

# ENVIRONMENT (GREEN) AUDIT REPORT



## GOVERNMENT POSTGRADUATE COLLEGE, BERINAG, PITHORAGARH, UTTARAKHAND,



Report Prepared by

### **ECON Laboratory and Consultancy**

(ISO: 9001, 14001, 45001, NABL Accredited and MoEF & CC Recognized laboratory)  
Vill: Khabarwala, P.O.: Jaintanwala, Near Garhi Cantt., Dehradun, Uttarakhand-248003

Email: [uk@econlaboratory.com](mailto:uk@econlaboratory.com), [econlab.consultancy@yahoo.in](mailto:econlab.consultancy@yahoo.in)

Mo: +91 8126534344, 8534957815

**MAY-2023**



## ENVIRONMENTAL (GREEN) AUDIT REPORT

S.NO	CONTENTS	PAGE NO.
•	ACKNOWLEDGEMENT	03
•	DISCLAIMER	03
•	CONTEXT	04
•	CONCEPT	04
•	AUDIT PARTICIPANTS	05
1.0	INTRODUCTION	06
1.1	NEED OF GREEN AUDITING	07
1.2	GOALS OF GREEN AUDIT	07
1.3	OBJECTIVES OF GREEN AUDIT	07
1.4	BENEFITS OF GREEN AUDIT TO EDUCATIONAL INSTITUTIONS	07
2.0	OVERVIEW OF INSTITUTE	07
3.0	ENVIRONMENTAL POLICY	9-10
5.0	ENVIRONMENT MANAGEMENT	10-15
6.0	GREEN AREA & PLANTATION	15
7.0	EXECUTIVE SUMMARY	16
8.0	AREA OF IMPROVEMENTS	16
•	RECOMMENDATION	17
•	REFERENCE	18
•	CONCLUSION	19

## ACKNOWLEDGEMENT

---

ECON Laboratory & Consultancy Audit Team thanks the management of Govt. PG College, Berinag for assigning this important work of Environmental (Green) Audit. We appreciate the co-operation to our team for completion of study.

.....

## DISCLAIMER

---

ECON Laboratory & Consultancy Audit Team has prepared this report for Govt. PG College, Berinag based on input data submitted by the representatives of university complemented with the best judgment capacity of the expert team.

While all reasonable 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.

If you wish to distribute copies of this report external to your organization, then all pages must be included.

ECON Laboratory & Consultancy, staff shall keep confidential all information relating to your organization and shall not disclose any such information to any third party, except that in the public domain or required by law or relevant accreditation bodies. ECON Laboratory & Consultancy, staff members have signed individual confidentiality undertakings and will only receive confidential information on a 'need to know' basis.





## CONTEXT

---

The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory from the academic year 2022-23 onwards that all Higher Educational Institutions should submit an annual Green Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

In view of the NAAC circular regarding Green Auditing, the College Management decided to conduct an external Green Evaluation by a competent Green Auditor along with a Green Audit Assessment Team headed.

Green Audit or Environment Audit focuses on the Green Campus, Waste Management, Water Management, Air Pollution, Energy Management & Carbon Footprint etc. being implemented by the College Management.

The concept, structure, objectives, methodology, tools of analysis, objectives of the audit are mentioned below.

## CONCEPT

---

The term '**Environmental audit**' or '**Green audit**' means differently to different people. Terms like 'assessment', 'survey' and 'review' are also used to describe similar activities. Furthermore, some organizations believe that an 'environmental audit' addresses only environmental matters, whereas others use the term to mean an audit of health, safety and environment-related matters. Although there is no universal definition of Green Audit, many leading companies/institutions follow the basic philosophy and approach summarized by the broad definition adopted by the International Chambers of Commerce (ICC) in its publication of Environmental Auditing (1989). The ICC defines Environmental Auditing as:

*"A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of safeguarding the environment and natural resources in its operations/projects."*

The European Commission, in its proposed regulation on environmental auditing, has also adopted the ICC definition of Environmental Audit. However, the outcome of Green Audit should be established with concrete evidence that the measures undertaken and facilities in the institution under green auditing.





## AUDIT PARTICIPANT

Audit was conducted on behalf of ECON Laboratory & Consultancy:

### List of external auditors

Name	Position	Qualification
Dr. MAHADEV SEMWAL	Auditor	M.Sc., Ph. D. (Environment Science),

### List of Internal auditee

NAME	POSITION
Dr. J.N PANT	MEMBER
Dr. DHEERAJ SINGH KHATI	COORDINATOR

### IQAC Members

NAME	POSITION
Dr. P.C MATHPAL	PRINCIPAL
Dr. M. S KUTIYAL	MEMBER
Dr. LEELADHAR MISHRA	MEMBER
Dr. B.S BISHT	MEMBER
Dr. LALIT SINGH	MEMBER
Dr. GARIMA PUNETHA	MEMBER
Mr. ASHWANI KUMAR	MEMBER
Mrs. MEENAKSHI GOSWAMI	MEMBER
Mr. LALIT CHAND	MEMBER
Dr. ANJALI DEVI YADAV	MEMBER
Mr. RATNAKAR PANDEY	MEMBER



## 1.0 INTRODUCTION

---

A clean and healthy environment aids effective learning and provides a conducive learning environment. There are various efforts around the world to address environmental education issues.

**Environmental Management Systems (EMS)** is very popular in the industrial sector, but the general belief is that EMS is something pertaining to industries only. Other parts of the world have started adopting compatible environmental management systems either voluntarily or for promoting standards by external certification. International environmental standards do not suit the existing Indian educational system. Hence **ECON Laboratory & Consultancy** has developed a compatible system by developing locally-applicable techniques.

A very simple indigenized system has been devised to monitor the environmental performance of educational institutions. It comes with a series of questions to be answered on a regular basis. Environmental conditions may be monitored from angles that are relevant to Indian requirements; without stress on legal issues or compliance. This innovative scheme is user-friendly and totally voluntary. The environmental monitoring system helps the institution to set environmental examples for the community and to educate young learners. It can be adapted to urban and / or rural situations.

The green audit aims to analyze environmental practices within and outside the university campuses, which will have an impact on the eco-friendly atmosphere. Green audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of university environment. It was initiated with the motive of inspecting the effort within the institutions whose exercises can cause threat to the health of inhabitants and the environment. Through the green audit, a direction as how to improve the structure of environment and there are include several factors that have determined the growth of carried out the green audit.



## 1.1 NEED FOR GREEN AUDITING

Green auditing is the process of identifying and determining whether institutions practices are eco-friendly and sustainable. Traditionally, we are good and efficient users of natural resources. But over the period of time excess use of resources like energy, water, are become habitual for everyone especially, in common areas. Green audit regulates all such practices and gives an efficient way of natural resource utilization. In the era of climate change and resource depletion it is necessary to verify the processes and convert it in to green and clean one. Green audit provides an approach for it. It also increases overall consciousness among the people working in institution towards an environment.

Green Audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India that accredits the institution according to the scores assigned at the time of accreditation. NAAC has made it mandatory that all Higher Educational Institutions should submit an annual Green Audit Report. Moreover, it is part of Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures

## 1.2 GOALS OF GREEN AUDIT

University has conducted a green audit with specific goals as:

1. Identification and documentation of green practices followed by university.
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 data of environmental parameters and resolve environmental issue before they become problem.

## 1.3 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

## 1.4 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.



## 2.0 OVERVIEW OF INSTITUTE

---

Berinag has a Post Graduate Degree college situated on top of the mountain Established in 1975. offering scenic view of Nanda Devi and Panchachuli peaks. Currently Graduate and Post Graduate courses are running in the College, Beside Academic courses various job oriented professional courses are also running in the College.

### **Berinag:**

Berinag is a small hamlet situated at an elevation of 1,740mts above sea level in Pithoragarh district of Uttarakhand state. Berinag is popular for yielding high quality tea. The town of Berinag faces the massive snowcapped peaks of the mighty Himalayas. There are several tourist spots near Berinag like Chaukori, Patal Bhuvaneshwar etc. The outskirts of Berinag are covered with thick forests with plenty of vegetation and water streams. Berinag is rich in varied flora and fauna.

Nearest airport: Naini Saini Airport, Pithoragarh: 112 km.

Nearest railway station: Kathgodam: 178 km.

Berinag is well connected by road:

Almora-96 km, Nainital-160 km, Haldwani-200 km, Bageshwar-62 km, Pithoragarh-85 km

## MISSION

- Knowledge Creation, dissemination and training for national development
- Enhancement of employability through skill development and capacity building.
- Intellectual, socio economic and cultural development of the region.
- Promotion of innovation in teaching, learning and evaluation.
- Incentivization and structure building of interdisciplinary research, publications and extension among students and teachers.
- Promotion of discipline and human values among students.
- Strengthening and expansion of infrastructure and students support and guidance facilities. Education aimed at betterment of society.
- Promotion of culture of creativity, innovation and entrepreneurship.
- Implementation of governance reforms, government programmers and schemes.
- Promotion of training and development of teachers and staff.
- Active participation in ecological and resource conservation for sustainable development.
- Cooperation in women empowerment and the upliftment of weaker sections.
- Institutionalization of global best practices and innovations in higher education.
- Expansion of better utilization of ICT.



### 3.0 ENVIRONMENTAL POLICY

---

#### POLICY STATEMENT

Govt. PG College, Berinag recognizes its commitment to environmental issues and to protect and nurture the environment and will aim to manage its operations in energy efficient, eco-friendly, environmentally feasible and sustainable ways that are socially responsible. Our aim is to develop and maintain a green campus, produces a citizenry sensitive to environmental concerns and empowered to solve related issues. The College will achieve so by incorporating sound environmental management practice into its work at every level, through sustainable use of resources, harnessing of non-conventional sources of energy and preventing wasteful practices.

#### OBJECTIVES

The objectives of the Environment Policy are as follows:

- Commitment to conserve the Environment.
- Sustainable utilization of Natural Resources.
- Compliance to all Environmental legislations.
- Increasing awareness of environmental responsibilities among faculty, staff and students.
- Maintain of Environment to preserve the health and safety of all its staff and students.

#### APPROACH

The University will take all possible measures to fully integrate environmental considerations in every aspect of college, administration and will achieve so by mainstreaming environmental excellence into everything we do, establishing meaningful objectives and programmes and perspective planning.

#### SPECIFIC AIMS

- Reduce the consumption of fossil fuels and by adopting energy efficiency practices, and by the environmentally sensitive design of buildings.
- Minimize the use of hazardous substances and processes, and take all reasonable steps to prevent damage to the environment where such activities are absolutely essential.
- Develop efficient waste management like solid waste management, liquid waste management, biomedical waste management, E-waste management, and recycling procedures like rain-water harvesting and promote use of recyclable and recycled materials wherever practicable.
- Promote an awareness of environmental consequences in the use of College transport , restrict the use of automobiles and to promote healthy and eco-friendly means of transport like walking, bicycles etc.



## 4.0 ENVIRONMENT MANAGEMENT

### 4.2. NOISE MANAGEMENT

Noise control or noise mitigation is a set of strategies to reduce noise pollution or to reduce the impact of that noise, whether outdoors or indoors. The area of noise mitigation can be control of transportation noise, construction noise, occupational noise etc. The goal of noise management is to maintain low noise exposures, such that human health and well-being are protected.

#### 4.2.1. AMBIENT NOISE MONITORING

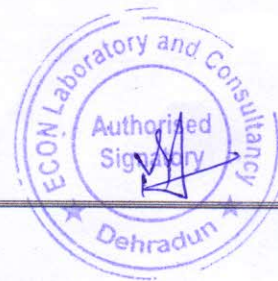
The ambient noise monitoring was done near the basketball ground. Instrument used for monitoring was sound level meter. Sampling and analysis protocol were as per CPCB Guideline & IS 9876-1981.

**Table 3: AMBIENT NOISE MONITORING**

Sr. No.	Parameters	Results	Units	Requirements (as per CPCB Guidelines)	Day
1.	Night			Limits in dB(A) Leq.	-
				Category of Area/Zone	
2.	EQUVALENT NOISE LEVEL (6.00 AM to 10.00 PM) (Day Time)	48.1	dB		
	EQUVALENT NOISE LEVEL (10.00 PM to 6.00 AM) (Night Time)	35.4	dB		
				Sensitive Area	50 40

**Table 4: AMBIENT NOISE MONITORING**

Sr. No.	Parameters	Results	Units	Requirements (as per CPCB Guidelines)	Day
1.	Night			Limits in dB(A) Leq.	-
				Category of Area/Zone	
2.	EQUVALENT NOISE LEVEL (6.00 AM to 10.00 PM) (Day Time)	42.5	dB		
	EQUVALENT NOISE LEVEL (10.00 PM to 6.00 AM) (Night Time)	31.8	dB		
				Sensitive Area	50 40





**Table 5: AMBIENT NOISE MONITORING**

Sr. No.	Parameters	Results	Units	Requirements (as per CPCB Guidelines)	Day
1.	Night			Limits in dB(A) Leq. -	-
2.	EQUVALENT NOISE LEVEL (6.00 AM to 10.00 PM) (Day Time)	48.3	dB	Category of Area/Zone	
	EQUVALENT NOISE LEVEL (10.00 PM to 6.00 AM) (Night Time)	39.6	dB		
				Sensitive Area	50 40

The campus area was found under silence zone area, as per the guidelines given by CPCB with the level of sound 55 dB at day time and 45 dB at night time.

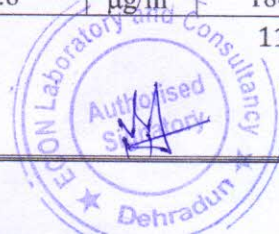
#### 4.3. AIR QUALITY MANAGEMENT

Air quality management refers to all the activities a regulatory authority undertakes to help protect human health and the environment from the harmful effects of air pollution. The source of air pollution can be from vehicles, emissions from DG set etc.

The ambient air quality of two locations was monitored i.e., near gate No. 1 and near gate No. 2 and back side of the campus with the help of RDS and PM<sub>2.5</sub> attachment. Moreover, the work zone air monitoring i.e., Environmental Science Laboratory was also done with the help of Handy sampler with all accessories.

**TABLE 6: AMBIENT AIR QUALITY MONITORING**

S. No.	Parameters	Test Methods	Test Results	Units	NAAQS#
1.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P-23), 2006, RA2017, (Cyclonic Method)	74.2	µg/m <sup>3</sup>	100
2.	Particulate Matter (PM <sub>2.5</sub> )	IS:5182 (P-24), 2019, (Gravimetric method)	40.2	µg/m <sup>3</sup>	60
3.	Sulphur Dioxide (SO <sub>2</sub> )	IS:5182 (P-2):2001, RA2017	8.2	µg/m <sup>3</sup>	80
4.	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182 (P-6):2006, RA2017	22.4	µg/m <sup>3</sup>	80
5.	Ammonia (NH <sub>3</sub> )	IS:5182 (P-25), 2018	6.5	µg/m <sup>3</sup>	400
6.	Carbon Monoxide (CO)	IS:5182 (P-10), 1999 RA 2019	0.68	mg/m <sup>3</sup>	4
7.	Benzene (C <sub>6</sub> H <sub>6</sub> )	IS:5182 (Part-11), 2006, RA 2017	ND	µg/m <sup>3</sup>	5
8.	Benzo(a)pyrene,	IS:5182 (Part-12):2004, RA:2019	ND	ng/m <sup>3</sup>	1
9.	Lead (Pb)	IS:5182 (P-22), Air Acetylene Method, 2004, RA:2019	ND	µg/m <sup>3</sup>	1
10.	Arsenic (As)	IS:5182 (Part-22), 2020	ND	ng/m <sup>3</sup>	6
11.	Nickel (Ni)	IS:5182 (P-26), 2020 Air Acetylene Method	ND	ng/m <sup>3</sup>	20
12.	Ozone (O <sub>3</sub> )	IS:5182 (P-9), 1974, RA:2019	19.8	µg/m <sup>3</sup>	180





# ENVIRONMENTAL (GREEN) AUDIT REPORT

	Colorimetric Method,			
--	----------------------	--	--	--

# NAAQS-National Ambient Air Quality Standard: Schedule-VII, [Rule 3 (3B)], [Part-II-Sec.-3(i) 16

\*\*Not Detected

**TABLE 7: AMBIENT AIR QUALITY MONITORING**

S. No.	Parameters	Test Methods	Test Results	Units	NAAQS#
1.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P-23), 2006, RA2017, (Cyclonic Method)	68.4	µg/m <sup>3</sup>	100
2.	Particulate Matter (PM <sub>2.5</sub> )	IS:5182 (P-24), 2019, (Gravimetric method)	34.2	µg/m <sup>3</sup>	60
3.	Sulphur Dioxide (SO <sub>2</sub> )	IS:5182 (P-2):2001, RA2017	10.2	µg/m <sup>3</sup>	80
4.	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182 (P-6):2006, RA2017	20.6	µg/m <sup>3</sup>	80
5.	Ammonia (NH <sub>3</sub> )	IS:5182 (P-25), 2018	6.4	µg/m <sup>3</sup>	400
6.	Carbon Monoxide (CO)	IS:5182 (P-10),1999 RA 2019	0.70	mg/m <sup>3</sup>	4
7.	Benzene (C <sub>6</sub> H <sub>6</sub> )	IS:5182 (Part-11), 2006, RA 2017	ND	µg/m <sup>3</sup>	5
8.	Benzo(a)pyrene,	IS5182 (Part-12):2004, RA:2019	ND	ng/m <sup>3</sup>	1
9.	Lead (Pb)	IS:5182 (P-22), Air Acetylene Method,2004, RA:2019	ND	µg/m <sup>3</sup>	1
10.	Arsenic (As)	IS5182 (Part-22),2020	ND	ng/m <sup>3</sup>	6
11.	Nickel (Ni)	IS:5182 (P-26), 2020 Air Acetylene Method	ND	ng/m <sup>3</sup>	20
12.	Ozone (O <sub>3</sub> )	IS:5182 (P-9), 1974, RA:2019 Colorimetric Method,	19.8	µg/m <sup>3</sup>	180

# NAAQS-National Ambient Air Quality Standard: Schedule-VII, [Rule 3 (3B)], [Part-II-Sec.-3(i) 16

\*\*Not Detected

**TABLE 8: AMBIENT AIR QUALITY MONITORING**

S. No.	Parameters	Test Methods	Test Results	Units	NAAQS#
1.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P-23), 2006, RA2017, (Cyclonic Method)	71.2	µg/m <sup>3</sup>	100
2.	Particulate Matter (PM <sub>2.5</sub> )	IS:5182 (P-24), 2019, (Gravimetric method)	32.4	µg/m <sup>3</sup>	60
3.	Sulphur Dioxide (SO <sub>2</sub> )	IS:5182 (P-2):2001, RA2017	10.2	µg/m <sup>3</sup>	80
4.	Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182 (P-6):2006, RA2017	17.7	µg/m <sup>3</sup>	80
5.	Ammonia (NH <sub>3</sub> )	IS:5182 (P-25), 2018	7.2	µg/m <sup>3</sup>	400
6.	Carbon Monoxide (CO)	IS:5182 (P-10),1999 RA 2019	0.75	mg/m <sup>3</sup>	4
7.	Benzene (C <sub>6</sub> H <sub>6</sub> )	IS:5182 (Part-11), 2006, RA 2017	ND	µg/m <sup>3</sup>	5
8.	Benzo(a)pyrene,	IS5182 (Part-12):2004, RA:2019	ND	ng/m <sup>3</sup>	1
9.	Lead (Pb)	IS:5182 (P-22), Air Acetylene Method,2004,RA:2019	ND	µg/m <sup>3</sup>	1
10.	Arsenic (As)	IS5182 (Part-22),2020	ND	ng/m <sup>3</sup>	6
11.	Nickel (Ni)	IS:5182 (P-26), 2020 Air Acetylene Method	ND	ng/m <sup>3</sup>	20
12.	Ozone (O <sub>3</sub> )	IS:5182 (P-9), 1974, RA:2019 Colorimetric Method,	18.9	µg/m <sup>3</sup>	180



**TABLE-9: WORK ZONE AIR MONITORING OF ENVIRONMENTAL SCIENCE LABORATORY**

S. No.	Parameters	Test Results	Units	Std. Limits	Test Methods
1.	Indoor Temp	24.2	$^{\circ}\text{C}$	22.5-25.5 $^{\circ}\text{C}$ (WHO & Min. of Env., of Singapore) 22.5-25.5 $^{\circ}\text{C}$ (Japan South Korea, Hongkong)	By Thermo hygrometer
2.	Indoor Relative Humidity	64.0	-	< 70 % (WHO & Min. of Env. Singapore) 40-70 % (Japan, South Korea, Hongkong)	By Thermo hygrometer
3.	PM <sub>2.5</sub> -Particulate Matter (<2.5 $\mu\text{m}$ )	9.2	$\mu\text{g}/\text{m}^3$	15 ( $\mu\text{g}/\text{m}^3$ ) (ASHRAE-62.1 2004, Table-B-B2)	By HAZ DUST Monitor
4.	PM <sub>10</sub> -Particulate Matter (<10 $\mu\text{m}$ )	22.4	$\mu\text{g}/\text{m}^3$	50 ( $\mu\text{g}/\text{m}^3$ ) (1-Yr. Avg.) (ASHRAE-62.1 2004, Table-B-B2)	By HAZ DUST Monitor
5.	Sulphur Dioxide (SO <sub>2</sub> )	9.2	$\mu\text{g}/\text{m}^3$	80 ( $\mu\text{g}/\text{m}^3$ ) (ASHRAE-62.1 2004, Table-B-B2)	IS: 5182 (P-2)
6.	Nitrogen Dioxide (NO <sub>2</sub> )	18.2	$\mu\text{g}/\text{m}^3$	Max. 100 ( $\mu\text{g}/\text{m}^3$ ) (ASHRAE-62.1 2004 Table-B-B2)	IS: 5182 (P-6)
7.	Carbon Monoxide (CO)	0.60	$\text{mg}/\text{m}^3$	10 $\text{mg}/\text{m}^3$ (ASHRAE-2001)	IS:5182 (P-10)

ASHRAE-American Society of Heating Refrigerating and Air Conditioning Engineers.

**TABLE-10: WORK ZONE AIR MONITORING OF ENVIRONMENTAL SCIENCE LABORATORY**

S. No.	Parameters	Test Results	Units	Std. Limits	Test Methods
1.	Indoor Temp	22.7	$^{\circ}\text{C}$	22.5-25.5 $^{\circ}\text{C}$ (WHO & Min. of Env., of Singapore) 22.5-25.5 $^{\circ}\text{C}$ (Japan South Korea, Hongkong)	By Thermo hygrometer
2.	Indoor Relative Humidity	61.4	-	< 70 % (WHO & Min. of Env. Singapore) 40-70 % (Japan, South Korea, Hongkong)	By Thermo hygrometer
3.	PM <sub>2.5</sub> -Particulate Matter (<2.5 $\mu\text{m}$ )	10.2	$\mu\text{g}/\text{m}^3$	15 ( $\mu\text{g}/\text{m}^3$ ) (ASHRAE-62.1 2004, Table-B-B2)	By HAZ DUST Monitor
4.	PM <sub>10</sub> -Particulate Matter (<10 $\mu\text{m}$ )	20.6	$\mu\text{g}/\text{m}^3$	50 ( $\mu\text{g}/\text{m}^3$ ) (1-Yr. Avg.) (ASHRAE-62.1 2004, Table-B-B2)	By HAZ DUST Monitor
5.	Sulphur Dioxide (SO <sub>2</sub> )	8.0	$\mu\text{g}/\text{m}^3$	80 ( $\mu\text{g}/\text{m}^3$ ) (ASHRAE-62.1 2004, Table-B-B2)	IS: 5182 (P-2)
6.	Nitrogen Dioxide (NO <sub>2</sub> )	17.6	$\mu\text{g}/\text{m}^3$	Max. 100 ( $\mu\text{g}/\text{m}^3$ ) (ASHRAE-62.1 2004 Table-B-B2)	IS: 5182 (P-6)
7.	Carbon Monoxide (CO)	0.61	$\text{mg}/\text{m}^3$	10 $\text{mg}/\text{m}^3$ (ASHRAE-2001)	IS:5182 (P-10)

ASHRAE-American Society of Heating Refrigerating and Air Conditioning Engineers





**TABLE-11: WORK ZONE AIR MONITORING OF ENVIRONMENTAL SCIENCE LABORATORY**

S. No.	Parameters	Test Results	Units	Std. Limits	Test Methods
1.	Indoor Temp	22.3	$^{\circ}\text{C}$	22.5-25.5 $^{\circ}\text{C}$ (WHO & Min. of Env., of Singapore) 22.5-25.5 $^{\circ}\text{C}$ (Japan South Korea, Hongkong)	By Thermo hygrometer
2.	Indoor Relative Humidity	62.0	-	< 70 % (WHO & Min. of Env. Singapore) 40-70 % (Japan, South Korea, Hongkong)	By Thermo hygrometer
3.	PM <sub>2.5</sub> -Particulate Matter (<2.5 $\mu\text{m}$ )	7.4	$\mu\text{g}/\text{m}^3$	15 ( $\mu\text{g}/\text{m}^3$ ) (ASHRAE-62.1 2004, Table-B-B2)	By HAZ DUST Monitor
4.	PM <sub>10</sub> -Particulate Matter (<10 $\mu\text{m}$ )	22.5	$\mu\text{g}/\text{m}^3$	50 ( $\mu\text{g}/\text{m}^3$ ) (1-Yr. Avg.) (ASHRAE-62.1 2004, Table-B-B2)	By HAZ DUST Monitor
5.	Sulphur Dioxide ( $\text{SO}_2$ )	8.9	$\mu\text{g}/\text{m}^3$	80 ( $\mu\text{g}/\text{m}^3$ ) (ASHRAE-62.1 2004, Table-B-B2)	IS: 5182 (P-2)
6.	Nitrogen Dioxide ( $\text{NO}_2$ )	15.5	$\mu\text{g}/\text{m}^3$	Max. 100 ( $\mu\text{g}/\text{m}^3$ ) (ASHRAE-62.1 2004 Table-B-B2)	IS: 5182 (P-6)
7.	Carbon Monoxide (CO)	0.82	$\text{mg}/\text{m}^3$	10 $\text{mg}/\text{m}^3$ (ASHRAE-2001)	IS:5182 (P-10)

\*ASHRAE-American Society of Heating Refrigerating and Air Conditioning Engineers.

#### 4.4. LUX ILLUMINATION MONITORING

Illuminance is a measure of how much luminous flux is spread over a given area. It can also be as a measure of the total "amount" of visible light present, and the illuminance as a measure of the intensity of illumination on a surface.

Good lighting plays an important role in safeguarding health at work by enabling employees to perform their work comfortably and efficiently. In simple terms, a lighting assessment is a careful examination of the lighting condition in the work environment.

Lux monitoring was done at Environment Science Laboratory with the help of Lux Meter.

**TABLE 12: LUX (ILLUMINATION) MONITORING**

S. No.	Locations	Parameters	Observed Value	Std. Limits (Lux)		Protocol Used
				Minimum	Recommended	
1.	Ground Floor	Light Level (Lux)	524	500	1000	IS:3646, (Part-1)2013



TABLE 13: LUX (ILLUMINATION) MONITORING

S. No.	Locations	Parameters	Observed Value	Std. Limits (Lux)		Protocol Used
				Minimum	Recommended	
1.	First Floor	Light Level (Lux)	522	500	1000	IS:3646, (Part-1)2013

The Light Level (Lux) was found within the recommended limits

## 5. GREEN AREA & PLANTATION

The College has maintained more than 40% green cover in its campus by regular plantation in its premises. It has a lush green tree, campus for enhancing the greenery. A special care is taken to look after and maintain greenery in the campus.





## **6.0 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 is very first environmental audit of institute for NACC affiliation; QS Programme and doing their bid towards environmental protection and environmental awareness at local and global front. Audit criterion is environmental cognizance, waste minimization and management, biodiversity conservation, water conservation, energy conservation and environmental legislative compliance by the campus. A questionnaire is used during audit. This audit report contains observations and recommendations for improvement of environmental consciousness.

## **7.0 AREA OF IMPROVEMENTS**

---

- Suggested to construct Rain Water Harvesting to reuse the water for green area and cleaning the floor.
- Maintain inventory of water resource.
- Storage of chemicals like; paints, gums resins, oils, lubricants, acids etc. in designated place and safety/warning signs should be displayed.
- Internal inspection system should be developed for various equipments available in campus.
- Environmental drills for response against spillage and leakage of chemicals in the campus.
- Sewage Treatment Plant should be installed for domestic waste water treatment.



### RECOMENDATIONS

- Environmental Monitoring i.e. (Ambient Air Quality monitoring, Stack Monitoring of DG sets, Water and wastewater monitoring need to be conducted by NABL Accredited Laboratory approved laboratory with frequency of six month.
- Water Meter should be installed at institute for monitoring of water consumption per capita.
- Increase in Environmental promotional activities for spreading awareness at campus.
- Environment/Green committee formation for regulating eco-friendly initiatives at campus premises and periphery.



#### 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 Water [Prevention & Control of Pollution] Cess Act-1977 (Amended 2003) and Rules-1978
- 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



## CONCLUSION

---

This audit involved extensive consultation with all the campus team, interactions with key personnel on wide range of issues related to Environmental aspects. The audit has identified several observations for making the campus premise more environmentally friendly. The recommendations are also mentioned with observations for campus team to initiate actions.

The audit team opines that the overall site is maintained well from environmental perspective. There are no major observations but few things are important to initiate urgently are water balance cycle, periodic inspection of buildings, Sewage treatment plant for domestic waste water treatment, installation of water meter on bore wells & environmental monitoring on regular basis.

