KUMAUN UNIVERSITY

GREEN AUDIT REPORT

2022-2023

PREPARED BY
EHS ALLIANCE SERVICES

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CERTIFICATE

EHS alliance

CERTIFICATE

PRESENTED TO

KUMAUN UNIVERSITY

Sleepy Hollow, Nainital-263001, Uttarakhand, India.

Has been assessed by EHS Alliance Services for the comprehensive study of environmental impacts on institutional working framework to fulfill the requirement of

GREEN AUDIT

ACADEMIC YEAR 2022-23

The green initiatives carried out by the institution have been verified on the report submitted and was found to be satisfactory.

The efforts taken by the management and the faculty towards environment and sustainability are appreciated and noteworthy.

EHS ALLIANCE SERVICES GURGAON

SIGNATURE

08.04.2024
DATE OF AUDIT

EHS ALLIANCE SERVICES, PLOT A-72, SURYA VIHAR, GURUGRAM, 122001
WWW.EHSALL.IN | BUSINESS@EHSALL.IN | EHSALLIANCE@GMAIL.COM

ACKNOWLEDGEMENT

EHS Alliance Services would like to thank the management of Kumaun University for assigning this important work of Green Audit. We appreciate the cooperation to the teams for completion of the assessment.

First of all, we would like to thank **Prof. D. S. Rawat Hon'ble Vice – Chancellor** and **Prof. Neeta Bora Sharma Director, D.S.B. Campus** for allowing us to evaluate the environmental performance of the campus.

We would also like to thank **Dr. Geeta Tewari, Professor – Audit Coordinator**, for her continuous support and guidance, without which the completion of the project would not have been possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

We are also thankful to

Prof. Neelu Lodhiyal	Professor
Prof. Ashish Tewari	Professor
Dr. Deepakshi Joshi	Asst. Professor
Dr. Harsh K. Chauhan	Asst. Professor
Dr. Hardesh Kumar	Asst. Professor
Mr. Virendra Singh Bisht	Helper

DISCLAIMER

EHS Alliance Services Audit Team has prepared this report for Kumaun University based on input data submitted by the representatives of University complemented with the best judgment capacity of the expert team.

While all sensible care has been taken in its preparation, details contained in this report have been compiled in good faith based on information gathered.

It is further informed that the conclusions are arrived following best estimates and no representation, warranty or undertaking, express or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

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Signature

LEAD AUDITOR

CONCEPT AND CONTEXT

The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory from the academic year 2019–20 onwards that all Higher Educational Institutions should submit an annual Green, Environment and Energy Audit Report. 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. 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.

In view of the NAAC circular regarding Green auditing, the management decided to conduct an external environment assessment study by a competent external professional auditor. The green audit aims to examine environmental practices within and outside the campus, which impact directly or indirectly on the atmosphere. Green audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of Institution environment. It was initiated with the intention of reviewing the efforts within the institutions whose exercises can cause risk to the health of inhabitants and the environment.

Through the green audit, 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 & Carbon Footprint etc. being implemented by the institution. The concepts, structure, objectives, methodology, tools of analysis, objectives of the audit as below:

INTRODUCTION

Now a days, the educational institutions are becoming more thoughtful towards the environmental aspects and as a result new and innovative concepts are being introduced to make them sustainable and eco-friendly. To preserve the environment within the institution, a number of viewpoints are applied by the several educational institutes to solve their environmental problems such as promotion of the saving the energy, waste recycle, water consumption reduction, water harvesting and many more...

The activities carried out by the institution can also create adverse environmental impacts. Green audit is defined as an official inspection of the effects an institution has on the environment. Green Audit is conducted to evaluate the actual scenario at the institution campus. Green audit can be a useful tool for a university /college to determine how and where they are using the most of the energy or water or resources; the institution can then decide how to implement changes and make savings. It can also be used to determine the nature and volume of waste, which can be used for a recycling project or to improve waste minimization plan.

Green auditing and the application of mitigation measures is a win-win situation for all the institutions, the learners and the mother earth. It can also result in health awareness and can promote the environmental awareness, values and beliefs. It provides a better understanding to staff and students about the Green impact on institution. Green auditing also upholds financial savings through reduction of resource usage. It gives an opportunity to the students and teachers for the development of ownership of the personal and social responsibility. The audit process involves primary data collection, site walk through with the team of university /college including the assessment of policies, activities, documents and records.

OVERVIEW OF THE UNIVERSITY

Established in 1973, Kumaun University, nestled in Uttarakhand, emerged from the merger of two eminent government colleges, namely, D.S.B. Government P.G. College, Nainital and Almora Government P.G. College. Kumaun University earned its recognition from the University Grants Commission (UGC) in New Delhi under Section 12-B of the UGC Act, 1956. This recognition enabled the University to receive consistent support from the UGC. Over time, the University transformed from a mere institution to a leading academic beacon for thousands in the Kumaun Region of Uttarakhand. Recognizing the diverse educational needs of Kumaun's remote areas, the State Legislature implemented the SSJ University Act (Act No. 20 of 2019). This decision led to the bifurcation of Kumaun University and the establishment of SSJ University Almora. This pivotal change was officially announced by the Uttarakhand Government on 22nd June 2020 through Order No. 168/XXXVI (3) 2020/ 771/ 2019.

Now, the Kumaun University's sprawling campuses at D.S.B., Nainital and Sir J C Bose at Bhimtal cover an area of approximately 160 acres, featuring state-of-the-art facilities. With affiliations to 20 government colleges, 61 private institutions, and a government-aided college, the university supports around 1,50,000 students, making it Uttarakhand's largest.

A key feature that sets Kumaun University apart is its unwavering commitment to delivering an inclusive educational environment, irrespective of background, race, or faith. The institution diligently fosters a spirit of innovation, civic responsibility, and personal integrity. Its endeavors to bridge the gap between academia, government, and industry are commendable.

Over the past three years, the university has focused on establishing recognized departments for both scientific and social research. This initiative has garnered attention from faculty members and students countrywide. Pre-Uttarakhand state formation, Kumaun University set benchmarks for state universities in terms of academic rigor, student discipline, resource generation, and maintaining a conducive learning environment. Such standards earned the university an 'A' Grade accreditation from the National Assessment and Accreditation Council (NAAC) in 2015.

The University is imparting quality education and research facilities in all the ten faculties:

- Faculty of Arts (Drawing and Painting, Economics, English, Geography, Hindi, History, Home Science, Music, Political Science, Psychology, Sanskrit, Sociology and Tourism)
- Faculty of Science (Botany, Forestry, Chemistry, Computer Science, Geology. Mathematics, Physics, Statistics, Zoology, Biotechnology and Information Technology)
- Faculty of Commerce (B.Com., B.Com.(Hon.), M.Com.)
- Faculty of Management (BBA, MBA, P.G. Diploma in Tourism, MBA in Tourism, MBA Executive, MBA Rural Management)
- Faculty of Education (B. Ed. and M. Ed.)
- Faculty of Law (LL.B. and LL.M.)
- Faculty of Technology (B. Pharma, and M. Pharma.)
- Faculty of Visual Arts (B.F.A. and M.F.A.)
- Faculty of Agriculture (B.Sc. and M.Sc.)
- Faculty of Biomedical Science (M.Sc.)

MISSION, VISION & CORE VALUES

VISION

Our vision is to create an inclusive educational ecosystem where all stakeholders benefit from knowledge creation and transmission, driven by innovation, creativity and skilling, leading to radical personal and social transformation for nation-building.

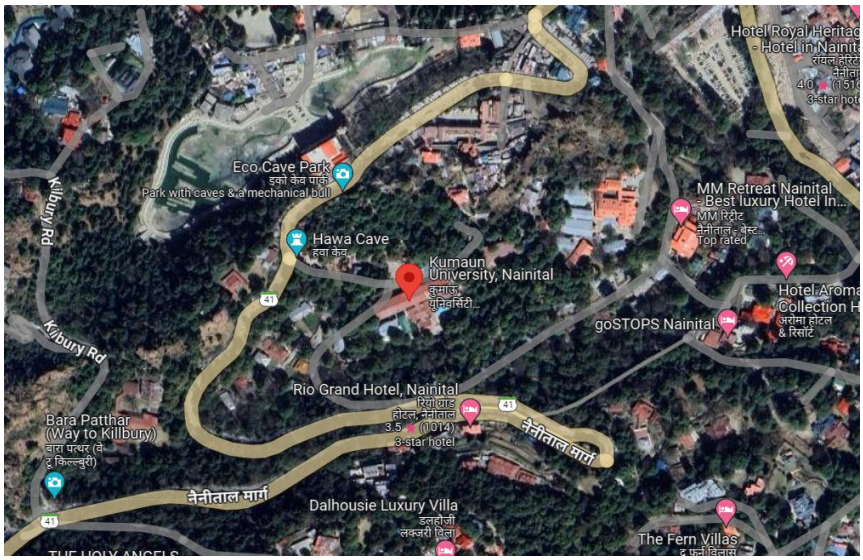
MISSION

To empower stakeholders for social development with relevant knowledge and skills needed for employability, providing access to lifelong learning opportunities, ensuring partnership with the local community, providing equity and inclusion to the socio-economic disadvantaged groups while conserving the traditional knowledge and cultural fabric of the region.

CORE VALUES

- *Integrity and transparency in all our activities*
- *Pursuit of excellence in all academic activity-Teaching and Research.*
- *Embracing diversity, ensuring inclusion and promoting equity*
- *Efficient administration through e-governance adopting the latest ICT initiatives*
- *Environmental Conservation and sustainability through green practices*
- *Promotion and conservation of regional culture and diverse heritage*

Geo Location
Geo Coordinates from Google maps:
29.391165, 79.44591



AUDIT PARTICIPANTS

On behalf of Kumaun University

Name	Designation
Prof. D. S. Rawat	*Vice - Chancellor*
Prof. Neeta Bora Sharma	*Director*
Prof. Neelu Lodhiyal	*Professor*
Prof. Ashish Tewari	*Professor*
Dr. Geeta Tewari	*Professor*
Dr. Deepakshi Joshi	*Asst. Professor*
Dr. Harsh K. Chauhan	*Asst. Professor*
Dr. Hardesh Kumar	*Asst. Professor*
Ms. Vartika Joshi	*Ph.D. Scholar*
Mr. Inder Singh Rautela	*Ph.D. Scholar*
Ms. Nirmala	*Ph.D. Scholar*
Ms. Neelam Bisht	*Ph.D. Scholar*
Ms. Kunjika Durgapal	*Ph.D. Scholar*
Ms. Charu Joshi	*Ph.D. Scholar*
Ms. Vashundhra Lodhiyal	*Ph.D. Scholar*

On behalf of EHS Alliance Services

Name	Position	Qualifications
Dr. Uday Pratap	Lead Auditor	*Ph.D., PDIS, QCI – WASH, Lead Auditor ISO 14001:2015*
Ms. Pooja Kaushik	Co-Auditor	*M.Sc., Field Expert, QCI – WASH*

EXECUTIVE SUMMARY

Green auditing is an essential step to identify and determine whether the institutional practices are sustainable and ecological. Traditionally, we were upright and efficient users of natural resources. But over the period of time, excessive usage of resources like water, electricity, petrol, etc. have become habitual for everyone especially, in urban and semi-urban areas. It is actually the right time to check if we (our process) are consuming more than required resources? Whether we are using resources sensibly?

Green audit standardizes all such practices and provides an efficient way to use natural resources. In the time of climate change and resource exhaustion it is necessary to re-check the processes and convert them into green and sustainable. Green audit provides an approach for the same. It also increases overall awareness among the folks working in institution towards the eco-friendly environment.

This is the first attempt to conduct green audit of this campus for fulfilment of NAAC criteria. This audit was mainly focused on greening indicators like consumption of energy in terms of electricity and fossil fuel, quality of soil, water usage, vegetation, waste management practices and carbon foot print of the campus. Initially a questionnaire was shared to know about the existing resources of the campus and resource consumption pattern of the students and staff in the campus.

GREEN AUDIT - ANALYSIS

1.1 GENERAL INFORMATION

1. Does any Green Audit conducted earlier?

Yes, this is first external audit organized by the University

2. What is the total strength (people count) of the Institute?

Students
Male: 2621 Female: 3242 Total: 5863

Teachers (including contract faculty)
Male: 148 Female: 100 Total: 248

Non-Teaching Staff
Male: 332 Female: 76 Total: 418

Total Strength
Male: 3101 Female: 3418 Total: 6519

3. What is the total number of working days of your campus in a year?

There are one hundred and eighty working days in a year.

4. Where is the Campus/University located?

The D.S.B. Campus and Administrative Block are located at Nainital and Sir J.C. Bose Campus and Community College at Bhimtal , Uttarakhand, India.

5. Which of the following are available in your institute?

Garden area	*Available*
Playground	*Available*
Kitchen	*Available*
Toilets	*Available*
Garbage Or Waste Store Yard	*Available*
Laboratory	*Available*
Canteen	*Available*
Hostel Facility	*Available*
Guest House	*Available*

6. Which of the following are found near your institute?

Municipal dump yard	*Not in vicinity of institute*
Garbage heap	*No Garbage heaps*
Public convenience	*Public convenience is available*
Sewer line	*Approximately 2.0 KM sewer line within campus*
Stagnant water	*No stagnant water*
Open drainage	*No*
Industry – (Mention the type)	*No*
Bus / Railway Station	*Nainital Bus stand*
Market / Shopping complex	*Available*

1.2 WASTE MINIMIZATION AND RECYCLING

1. Does your institute generate any waste? If so, what are they?

Yes, Solid waste, Canteen waste, paper, plastic, horticulture, laboratories waste, e-waste, etc.

2. What is the approximate amount of waste generated per day? (in Kg approx.)

Biodegradable waste - 50 Kg
Non-biodegradable waste -10 Kg
Hazardous Waste - 2 Kg
Others < 2 Kg

3. How is the waste managed in the institute? By Composting, Recycling, Reusing, Others (specify)

- *Food waste is managed through distribution and composting*
- *Laboratory waste is managed through define SOP*
- *E-waste collection and management through recycled – authorized vendor*

4. Do you use recycled paper in institute?

Yes, University uses single sided used paper for rough work, assessment work and prints

5. How would you spread the message of recycling to others in the community?

Following are the ways through which University is spreading the awareness about recycling

- *Waste plastic collection drives*
- *Installation of bins for waste plastic collection, e-waste collection and recycling*
- *Tie-ups with authorized e-waste collection agency*
- *Awareness among the Students by Webinars, seminars, Sign Boards, Posters, etc.*

6. Can you achieve zero garbage in your institute? If yes, how?

Not yet achieved. Possible through waste management policy and planning.
1. Minimization of waste production
2. Awareness workshops & trainings for students and faculty on Waste management

1.3 GREENING THE CAMPUS

1. Is there a garden in your institute?

Yes, about 63162 Sq ft areas are developed as Gardens.

2. Do students spend time in the garden?

Yes, students spend around 2-4 Hours during winters.

3. Total number of Plants in University/Campus?

Plant type with approx. count	
Full grown Trees	*745*
Small Trees	*1320*
Hedge Plants	*4559*
Grass Cover	*63162 Sq ft*

4. Is the campus having any Horticulture Department? (If yes, give details)

Yes, Total 2 staff (maali) deployed in horticulture department

5. How many Tree Plantation Drives organized by campus per annum?

Fourteen Plantation Drives are Organized by campus in the last FY. 1300 plants were planted in this FY. Survival rate is more than 70%.

6. Is there any Plant Distribution Program for Students and Community?

Yes, Plantations distribution drives are conducted in nearby Villages under Unnat Bharat Abhiyaan. And, planter is given to all guests instead of giving any bouquet.

8. Is there any Plant Ownership Program?

No

1.4 WATER AND WASTEWATER MANAGEMENT

1. List uses of water in your institute

Basic use of water in campus:

***Drinking** – 208.90 KL/month*

***Gardening** – 184.84 Kl/month*

***Kitchen and Toilets** – 1209.27 KL/month*

***Others** – 408.46 KL/month*

***Hostel** – 1044.90 KL/Month*

Total = 3056.38 KL/Month

2. How does your institute store water? Are there any water saving techniques followed in your institute?

Total water storage capacity of the university is 14,000 litres

Saving Techniques

- *Avoid overflow of water-controlled valves are provided in water supply system.*
- *Close supervision for water supply system.*
- *Push taps are installed for water conservation*
- *Water Conservation awareness for new students*

3. Locate the point of entry of water and point of exit of waste water in your institute.

Entry *- Water comes from Municipal corporation supply*
Exit*- From Canteen, Toilets, Hostel, bathrooms and Labs through covered drainage which is connected to public sewage*

4. Write down ways that could reduce the amount of water used in your institute

Basic ways:

- *Close the taps after usage*
- *Water Conservation awareness for new students*
- *Maintenance and monitoring of valves in supply system to avoid overflow, leakage and spillage*
- *Push taps are installed to save water*

1.5 ANIMAL WELFARE

1. List the animals (wild and domestic) found on the campus (dogs, cats, squirrels, birds, insects, etc.)

Around 6 dogs, 3-4 Cats, 50+ butterfly species, 100+ Squirrels and 300+ Birds are found in campus. A variety of bird's species and other flora and fauna are available, so the university is doing their bit for biodiversity conservation.

2. Does your institute have a Biodiversity Program or a KARUNA CLUB?

Yes, Kumaun University's ***Eco Club (Unnat Bharat Abhiyan)*** *actively organizes awareness through various campaigns and activities including seminars, poster competitions, etc.*

1.6 CARBON FOOTPRINT - EMISSION & ABSORPTION

1. Electricity used per year - CO2 emission from electricity

(electricity used per year in kWh/1000) x 0.84
637148 kWh/1000 x 0.84

= 637148/1000x0.84
= 535.20 tons

2. LPG/PNG used per year - CO2 emission from LPG/PNG

(LPG/PNG used per year in KG) x 2.99
3895 x 2.99
=3895 x 2.99
=11.65 tons

3. Diesel used per year CO2 emission from HDS (Diesel)

(Diesel used per year in liters) x 2.68
=412 x 2.68
= 412 x 2.68
=1.10 tons

4. Transportation per year (car) CO2 emission from transportation (Bus and Car)

There are 1 bus, 4 Cars, and 2 other vehicles
*= (1*1*2*180/100)*0.01 + 4*2*2*180/100*0.02*
=0.62 tons

Total CO2 emission per year is 548.57 tons

After considering the carbon absorption capacity of the campus, the total carbon emission is 508.66 tons

CARBON ABSORPTION BY FLORA IN THE INSTITUTION

There are 745 full-grown trees and 21320 semi-grown trees of different species, on the campus spread over 63162 sq ft.

Carbon absorption capacity of one full-grown tree 22 kg CO_2 Therefore Carbon absorption capacity of 745 full-grown trees 745 x 22 kg CO_2 = 16.39 tons of CO_2

The carbon absorption capacity of semi-grown trees is around 30% of that of full-grown trees. Hence the carbon absorption 1320 x 6.8 kg of Co2 = 8.98 tons of CO_2

There are approximately Hedge Plants 4559 of various species being raised in the gardens and grown in areas where no buildings are built Carbon absorption of bush plants varies widely with their species. Certain bushes absorb very high levels of CO_2 whereas some others absorb very low levels of CO_2. In the absence of a detailed scientific study, 200g of Co2, absorption is taken per bush (in consultation with Environmental Science specialists). Based on this, the total carbon absorption of bushes is 4559 x 200 g = 0.91 tons of CO_2

The lawns on the campus have buffalo grass, Mexican grass, and indigenous grass species and cover a total area of 63162sq. ft. The carbon absorption capacity of a 10 sq. ft. area of lawn is 1 g per day Therefore, carbon absorption by lawn area 63162 x 365 x 0.1 g CO_2 = 2.31 tons CO_2 per year.

The total carbon absorption capacity of the campus is 28.58 tons.

GREEN INITIATIVES BY CAMPUS

- **Solid Waste Management**
  - Collect paper waste produced on campus and collaborate with scrap dealers for recycling.
  - Reduce use of paper by supporting digitization of attendance and internal assessment records.
  - Take initiatives to spread awareness amongst students about food wastage and ways of minimizing it
  - The habit of reusing non-biodegradable products
  - Organizing workshops for students on solid waste management.
  - There is a ban on single-use plastic and plastic crockery in the campus.
  - University has installed sanitary waste disposal facility by installing incinerator as per CPCB guidelines for the management of sanitary waste -As per Solid Waste Management Rules, 2016

- **Liquid Waste Management**
  - Maintain leak proof water fixtures.
  - Continued employment of a caretaker to take immediate steps to stop any water leakage through taps, pipes, tanks, toilet flush etc.
  - Reuse of wastewater generated by the Reverse Osmosis (RO) system for is used for gardening purpose
  - Urinals are installed in boy's washroom to reduce water wastage

- **E-waste Management**
  - University has a separate storeroom for the safe storage of electronic waste. After a certain interval of time university disposes of the E-waste to concerned agencies through the auction process.

- **Air Pollution Reduction**
  - Personal Vehicles (Students) are not allowed on campus

RECOMMENDATIONS

- Environmental parameters shall be included in purchase policy to achieve a cradle to grave approach for sustainability.
- Flow rate of taps should be checked, it should not be more than 2.5 litres/minute.
- Arrange training programmes on environmental management system and nature conservation for schools and local people.
- Involve lower hierarchy staff in environmental awareness programmes and campaigns.
- Water Meter should be installed at every building of institute, especially in hostel and mess/canteen for monitoring of water consumption per capita.
- Car-pooling practices can be adopted by campus to minimize air pollution.
- Plant Ownership Program should be initiated – Several Trees should be Planted and owned by Visitors as well as students. The Name plates should also be displayed near the plants.
- Messages should be displayed at various locations to Aware the Peoples about Water and Energy Conservation
- Green building guidelines for future expansion projects of the campus.

CONCLUSION

This audit involves considerable team discussions and meetings with key staff members on a variety of environmental-related topics. The eco club of Kumaun University promotes conservation of resources.

Overall, 60% of Kumaun University is for landscaping. The University makes a significant effort to act in an environmentally responsible manner and takes into account the environmental effects of the majority of its activities. The recommendations in this report suggests some more ways in which the University can work to improve its practices and develop into a more sustainable institution.

It's important to begin a few things, such as initiating signing MOU with third party authorised vendors for waste management such as plastic, paper, metal, C&D, etc.

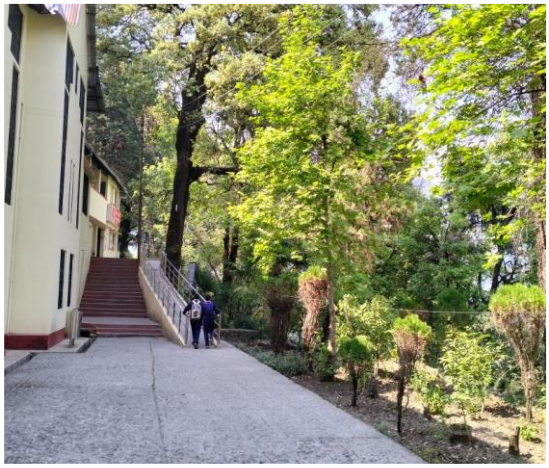
REFERENCE

- The Environment [Protection] Act – 1986 (Amended 1991) & Rules-1986 (Amended 2010)
- The Petroleum Act: 1934 – The Petroleum Rules: 2002
- The Central Motor Vehicle Act: 1988 (Amended 2011) and The Central Motor Vehicle
- Rules:1989 (Amended in 2005)
- Energy Conservation Act 2010.
- The Water [Prevention & Control Of Pollution] Act – 1974 (Amended 1988) & the Water (Prevention & Control of Pollution) Rules – 1975
- The Air [Prevention & Control Of Pollution] Act – 1981 (Amended 1987) The Air (Prevention & Control of Pollution) Rules – 1982
- The Gas Cylinders Rules – 2016 (Replaces the Gas Cylinder Rules – 1981
- E-waste management rules 2016
- Electrical Act 2003 (Amended 2001) / Rules 1956 (Amended 2006)
- The Hazardous Waste (Management and Handling and Trans-boundary Movement) Rules, 2008 (Amended 2016)
- The Noise Pollution Regulation & Control rules, 2000 (Amended 2010)
- The Batteries (Management and Handling) rules, 2001 (Amended 2010)
- Relevant Indian Standard Code practices

ANNEXURE – PHOTOGRAPHS OF ENVIRONMENT CONSCIOUSNESS

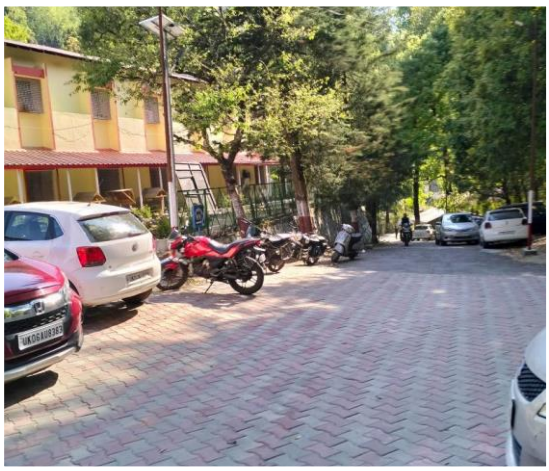
Well maintained campus

Clean Campus



Lush green campus

Green Campus



Paving stone installed in campus

Dustbins for waste segregation

Ornamental plants in campus

Indoor plants in campus

Classrooms as per NBC guidelines with more than 30% window ratio

Computer lab

Well equiped Library

Spacious and well equiped labs

Smart Class rooms

Plantation drive by the students

Green House Nursery

Nursery

Reusing plastic waste

Best out of waste activity

Drinking water filteration unit

Storm water drainage

Incinerators installed for BMW management

Push taps installed for water conservation

E-waste collection

Cleanliness awareness message display

********** END OF THE REPORT **********