



# SHREYAS QUALITY MANAGEMENT SYSTEM

(ISO 9001:2015, 14001:2015 & ISO 45001(OHSAS)CERTIFIED;EMPANELLED LEAN MANUFCTURING)

*Training Consultancy & Auditing for*

- ◆ TQM - Quality Award, Quality Cost, SPC, 5S, Lean Six Sigma, Six Sigma
- ◆ ISO 9001; ISO 14001 EMS, ISO50001EnMS, OHSAS 18001, ISO29990, ISO 27000
- ◆ ISO 17025 &15189 (Medical Lab) Accreditation
- ◆ TS16949, NABH & School Accreditation

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## GREEN AUDIT REPORT OF

(2020-21)



## TULI COLLEGE OF HOTEL MANAGEMENT



cleanwater



## Table of Content:

<b>Sr. No.</b>	<b>Description</b>	<b>Page No.</b>
1.	Cover Page	1
2.	Table of Content	2
3.	Acknowledgements	3
4.	Executive Summary	4
5.	Objective & Scope	5
6.	Methodology	5
7.	Introduction to College	6
8.	Observation	8
9.	Energy Use and Conservation	10
10.	Waste Generation	11
11.	E-Waste	13
12.	Green Area	14
13.	Some Other Recommendations	15
14.	Conclusion	17



## MISSION

- To provide our students a perfect blend of Fundamental Techniques & Current Technology to enable them to understand the cultural heritage of our country and also the dynamics of hospitality industry.
- To upgrade our systems to match the ever changing demands in the hospitality industry and keep our students well informed and updated.
- To provide our students an opportunity to Earn while they Learn.
- Gaining knowledge is the first step to Wisdom, Sharing it is the first step to Humanity!

## VISION

We are committed to nurture the talent through a dynamic learning environment and create the leaders in the hospitality industry.





The college has also adopted the 'Green Campus' system for environmental conservation and sustainability. There are main three pillars i.e. zero environmental foot print, positive impact on occupant health and performance and 100% graduates demonstrating environmental literacy. The goal is to reduce CO2 emission, energy and water use, while creating an atmosphere where students can learn and be healthy. The 'Green Campus' has been active since last 2 years both as an assembly group of sub committees that actively promote the various projects. The college administration works on the several facets of 'Green Campus' including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity.

Total campus area: 2.5 Acre

Total Garden Area/ Open Area : - 122741sq. ft for garden, open Area 113947 sq.ft

College building Spread Area: 34282 sq.ft

## **WATER MANAGEMENT:**

This auditing indicator addresses water consumption, water sources, irrigation, appliances and fixtures. In survey water used at bathrooms, toilets, laboratory, garden, shower and as well as leakages and over flow of water from overhead tanks is also been evaluated. The data collected from all the sections is examined and verified. The water supply in the Campus is provided by Bore wells. This water is being used for all water requirements at the campus, such as for drinking, cleaning, in the labs, gardening and flushing the toilets. The data collected from all the departments is to be examined and monitored. No water meter is observed in any of the bore well to check the total quantity of water used by the college in one academic years.

### **Observations**

Presently College is utilizing fresh water for all its water requirements, the management is considering the possibilities of plant based waste water treatment (STP) as part and will be accomplished when the funds will be available. Probably by 2021-22 a feasibility study and implementation of STP will be possible.

Possibilities for the storage of rain water is also under consideration by the College which can be utilized as fire extinguisher,, gardening purpose, primary treatment is required for the same needs to provide as a project to civil department student till then there is No rain water harvesting units in the premises for storing and reuse of water.



College has a provision to use the rain water for gardening purposed directly.

Taps available in colleges, toilets and hostel and in canteen with no leakage.

Approximate water consumption of the college is as per the following:

Sr. No.	Overhead Tanks	Capacity	Location	Purpose for used
1.	Overhead Tank-01	3000lit	Above College building	Toilets, Lab, Hostel, General Cleaning, Gardening
2.	Overhead Tank-02	3000 lit	Above College building	Toilets, Lab, General

### Recommendations:

The team of Auditors commends the College administration for the good practices in conserving water such as regular plumbing services, regulating the water flow from top and some of the flushes are switched to water efficient flushes. There is willingness to explore the option of Waste Water Treatment thus the (plant based) recycled water can be utilized for the toilet flushing and gardening if it is implemented successfully and the option for collecting the rainwater possibly in syntax tanks as a precaution for the disaster preparedness. As it is not possible to estimate the exact quantity of water used by different departments, however the highest consumption of water is most likely happening in toilets, hostels, canteen, and in chemical lab in view of the escalation of water scarcity in the region team recommend basic steps be carried out to optimize the water utilization at the college level, which will also contribute to reducing the related expense:

- I. Putting up notices in all washrooms and near all water coolers about the need for saving water, and simple tips like ensuring all the taps are properly closed, leakages are immediately brought to the notice of the management, respective floor cleaning staff could be given the responsibility to keep a check on every floor if any taps are open or leaking.
- II. Training to the cleaners in economical use of water for cleaning purposes and a system in place for immediate response when issues of water leakage are observed so that water losses are prevented.
- III. It was observed that the drinking water coolers are generally placed near washrooms; if possible drinking water coolers could be shifted to other places for aesthetic and



- hygiene point of view. d. Regular monitoring of tank (which will be provided for firefighting) to avoid any last moment inconvenience during any fire hazards.
- IV. Need of monitoring, controlling overflow is essential and periodically supervision drills should be arranged. In campus small scale/medium scale/ large scale reuse and recycle of water system is necessary.
  - V. Minimize wastage of water and use of electricity during water filtration process, if used, such as RO filtration (Drinking Water) process and ensure that the equipment's used for such usage are regularly serviced and the wastage of water is not below the industry average for such equipment's used in similar capacity.
  - VI. Ensure that all cleaning products used by college staff have a minimal detrimental impact on the environment, i.e. are biodegradable and non-toxic, even where this exceeds the Control of Substances Hazardous to Health (COSHH) regulations.
  - VII. Electrical fittings and plumbing kept in proper condition to prevent electricity leakage and water dripping. All water taps to be checked for its leakage particularly in toilet (Hostels).
  - VIII. Identification of areas to be carried out such as compost making area, water harvesting tank, bore well used for water harvesting purpose, bore well used for consumable purpose, parking area of staff, students, hazard area etc.
  - IX. Water meter to be installed in both the borewell available in the college and daily monitoring and record of water used to be kept as per the following;
    - X. Cleaning schedule of water purifier to be made and followed.
    - XI. Water consumption of the college to be monitored and graphs/table to be prepared. Eg. Borewell No. -01
    - XII. Cleaning of overheads tanks to be done on regular basis.
    - XIII. Flow control valve to be installed at two overhead water tanks.
    - XIV. Rain water harvesting to be carried out by taking proper step and guidelines.
    - XV. Install low-flow fixtures in the toilets or in hostels.
    - XVI. Aerate your lawn/ Empty land to maximize the water soaking.
    - XVII. Use waste water for watering plants.
    - XVIII. Educate stakeholders about importance of water





### **ENERGY USE AND CONSERVATION:**

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliance, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. The college primarily uses energy in the form of electricity provided by MSEDCL. A proper analysis of energy consumption, we need to understand the electricity consumption over at least one academic year, and ideally three previous years. Major use of the energy is at office and laboratories for lighting, practical and laboratory work. This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliance, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment Equipments like Computers are used with power saving mode. Also, campus administration runs switch –off drill on regular basis.

Kitchen is equipped with heavy ovens and refrigerator also has one heavy duty washing machine for laundry purpose. Solar system is installed for heating the water used in the hostels.

#### **Good Practices:**

In all sections of campus lecture rooms, office rooms, laboratories etc are spacious voluminous and airy, having proper natural light and ventilation. Hence actual requirement energy consumption in lightening is minimal. The air conditioners in the management chamber or in Principal Chamber are rarely used and avoiding unnecessary use of the same is a part of the green practice in the College. Besides this, **solar system is also installed in the campus for very limited capacity as an alternate renewable source of energy, It is suggested to enhance the capacity with plan and regular interval so that college become energy producer rather than user only..**



Equipments like Computers are used with power saving mode. Also, campus administration runs switch –off drill on regular basis.

**Year: 2020-2021**

1. Total Annual power requirement : 31342 units/kwh
2. % of annual power equipment of the institute met by renewable energy source : Annual power requirement by the renewable energy sources :
3. Annual Power requirement by the renewable energy sources : 1100 Unit/kwh
4. % of annual lighting power requirement through LED Bulbs : 100%
5. Total Power consumed by LED bulbs in KWATT/ gr : 6300 units/kwh
6. Annual lighting power requirement (Excluding LED) in kilo watt : 25042 Units/kwh
7. Total Annual lighting power requirement : 31802 units/kwh
8. Diesel Generator
9. Year of Make : 11/2007
10. Capacity : 50KVA/KW
11. Date of Purchase :
12. No of Batteries : 1
13. Make Capacities : 50KVA/KW
14. Type Dry/Wet : Water Cool
15. Diesel Reading Consumption : 01 hr/9ltr
16. Initial reading of Diesel : 0017Units/kwh
17. Total Consumption/ MTr : 40 Units/kwh
18. Total Consumption : 480 Units/kwh

**Observations**

1. Energy source utilized by all the departments and common facility center is electricity only. It is required to monitor and measure the electricity consumption and monthly basis and graph/ table to be prepared.
2. List of equipment (Oven, Fridge, air conditions, Water cooler- (centralized), heaters etc) with capacity to be prepared.
3. Prepared the list of computers and printers/Xerox machine with details of energy consumptions.





4. Some of the departments are equipped with CFL lamps.
5. Capacity of Solar (renewable energy source) to be increased.
6. All electrical loose wire to be dressed up properly.
7. Electrical Earthing of the college to be checked regularly.
8. Awareness for the use of electricity and paper to be developed in the college.
9. Instruction such as all electrical appliances (lights/fans/AC) shall be switched off when not in use or at the end of the day to be displayed.
10. College takes steps to purchase fans, refrigerators and air conditioners with low energy consumptions with maximum star ratings.
11. College has to replace resistance regulators with electronic regulators, CRT monitors with LED monitors and DOT matrix printers with Deskjet printer.
12. Use of Diesel generator to be avoided (to reduce the consumption of oil).
13. Total quantity used for diesel month wise to be prepared.
14. Enhanced renewable energy source capacity.
15. The display of the instruction boards/to be displayed on each classrooms/ lab for switching of the fans and lights when not required.
16. Switching to star rating electric appliances in phase wise manner.

**Following simple ways to reduce electricity consumption one must follow:**

1. Don't Leave Electronic Appliances On Standby Mode: It is a common tendency among the people to switch off their electrical appliances using the remote, leaving them on standby mode. They fail to realize that the device is still consuming 85% of electricity energy and wasting the valuable energy reserve. Instead, by switching off the main power button or by unplugging the socket, they can make a commendable contribution in saving electricity energy.
2. Lighting: The traditional bulbs and tube lights consume a large amount of electricity energy, making a contribution of almost 10 to 15 percent in the electricity bill. In lieu of these outdated bulbs, one must prefer purchasing an energy saving bulb and the fluorescent tubes that glows brightly without consuming more energy.
3. Bring Home Solar Garden Lights: To lighten your garden and add grace to its look, one can easily bring home the highly efficient solar garden lights as they do not entail you to dig trenches or set up wiring connections. Users can easily arrange these fitting



anywhere they desire and highlight the dark areas of their gardens. These lights get charged up during the day and illuminate the garden at night.

4. Check out The Energy Star Label: While purchasing electronic appliances like air conditioner, refrigerator, microwave and other household appliances, one must make sure that the appliance has an energy star label on it that can help to cut almost 30 percent of the electricity bills.



## WASTE MANAGEMENT

This indicator addresses waste production and disposal of different wastes like paper, food, plastic, biodegradable, construction, glass, dust etc. and recycling. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair, and reuse. Solid waste generation and management is a burning issue. Unscientific handling of solid waste can create threats to everyone. The survey focused on volume, type and current management practice of solid waste generated in the campus. The different solid wastes collected as mentioned above.

For Plastic and waste generated in the college there is a provision to dispose the same with waste collection vehicle of Bokhara gram panchayat on daily basis under the swachh Bharat Abhyaan. Also college encourage their staff and students for using the plastic bags of more than 50 micron or use clothes bags or paper bags makes with the waste paper through awareness training.



## Observations

The total solid waste collected in the campus is approximately 2-3 Kg/day. Waste generation from tree droppings and lawn management is a major solid waste generated in the campus. The waste is segregated at source by providing separate dustbins for Bio-degradable and Plastic waste. Single sided used papers reused for writing and printing in all departments. Important and confidential reports/ papers are sent for pulping and recycling after completion of their preservation period. Very less plastic waste (0.1Kg/day) is generated by some departments, office, garden etc but it is neither categorized at point source nor sent for recycling. Metal waste and wooden waste is stored and given to authorized scrap agents for further processing. Few glass bottles are reused in the laboratories. The food waste from main canteen and kitchen lab is used or sent for **vermicomposting**. The institute has adopted **vermiculture composting in two plastic drums used for the purpose**. The main purpose of this is to reduce disposable waste in the college campus.

## Recommendations:

- I. Reduce the absolute amount of waste that it produces from college staff offices.
- II. Make full use of all recycling facilities provided by City Municipality and private suppliers, including glass, cans, white, colour and brown paper, plastic bottles, batteries, print cartridges, cardboard and furniture.
- III. Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated.
- IV. Single sided papers to be used for writing and photocopy
- V. Important and confidential papers after their validity to be sent for pulping.
- VI. Solid garbage (building debris, unused building materials is to be removed from the college campus.
- VII. Waste paper, iron waste to be sold to vendor used for recycling.
- VIII. Different types of bins to be made available in the cafeteria particularly for dry and wet disposal.
- IX. Use of Plastics (Polythene, Thermocole, PVC etc.) is minimized and waste plastics are recyclable.
- X. The college building kept clean by washing and cleaning. Waste to be disposed of as per the guideline set.



## E-WASTE GENERATION

E-waste can be described as consumer and business electronic equipment that is near or at the end of its useful life. This makes up about 5% of all municipal solid waste worldwide but is much more hazardous than other waste because electronic components contain cadmium, lead, mercury, and Polychlorinated biphenyls (PCBs) that can damage human health and the environment.

### Observations:

E-waste generated in the campus is very less in quantity. The cartridges of laser printers are refilled outside the college campus. Administration conducts the awareness Programmes regarding E-waste Management with the help of various departments. The E-waste and defective item from computer laboratory (Library) is being stored properly. The maintenance person taking back the E-waste of college. The quantity of e-waste generated in college is very few.

The institution has to sign MoU with approved E-waste management and disposal facility in order to dispose E-waste in scientific manner.

### Recommendations:

1. Recycle or safely dispose of white goods, computers and electrical appliances to be given only to recommended E-Waste Vendor.
2. Always purchase recycled resources where these are both suitable and available.



## GREEN AREA

This includes the plants, greenery and sustainability of the campus to ensure that the buildings conform to green standards This also helps in ensuring that Environmental Policy is enacted, enforced and reviewed using various environmental awareness Programmes.

### Observations:

Campus is located in the vicinity of various species of trees. Various tree plantation programs are being organized during the month of July and August at college campus and surrounding villages..



This program helps in encouraging eco-friendly environment which provides pure oxygen within the institute. **The plantation program** includes various types of indigenous species of ornamental and medicinal wild plant species.

### **Recommendations**

1. Reviews periodically the list of trees planted in the garden, allot numbers to the trees and keep records. Give scientific names to the trees.
2. Promote environmental awareness as a part of course work in various curricular areas, independent research projects, and community service. Create awareness of environmental sustainability and takes actions to ensure environmental sustainability.
3. Establish a College Environmental Committee that will hold responsibility for the enactment, enforcement and review of the Environmental Policy. The Environmental Committee shall be the source of advice and guidance to staff and students on how to implement this Policy.
4. Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings.
5. Celebrate every year 5<sup>th</sup> June as ‘Environment Day’ and plant trees on this day to make the campus more Green.
6. It is necessary to increase their land under vegetation, since there is lots of scope.
7. Plantation of some medicinal trees to be done in the premises such as neem, aloe vera, Tulsi, eucalyptus, arjun etc.

### **SOME OTHER RECOMMENDATIONS**

1. Environmental Policy and Objectives to be defined displayed at prominent Location and make the staff and student aware of it.
2. Developed Environmental manual in line with ISO 14001:2015.
3. Developed policies such as “ No Tobacco Zone”, “Plastic Ban premises”, “Zero Water Leakage” etc.
4. Save environment related poster to be displayed everywhere in the college.
5. Use of electricity related awareness amongst the staff and student to be enhanced by displaying the poster.
6. Identification of areas to be carried out such as Canteen, Waste Collecting area, Water Cooler, DG Set, Garden Area etc.



7. College shall strongly ban the use of plastic bag.
8. Environmental committee to be formed which may include the students of various departments, teaching, non-teaching staff and if possible some local interested people.
9. Separate container to be provided for sanitary napkin disposal.
10. Use of tobacco, smoking or chewing in campus shall be banned and instruction to be displayed at various places.
11. Cafeteria shall have proper food licence from the competent authority.
12. Person working in the cafeteria shall have proper medical check-up certificate.
13. College takes the step to sensitize the students and staff for the environment, energy conservation, and pollution hazard.
14. Pollution certificate of vehicles entering into the college to be ensured.
15. Cover the one of the well situated in front of the reception of the college.
16. DG set license to be made available. Get tested its emission and noise. Record of use of DG set to be maintained.
17. Air quality index to be tested periodically from recognized lab.
18. Water quality to be tested for its portability from recognized lab.
19. Consumption of cooking gas to be reduced and quantified.
20. Capacities of air coolers available in the college premises with details of their capacity to be enlisted.
21. List of equipments available in the colleges with their electrical consumption details to be prepared.
22. Student awareness to be enhanced for green environment and also for disposal of e-waste.
23. Training related to green audit/ISO 14001:2015 to be provided to college staff, students, non-teaching staff etc.
24. Different types of bins to be made available in the cafeteria particularly for dry and wet disposal.
25. List of Major equipment with energy consumed to be prepared.
26. Total quantity of oil consumed per month for DG set to be calculated.
27. Record of water consumed to be made available day wise.
28. Energy consumed per month to be distinguished and keep the record of it.
29. No. of plantation done year wise and total survival rate to be maintained.





## CONCLUSIONS:

Considering the fact that the institution is predominantly an undergraduate college, there is significant environmental research both by faculty and students. The environmental awareness initiatives are substantial. The installation of solar panels, paperless work system and composting and water harvesting activities are practiced. Besides, environmental awareness Programmes initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using ecofriendly and scientific techniques. This may lead to the prosperous future in context of Green Campus & thus sustainable environment and community development.

As part of green audit of campus, we carried out the environmental monitoring of campus. It was observed that Illumination and Ventilation is adequate considering natural light and air velocity present. The college needs to provide the training to the teaching, non-teaching staff, students to maintain the green culture in the premises and day to day life of the individual.



*Its Beginning.....*