# REPORT ON
# "A PRIMARY SURVEY OF GREEN AUDIT AT KITP"



# KANPUR INSTITUTE OF TECHNOLOGY AND PHARMACY

A-1, UPSIDC Industrial Area, Rooma, Kanpur-208001 (U.P.) India.



Kanpur, Uttar Pradesh, India
9C9G+G4Q, Chakeri Ward, Kanpur, Uttar Pradesh 208008, India
Lat 26.369145°
Long 80.425682°
21/10/23 05:10 PM GMT +05:30

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# About the college

**Since its inception in 2009**, Kanpur Institute of Technology & Pharmacy (KITP) has been successfully shouldering the monumental responsibility of producing capable health care professional and highly skilled peoples with positive mind-set. Run by a team of visionary and motivated IIT alumni, KITP is counted among the top-rated Pharmacy institutes of North India. Kanpur Institute of Technology and Pharmacy runs B. Pharma, M. Pharma and Diploma courses. The institute is affiliated to Dr. A.P.J. Abdul Kalam Technical University, Lucknow (formerly U.P.T.U., Lucknow) with College Code 550. The courses are approved by The Pharmacy Council of India (PCI) as well as affiliated to AKTU (550) & BTE (3380), Lucknow. The institute is very easily accessible; it is located in Rooma, on Kanpur – Allahabad Highway, 6 Km away from Ramadevi round over.

Kanpur Institute of Technology and pharmacy proudly boasts of a sprawling and lush green campus with elegant buildings and state-of-the-art infrastructure, it has qualified, experienced and dedicated faculty for various courses, always ready to help the students in understanding the concepts related to their area of study. Kanpur Institute of Technology and Pharmacy has a highly impressive placement track record, with students getting placed in various MNCs at good annual packages.

The institute fulfills its promise of academic excellence. Every year, Kanpur Institute of Technology and Pharmacy, produces university rank holders in various streams. The students are given exposure to various skills development programs during the course of their study at KITP. This helps them to gain an edge over others and prove themselves better for placement opportunities. The institute leaves no stone unturned to provide the best and conducive study environment to

the students. Laboratories studded with modern equipment, computer centers, fully Wi-Fi campus, video lecture rooms, projector-based, air-conditioned classes, air-conditioned seminar halls are just a glimpse of the facilities that the students get at KITP, added to it the personal attention showered by the teachers to explain the intricate concepts to the students in the most lucid way.

Last but not the least; the institute always continuously strives for maintaining excellence in higher technical and professional education, through a student centric approach, aiming to bring out the best in them and transforming the students into industry ready professionals.

# Campus infrastructure

The infrastructure of a college plays a vital role in the development of the college as the students are now focusing on the labs, class rooms, etc while selecting a college. It is important that the colleges have very good infrastructure with advanced laboratories equipped with state of the art equipment etc. So that the Kanpur institute of technology and pharmacy primarily focus on infrastructure of institute. The spacious lush campus spreads over 02 acres of landscape with Total Built up Area: 6389 $M^2$ lodged with all modern amenities and basic infrastructure to run the professional courses of B. Pharm. The campus has separate hostels for boys and girls. The Wi-Fi campus has a library and a student activity centre for co-curricular and extracurricular activities. Apart from there are Lecture Theatre, AC Fitted Class Rooms, Common Rooms, Faculty Rooms, Office For the HOD office, Director's office, examination cell, registrar's office, maintenance office, etc. The library is having adequate space for sitting students; it is fully automated with LibSyS software in order to provide references service to its students, faculty members and staff members. Now permitted users can access our library through internet. All the books are bar coded it subscribes many more National/international journals in print form. The computer centre is well equipped with all latest software and technologies.

Presently the Department has 02 Computers labs and total 110 computers, all centrally air-conditioned with the adequate capacity of students. The campus is well equipped with Wi-Fi connectivity.  Institute has sufficient classrooms, 14 labs, total 11 bathrooms, (07 for boys and 4 for girls) with 36 faculty members.

# **Introduction**

The process of assessing the environmental impact of an organization, process, project, product, etc. Green audit is one of the important tools to check the balance of natural resources and its judicial use. Green audit is the process of identifying and determining whether institutional practices are eco-friendly and sustainable. It is a type of an environmental audit, which is a type of evaluation intended to identify environmental compliance and management system implementation gaps, along with related corrective actions. So that green audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of institute. The aims are to analyze environmental practices within and outside of the concerned place, which will have an impact on the eco-friendly atmosphere.

# **Need for Green Audit**

A clean and healthy environment aids effective learning and provide conducive learning environment. Green audit can be a useful tool for a scollege to determine how and where they are using the most energy or water resources, the college then can consider how to implement changes and make saving. Audit determines whether a company's operations impact the air, water, waste, and soil. They also guide the minimization of an institutes' impact on the environment to support sustainability.

# GOALS OF GREEN AUDIT

The Institute has conducted a green audit with specific goals as:

1. Identification and documentation of green practices followed by the Institute.

2. Identify strength and weakness in green practices.

3. Analyze and suggest solution for problems identified.

4. Assess facility of different types of waste management.

5. Increase environmental awareness throughout campus

6. Identify and assess environmental risk.

7. Motivates staff for optimized sustainable use of available resources.

8. The long-term goal of the environmental audit program is to collect baseline Of environmental parameters and resolve environmental issue before they Become problem.

# **OBJECTIVES OF GREEN AUDIT:**

1. To examine the current practices, which can impact on environment such as of resource utilization, waste management etc.

2. To identify and analyze significant environmental issues.

3. Setup goal, vision, and mission for green practices in campus.

4. Establish and implement environment management in various departments.

5. Continuous assessment for betterment in performance in green.

# BENEFITS OF GREEN AUDIT TO EDUCATIONAL INSTITUTIONS

There are many advantages of green audit to an educational institute:

1.     It would help to protect the environment in and around the campus.

2.     Recognize the cost saving methods through waste minimization and energy Conservation.

3.     Empower the organization to frame a better environmental performance.

4.     It portrays good image of institution through its clean and green campus.
       Finally, it will help to built positive impression for through green initiatives the upcoming NAAC visit.

# OBJECTIVES OF THE STUDY

The main objective of the green audit is to promote the Environment Management and Conservation in the college Campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies, and standards. The main objectives of carrying out Green Audit:

- ➢ To raise awareness among students towards the environment and its sustainability.
- ➢ To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource consumption and use in the campus.
- ➢ To establish baseline data to assess future sustainability issues by avoiding the interruptions in an environment today as it requires more effort and cost to manage the consequences in the future.
- ➢ Ensuring preventive care to reduce/eliminate the cost of corrective care.

## OBJECTIVES AND SCOPE:

The broad aims/benefits of the eco-auditing system would be :

➢ Environmental education through systematic environmental management Approach

➢ Improving environmental standards.

➢ Benchmarking for environmental protection initiatives.

➢ Sustainable use of natural resource in the campus.

➢ Financial savings through a reduction in resource use.

➢ Curriculum enrichment through practical experience.

➢ Development of ownership, personal and social responsibility for the College Campus and its environment.

➢ Enhancement of College profile.

➢ Developing an environmental ethic and value systems in young people.

# METHODOLOGY

In order to perform a green audit, the methodology included different tools such as preparation of questionnaire, a physical inspection of the campus, observation, and review of the documentation, interviewing key persons and data analysis, measurements, and recommendations. The study covered the following areas to summaries the present status of environmental management on the campus:

- Water management
- Energy Conservation
- Waste management
- E-waste management
- Green area management

# WATER MANAGEMENT

Water management addresses water consumption, water sources, irrigation, appliances, and fixtures. A water audit is an on-site survey and assessment to determine the water use and hence improving the efficiency of its use.

## OBSERVATIONS

Water management study observed that the Tube well and underground water is only sources of water on campus and in the hostels. Water is used for drinking purpose, toilets, and gardening. The waste water from the RO water purifier is used for gardening purpose.

It is found in survey that there is no loss of water in campus, neither by any leakage nor by the overflow of water from overhead tanks. Rainwater harvesting units are also functional for recharging groundwater level.

## RECOMMENDATIONS

- In campus small scale/medium scale/ large scale reuse and recycle of the water system is necessary.
- Minimize wastage of water and use of electricity during the water filtration process, if used, such as RO filtration process and ensure that the equipment used for such usage is regularly serviced.
- Ensure that all cleaning products used by campus staff have a minimal detrimental impact on the environment, i.e. they are biodegradable and nontoxic, even where this exceeds the Control of Substances Hazardous to Health (COSHH) regulations.
- Gardens should be watered by using drip/sprinkler irrigation system to minimize water use.

# ENERGY 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.

## OBSERVATIONS

Energy source utilized by the campus is electricity only. The entire campus including common facility centers are equipped with LED lamps and LED tube lights, except a few locations. Besides this, solar panels are also installed on the campus as an alternative renewable source of energy.

## RECOMMENDATIONS

- In campus premises electricity should be shut down from the main building supply after occupancy time, to prevent power loss due to eddy current.
- It is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity.
- Installation of LED lamps instead of CFL and replacing the old tube lights with the new LED tubes.
- 5−star rated Air Conditioners, Fans and CFLs should be used.
- Cleaning of tube-lights/bulbs to be done periodically, to remove dust over it.

# 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 on the campus.

## OBSERVATIONS

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 dry and wet waste materials. There is a separate system for the disposal of excessive food from the college mess.

## RECOMMENDATIONS

- Reduce the absolute amount of waste that is produced from the academic blocks, canteen and hostels.
- Make full use of all recycling facilities.
- Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated.
- Important and confidential papers after their validity to be sent for pulping.
- Vermi-composting should be adopted.

# E-WASTE MANAGEMENT

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 administration conducts awareness programs regarding E-waste Management with the help of various departments. The E-waste and defective item from the computer laboratory are being stored properly. The institution has decided to contact approved E-waste management and disposal facility in order to dispose of E-waste in a scientific manner.

## RECOMMENDATIONS

- Recycle or safely dispose of white goods, computers and electrical appliances.
- Use reusable resources and containers and avoid unnecessary packaging where possible.
- Always purchase recycled resources where these are both suitable and available.

# GREEN AREA MANAGEMENT

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 the Environmental Policy is enacted, enforced and reviewed using various environmental awareness programs.

## OBSERVATIONS

The campus is located in the vicinity of many trees (species) to maintain the biodiversity. Various tree plantation programs are being organized at the institute campus. This program helps in encouraging an eco-friendly environment which provides pure oxygen within the institute and awareness among students. The plantation program includes various types of indigenous species of ornamental and medicinal wild plant species.

An herbal garden has been created on the campus for encouraging the Ayurveda system of medicine.

## RECOMMENDATIONS

- Review periodically the list of trees planted in the garden, allot numbers to the trees and keep records. Assign scientific names to the trees.
- 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 take actions to ensure environmental sustainability.
- Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings.
- Celebrate every year 'Environment Day' and plant trees on this day to make the campus more Green.
- Indoor plantation to inculcate interest in students, Bonsai can be planted in the corridor to bond a relationship with nature.
- The green library should be established.

# EXECUTIVE SUMMARY

An environmental audit is a snapshot in time, in which one assesses campus performance in complying with applicable environmental laws and regulations. Though a helpful benchmark, the audit almost immediately becomes outdated unless there is some mechanism in place to continue the effort of monitoring environmental compliance. This audit report contains observations and recommendations for improvement of environmental consciousness.

# AUDIT DETAILS OF PLANTS AT KITP

| S. No. | Botanical Name | Common Name | Units |
|--------|----------------|-------------|-------|
| | **TREES** | | |
| 1. | Alstonia scholaris | Chittwan | 10 |
| 2. | Annona Squamosa | Sharifa | 2 |
| 3. | Areca catechu | Supari palm | 35 |
| 4. | Azadirachta indica | Neem | 40 |
| 5. | Bougainvillea glabra | KAGAJ KE FOOL | 35 |
| 6. | Calliandra haematocephala | Kulendr | 15 |
| 7. | Callistemon | Cheel | 2 |
| 8. | Canna Americanallis | Kaner varigater | 6 |
| 9 | Carissa carandas | Kuranda | 1 |
| 10 | Cascabela thevetia | KANER | 295 |
| 11 | Cascabela thevetia | Kaner desi | 300 |
| 12 | Cassia fistula Linn | Amiltaas | 30 |
| 13 | Catharanthus Tricophyllus | SADABAHAR | 110 |
| 14 | Delonix regia | Godmohar | 25 |
| 15 | Euphorbia tithymaloides | Naagdon | 1000 |
| 16 | Ficus benghalensis | Banyan | 1 |
| 17 | Ficus benjamina | Ficus | 1000 |
| 18 | Hibiscus rosa-sinensis 'Double Red' | Gudhal double | 1100 |
| 19 | Ixora coccinea | Ixora double | 40 |

| | | | |
|---|---|---|---|
| 20 | Jacaranda mimosifolia | Neeli gulmohar | 400 |
| 21 | Jasminum sambac | Bela | 5 |
| 22 | Jatropha integerrima | JAGRUPA | 15 |
| 23 | Lagerstroemia Indica | Saoni | 100 |
| 24 | Livistona chinensis | China palm | 38 |
| 25 | Mangifera indica | Aam | 7 |
| 26 | Maranta leuconeura | Malanta | 20 |
| 27 | Mimosa pudica | CHUI MUI | 2 |
| 28 | Moras Alba | Shahtoot | 4 |
| 29 | Murraya paniculate | Manokamini | 400 |
| 30 | Neolamarckia cadamba | Kadam burflower | 15 |
| 31 | Phyllanthus emblica | Awala | 2 |
| 32 | PLUMERIA | GULACHIN | 6 |
| 33 | Psidium guajava | Amrud | 28 |
| 34 | Punica granatum | Anaar | 4 |
| 35 | Saraca asoca | Ashok | 490 |
| 36 | Syzygium cumini | Jamun | 10 |
| 37 | Tabernaemontana | Double chandini | 30 |
| 38 | Tamarindus indica | Imli | 1 |
| 39 | Tecoma stans | CHAURI CHAURA | 20 |
| 40 | Tropical Hibiscus | DESI GUDHAL PINK | 25 |
| 41 | Zanthoxylum clava-herculis | Arkulas | 10 |
| SHRUB | | | |
| 1 | Lawsonia inermis | Morpankh | 4 |

| | | | |
|---|---|---|---|
| 2 | Lawsonia inermis | Mehndi | 3 |
| 3 | Nyctanthes arbor-tristis | Harshringar | 4 |
| 4 | Ocimum basilicum | Basil | 8 |
| 5 | Withania somnifera | Ashwgandha | 2 |
| **GRASSES/HERBS** | | | |
| 1 | Acalypha | Eklifa | 8 |
| 2 | Aloe barbadensis miller | Aleovera | 12 |
| 3 | Araucaria Araucana | Erokeria | 7 |
| 4 | Bassia scoparia | Kochiya | 500 |
| 5 | Beaucarnea recurvata | Lalina | 7 |
| 6 | Cineraria deltoidei | Shaineria | 8 |
| 7 | Codiaeum Variegatum | Karotan | 8 |
| 8 | Cosmos bipinnatus | Kasmus | 100 |
| 9 | Datura stramonium | Dhtura | 2 |
| 10 | Dracaena marginata | Kloroma | 7 |
| 11 | Ficus benjamina | Star light | 8 |
| 12 | Ficus variegate | Ficus verigator | 8 |
| 13 | Gaillardia pulchella | Naurang | 1000 |
| 14 | Kalanchoe pinnata | Ajubi | 48 |
| 15 | Portulaca grandiflora | Naubijiya | 10 |
| 16 | Portulaca Pilosa | Fotoilaka | 12 |
| 17 | Schefflera arboricola | Saflora | 8 |
| 18 | Zinnia elegans | Giniya | 40 |

# VIEWS OF GREENERY

# PLANTATION AT KITP

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Long 80.424594°
Lat 26.369188°
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# SUMMARY

Green audit is a direction as how to improve the structure of environment and inclusion of several factors that can protect the environment can be commenced. This audit focuses on the Green Campus, Waste Management, Water Management, Air Pollution, Energy Management etc, so that the green audit is one of the important tolls to check the balance of natural resources and its rational use.

Kanpur Institute of Technology And Pharmacy conducted a "Green Audit" in the Academic Year 2022-2023.

The main objective to carry out green audit is to check the green practices followed by KITP and to conduct a well-defined audit report to understand whether the KITP is on the track of sustainable development.

## CONCLUSIONS

As we know that the KITP is a technical and professional institute, so that time to time environmental activities are done by students and faculty including environment awareness program.

As a part of green campus, in the institute environmental monitoring performed, likes illumination and ventilation of classroom, because it was observed that the proper illumination and ventilation are necessary for the campus health.

During environmental awareness program the various type activates includes-plantation, campus cleaning program, no use of plastics, tobacco and smoking free campus, vehicle are not allowed, waste management.

In the institute solar panel and rainwater harvesting system are installed and work with full efficiency for maintaining the green campus of institute.

## **RECOMMENDATIONS**

Some important recommendations are given below for improving the campus environment:

- Install a water meter to record water using in the institute premise.
- The solid waste should be reused or recycled at designated places.
- An environmental policy document prepared with all the recommendation and current practices carried by KITP.