of professional care which is the responsibility of each individual who are the part of economic, financial, social, environmental factor. It is necessary to conduct Green Audit in college campus because students become aware of the Green Audit, its advantages to save the planet and they become good citizens of our country. Thus, Green Audit becomes necessary at the college level. A very simple indigenized system has been devised to monitor the environmental performance of college. It comes with a series of questions to be answered which are innovative and user-friendly but totally voluntary. It is aimed to help the institution to set environmental examples for the community, and to educate the young learners.

Benefits of the Green Auditing:

- It leads to efficient resource management.
- It will create a basis for sustainability.
- The outcome will create awareness to make the campus green.
- Set to achieve the policy of zero waste through effective waste management
- To make the campus plastic free.
- To create awareness and make the users health conscious.
- Results in recognizing the cost- saving methods through waste minimizing and managing.
- Create awareness to make campus in conformity with the implemented laws.
- Make the organizations to achieve a better environmental performance
- Enhance the alertness for environmental guidelines and duties.
- Impart environmental education through systematic environmental management approach and improving environmental standards.
- Benchmarking for environmental protection initiatives.
- Development of ownership, personal and social responsibility for the society, college and its environment.
- Enhancement of college profile.
- Developing an environmental ethic and value systems in youngsters.

- Green auditing should become a valuable tool in the management and monitoring of environmental and sustainable development programs of the college.

Procedure adopted for Green Auditing of GITS Campus:

Green Audit forms part of a resource management process for the campus. Although they are individual events, the real value of green audits is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time. Eco-campus concept mainly focuses on the efficient use of energy and water; minimize waste generation or pollution, recycling of wastes and also economic efficiency.

All these indicators are assessed in process of "Green Auditing of GITS Campus'' located at Dabok, Udaipur. The aim is to ensure the eco-campus focuses on the reduction of contribution to emissions, supports cost effectiveness, encourages and enhances energy use conservation, promotes personal action, reduce the institute's energy and water consumption, reduce wastes to landfill, and integrate environmental considerations into all contracts and services considered to have significant environmental impacts. Target areas included in this green auditing are water, energy, waste, green campus and carbon footprint.

Onsite audit activities:

The onsite audit includes:

1. The opening meeting is the first step between the audit team and management. In this meeting the purpose of audit, the procedure and the time schedule were discussed.

2. Site inspection is the second step for onsite activity. In this step, the audit team discovered matters which are important to the audit but which were not identified at the planning stage.

3. Onsite phase of the audit developed a working understanding of how the facility manages the activities that influence the environment and how the environment management system is in place.

4. Assessed strengths and weaknesses of the management controls and risks associated with their failure were established.

5. Communicated with the staff to obtain most information.

7. Evaluated the audit evidence against the objectives established for the audit.

8. An exit meeting to explain the audit findings.

Auditing for Water Management:

Water is a natural resource; all living matters depend on water. While freely available in many natural environments, in human settlements potable (drinkable) water is less readily available. We need to use water wisely to ensure that drinkable water is available for all,

now and in the future. A small drip from a leaky tap can waste more than 180 liters of water in a day; that is a lot of water to waste - enough to flush the toilet eight times! 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. At campus of GITS, the water supply is through bore well which has been dug up to depth of 250 m and supplying water as per need of the campus. The daily requirement of the water on the campus is about 78,000 KL, which is reasonably less than domestic consumption for such large group of people. The bathrooms and at other places properly maintained water outlet systems are provided to avoid the wastage of water. The rain water harvesting system is used, which will be further made more efficient by covering entire area. The facilities for sewage disposal are installed and waste water is connected to the sewage pit, which requires cleaning after 20-25 years and does not harm soil and ground water. It was suggested to create the facilities for re-use of waste water.

Auditing for Energy Management:

Energy is an invisible essential as it is known it is there because we can see its effects in the forms of heat, light and power. This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliances, and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. An old incandescent bulb uses approximately 60W to 100W while energy efficient Light Emitting Diode (**LED) uses only less than 10 W. The campus has a connection for 260 KVA and also installed one DG set of 125 KVA. There are 528 tube lights, 623 fans and 580 computers besides some other lab machines. So far AC has been installed in some labs & offices, all the fittings are 10 to 20 W energy efficient and other appliances are also Star-marked.** Advisory has been placed at several important places, laboratories, class rooms etc, to switch off lights and fans when not in use. It has been suggested to go for solar power generation for the entire campus.

Auditing for Waste Management:

Pollution from waste is aesthetically unpleasing and results in large amounts of litter in our communities which can cause health problems. Plastic bags and discarded ropes and strings can be very dangerous to habitat. This indicator addresses waste production and disposal, plastic waste, paper waste, food waste, e-wastes and recycling. Solid waste can be divided into two categories: general waste and hazardous waste. General wastes include what is usually thrown away in homes and schools such as garbage, paper, tin and glass bottles. Hazardous waste is waste that is likely to be a threat to health or the environment like cleaning chemicals and petrol. Unscientific landfills may contain harmful contaminants that leach into soil and water supplies, and produce greenhouse gases contributing to global climate change. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair, and reuse. At the campus the auditors found that the solid waste is generated in negligible quantity as such disposed off safely. Bio-solid wastes are charged into small biogas type pit to convert into manure. Other non-degradable wastes are dumped in a separate pit. The campus produces no hazardous wastes. The e-wastes collection system

is there and the container cleaned periodically and the wastes are disposed in the city e-waste collection container.

Auditing for Green Campus Management:

Unfortunately, biodiversity is facing serious threats from habitat loss, pollution, over consumption and invasive species. Species are disappearing at an alarming rate and each loss affects nature's delicate balance and our quality of life. Without this variability in the living world, ecological systems and functions would break down, with detrimental consequences for all forms of life, including human beings. Newly planted and existing trees decrease the amount of carbon dioxide in the atmosphere. Trees play an important ecological role within the urban environment, as well as support improved public health and provide aesthetic benefits to cities. In one year, a single mature tree will absorb up to 48 pounds of carbon dioxide from the atmosphere, and release it as oxygen. The amount of oxygen that a single tree produces is enough to provide one day's supply of oxygen for people. On the campus area of 102628.28 sq m the number of tree planted are 280 and the blue print existed to provide more trees after completion of the building. The auditors suggested that the campus must have minimum of 1000 trees to make the campus green.

Auditing for Carbon Footprint:

Commutation of stakeholders has an impact on the environment through the emission of greenhouse gases into the atmosphere consequent to burning of fossil fuels (such as petrol). The most common greenhouse gases are carbon dioxide, water vapour, methane, nitrous oxide and ozone. Of all the greenhouse gases, carbon dioxide is the most prominent greenhouse gas, comprising 402 ppm of the Earth's atmosphere. The release of carbon dioxide gas into the Earth's atmosphere through human activities is commonly known as carbon emissions. An important aspect of doing an audit is to be able to measure your impact so that we can determine better ways to manage the impact. In addition to the water, waste, energy and biodiversity audits we can also determine what our carbon footprint is, based on the amount of carbon emissions created. The majority of staff & students use their vehicle producing the carbon dioxide while travelling between home & campus. Additionally, the campus has more than 1500 human beings for at least one hour every day, as such it produces huge amount of gas, which could be balanced by planting more trees, using fuel efficient vehicles and public transport.

Report:

The scope of the audit was finalized in consultation with the auditors and the management. The management side was represented by Shri B.L. Jangir, Shri Rajeev Mathur and the site Engineer. The present audit is a first such process, with no data collected; as such it was suggested to collect the detailed data required for subsequent final auditing after completing the campus development. However, the systems developed so far shows the environment consciousness. The background information on the site's historical uses, and the location of soil and groundwater contamination were analyzed in laboratory were found to be well within limit.

Report on Air quality and biodiversity

In total, based on our observations, there are 280 plants on the campus, which contribute to the Oxygen supply that they utilize. Being situated in the urban area, the campus is exposed to various atmospheric pollutants from vehicles as well as by other external means. Based on our calculation, the different sources of carbon dioxide emitted are by vehicle and human activities. On the days of data collection, there were 8 cars, 217 bikes 12 buses and 22 scooty in the campus, which are parked near the gate and do not pollute the campus environment. However, the plants balanced the carbon emission on the campus but pollution for surrounding needs to be checked by planting more trees around campus boundary.

Report on Water quality and usage:

The campus possesses many water outlets used by the staff, students and for the construction work. It was found that in total, there are 39 taps, 2 water coolers and two connections in the newly coming up building. It was observed that 5 taps were leaking leading to wastage of water; however, the cooler was working well. Out of 70 cisterns in the toilets one was leaking.

Report on Energy consumption and costs:

The campus has planned electricity supply connecting to the class rooms, laboratories and computer labs. The offices and other infrastructure possess the fans, tube lights and power outlet for recharging cell phone and other uses. The electricity consumption bill is about Rs 3.64 Lac, which seems reasonable. The campus must be provided with solar power so that they earn money instead of paying the bill.

Report on Waste generation and disposal:

For safe environment, any type of waste must be avoided or reduced to minimum. The wastes can be classified as Biodegradable and Non-biodegradable wastes. Biodegradable wastes include food wastes; which can be easily decomposed and campus generates hardly 10-15 kg of such waste every day, which is processed to produce manure in a safe-pit. Other types of wastes, excluding building wastes, is in small quantity generated at following points with a system of collection and disposal in place. These sources do not cause any pollution on the campus.

1. Canteen – The 2-3 kg of food waste generated from the canteen is collected and fed into the pit. The campus is plastic free.

2. Library– It generates very small quantity of waste, of which the most generated waste is paper waste. It is taken for recycling.

3. Store - Not much waste is generated, except paper wastes.

4. Office - Paper wastes generated are sent for recycling.

5. Garden - Only biodegradable wastes are generated.

6. Auditorium -The wastes are collected after each programme and are dealt with as per practice.

7. Bathroom -The wastes are collected and dealt with as per practice.

8. Class rooms - Paper Wastes are collected in the waste basket and recycled.

9. Laboratories - The broken glass wastes and the useless instruments are disposed of as planned.

Suggestions:

a. Air Quality:

More trees of species which gives shade must be planted on the boundary of the campus.

Plastic should be continued to be banned as done now.

b. Water Quality:

Taps needed to be repaired and a system be developed to check the water points regularly.

c. Energy Consumption:

Energy consumption could be controlled by increasing the capacity of solar power plant.

d. Solid Wastes:

- Separate baskets should be there for biodegradable and non-biodegradable wastes.
- Vermi-composting plant and biogas plant should be another solution for such wastes.
- Tie-up with an agency or individual to transport wastes from the campus.

Conclusion:

It is felt by the audit team that we have successfully completed the analysis of various environmental components responsible for pollution, thus completing the Green Audit phase I of the campus of the Geetanjali Institute of Technical Studies Udaipur. It is expected that the suggestions put forward by us would be considered by the management and implemented as soon as possible.

Post audit activities (to be conducted):

Post audit activities begin with the preparation of the draft report, starting with the review of it by the facility personnel directly involved. It is important for management to follow-up the report and develop an action plan to implement those audit findings.