

ENVIRONMENT AUDIT

STUDY PERIOD (TWO YEARS) 2021 – 2022 & 2022 - 2023

Sustainability study
AUDIT REPORT

**Sree Narayana Guru
College of Commerce**

P. L. Lokhande Marg,
Chembur (West), Mumbai - 400089,
Maharashtra, India

Studied in the capacity of

Accredited and Certified
Green Building Professional



Studied by

Website: <https://thegreenviosolutions.co.in/>

Email: greenviosolutions@gmail.com

Valid till **August 2024**

Evidence documents for Site visit of external audit team

Audit team headed by external expert - Ar. Nahida Abdulla
 Accredited & Certified Green Building Professional, ISO IA (IMS)
 Audit objective: Green Building up gradation of the premises

Audits covered: Green audit Energy audit Environment audit

Institute: Sree Narayana Guru College of Commerce Date: 15-07-2023

Document objective: Inferences of the Site visit

Observations (Positive aspects)	Suggestions (Improvement aspects)
Green Audit	
- Dedicated water supply by pit area is available	- Water management through storage, equipment - Waste management area should be redeveloped
Energy Audit	
- An 100% LED [Energy-efficient appliances] campus.	- Alternate sources of energy need to be explored.
Environment Audit	
- Good green cover by area available	- Ecological by campus beautification can be undertaken.



Signature & round seal

Name:

Designation:

For the said Institute



Signature & round seal

Name: Mrs. F. A. Shaikh

Designation: Project Coordinator

For The Greenvio Solutions



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Institute: Sree Narayana Guru College of Commerce **Date:** 15-07-2023

Document objective: Proof of the Site visit



Meeting with the core team



Investigation of the systems



Signature & round seal
Name:
Designation:
For the said Institute



Signature & round seal
Name: Mrs. F.A. Shaikh
Designation: Project Coordinator
For The Greenvio Solutions

Website: thegreenviosolutions.co.in Email: greenviosolutions@gmail.com



Disclaimer

The Audit Team has prepared this report for the **Sree Narayana Guru College of Commerce** located at *P. L. Lokhande Marg, Chembur (West), Mumbai - 400089, Maharashtra, India* based on input data submitted by the Institute analysed by the team to the best of their abilities.

The details have been consolidated and thoroughly studied as per the various guidelines for Green Buildings available in National and International Standards; the report has been generated based on comparative analysis of the existing facilities and the prerequisites formulated by various standards. The inputs derived are a result of the inspection and research. These will further enhance and develop a Healthy and Sustainable Institution.

These can be implemented phase wise or as a whole depending on the decision taken by the internal team. The warranty or undertaking, expressed 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.

The audit is a thorough study based on the inspection and investigation of data collected over a period of time and should not be used for any legal action. This is the property of Greenvio Solutions and should not be copied or regenerated in any form.

The Report is prepared by the Team of Greenvio Solutions under their brand and department – Sustainable Academe as Consultancy firm with the Project Head - Ar. Nahida Shaikh who is as an Accredited and Certified Green Building Professional-Architect. Green Building consultancy is her forte and she is one of the most sought after names when it comes to providing excellent quality services within the stipulated time frame.

The Study is conducted in capacity of Accredited & Certified Green Building Professional with extensive experience.

Greenvio Solutions

Developing Healthy and Sustainable Environments

We are an Environmental and Architectural Design Consultancy firm

Sustainable Academe is our department for conducting Audits

Palghar District, Maharashtra- 401208

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Acknowledgement

The Audit Assessment Team extends its appreciation to the **Sree Narayana Guru College of Commerce, Maharashtra** for assigning this important work of Environment Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are extended to everyone from the Management.

Our heartfelt thanks are extended to Chairperson of entire process **Dr. Ravindran Karathadi**, (Principal) for the valuable inputs.

We are also thankful to Institute's Task force who have played a major role in data collection.

- ⇒ **Faculty members** – **Dr. Jayasree V.**, Vice Principal (Administration); **Dr. Hinduja S. P.**, Vice Principal (Academics) and the Assistant Professors - **Mr. Mohd. Jabir, Ms. Naveena Suresh, Mr. Iyer.**
- ⇒ **Admin staff members (Accountants)** – **Ms. Nalini Shelke and Mr. Pravin**

We appreciate the cooperation of the **entire Teaching, Non-teaching, and Admin staff** for their support while collecting the data.

Sustainable Academe

Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208

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1. Introduction

1.1 Statements of the Institution

1.1.1 Vision

The College proposes "Empowerment through Higher Education to all strata of Society"

1.1.2 Mission

The College adheres and focuses "Quality education to all irrespective of caste, creed, socio-economic status and uplift the poor and downtrodden".

1.1.3 Objective

It is the objective of the College:

- Maintain good academic standards through innovative and effective teaching, learning methods.
- Focus on learner-centric teaching to make learning a happy, joyful and fruitful experience.
- Sensitize students on vital social issues raging across the globe and guide them to emerge as socially responsible citizens of the nation.
- Motivate students to achieve discipline, self-mastery and professionalism.
- Enable students to meet the needs, demands and challenges ahead and excel in life.
- To aim at all round development of students and groom their talents through meaningful co-curricular, extracurricular activities with an emphasis on integrity and ethics.
- To have a positive approach towards development and progress of youth, highlight their inherent powers and inspire them to realize their full potential.

1.2 Assessment of the Institute

1.2.1 Affiliation

The Institute is affiliated to **University of Mumbai**, one of the premier universities in India, is positioned in the city of Mumbai city and the state of Maharashtra.

1.2.2 Certification

The College has received the code under **All India Survey of Higher Education (AISHE)** wherein the code is C-33899.

1.2.3 Accreditation

The following are details of the accreditation awarded by the National Assessment & Accreditation Council (NAAC) to the College.

Cycle	First	Second
CGPA	81.60	3.08
Grade	B++	A
Year	2004	2012

Table 1: NAAC Accreditation details of the Institute

The College is due to enter its Third cycle of NAAC.

2. Overview

2.1 Summarised Populace analysis for 2022-2023

2.1.1 Students data

The data (shared by the Institute) shows there were a total of **1,022 male and 937 female students.**

2.1.2 Staff data

S. No.	Type	Male	Female	Total
1	Admin staff	07	03	10
2	Teaching staff	08	24	32
3	Non-Teaching staff	06	04	10
Total Staff Members		21	31	52

Table 2: Staff data of the Institution for 2022-2023

The staff data shows the Institute premises had a total of **52 Staff Members.**

2.2 Summarised Populace analysis for 2021-2022

2.2.1 Students data

The data (shared by the Institute) shows there were a total of **991 male and 904 female students.**

2.2.2 Staff data

S. No.	Type	Male	Female	Total
1	Admin staff	07	03	10
2	Teaching staff	06	24	30
3	Non-Teaching staff	08	08	16
Total Staff Members		21	35	56

Table 3: Staff data of the Institution for 2021-2022

The staff data shows the Institute premises had a total of **56 Staff Members.**

Evidence documents for Site visit of external audit team

Audit team headed by external expert - Ar. Nahida Abdulla
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 Audit objective: Green Building up gradation of the premises

Audits covered: Green audit Energy audit Environment audit

Institute: See Narayana Guru College Commerce Date: 15-07-2023

Document objective: Exit Meeting attendance sheet

S. No.	Name	Committee	Designation	Signature
1.	Mrs. F. A. Shaikh	External	Project Coordinator	
2.	Ar. Nahida Abdulla	External	Project Head	
	Dr. Jayasree V	Internal	Vice-principal (Academics)	
	Dr. S.P. Hinduja	Internal	Vice-principal (Academics)	
	Mrs. Naveena Suresh	Internal	Criterion Head	
	Mr. Jabir M	Internal	Criterion Member	
	Mr. Iyer P.V	Internal	Criterion Member	



Signature & round seal

Name:

Designation:

For the said Institute



Signature & round seal

Name: Mrs. F. A. Shaikh

Designation: Project Coordinator

For The Greenvio Solutions



3. Investigation

3.1 Flora audit

The landscape area has a variety of plantations constituting hundreds in numbers. Most of the trees have been planted by students, staff, management, Principal non-teaching staff, office staff on several occasions and also during the plantation drives.

Many of them have grown naturally and have been conserved at their respective locations to maintain the beauty of the premises. The flora herbs and shrubs are transient and perish after the life span. However, most of these herbs and shrubs exist in the premises.

The benefits of having trees in the premises are innumerable, some of the benefits are:

- Providing shaded walkways in outdoor areas.
- Reduction in noise pollution by acting as noise barriers.
- Maintaining the silence zone by keeping noise under control through absorptive properties such as density etc.
- Interactive outdoor learning spaces.
- Lowering the stress levels by staying connected with the nature.

4. Observations

4.1 Scope for improvement aspects

⇒ Extra care for the rooftop areas

- Introduce the signboards about 'No students are allowed to enter this area'
- Increase the height of parapet walls
- Upgrade the space as cool roof by painting it with cooltop material.
- Undertake feasibility study of before and after temperature reading.
- Take precautions to keep terrace areas free of any kind of storage materials

⇒ Messages on the beam area

Include quotes and messages from eminent personalities all over the premises on beam for inspiration and beautification.

⇒ General aspects (Outdoor areas)

- Increase in green cover on rooftop
- Placards and manuals for awareness
- Dedicated reserved parking for physically disabled
- Development of breakout zones at relevant locations
- Develop plantations around the vertical garden areas
- Develop paved walkways
- Introduce information boards everywhere
- Increase sensitization programmes
- Upgrade the website w.r.t. green initiatives
- Introduce zone wise details at relevant locations

5. Documentation

5.1 Open Spaces

There is an open space in the plot utilised by all the shared campuses, this provides a good amenities and recreational spaces feature in premises.

5.2 Noise Audit

On a macro level the Institute is surrounded by educational and residential blocks **thus there is a peaceful and noise free arena observed within the premises.**

5.3 Carbon Footprint Audit

5.3.1 Eco-friendly Commuting Practices

- The site is located in an urban locality.
- Overall, the carbon footprint is well under control.
- Students and staff members commute using public transport.
- There are no major fossil fuels used inside the premises.

5.3.2 Heat Island Reduction

The external temperature is well under control owing to shaded walkways and huge nos. of plantations all over the premises.

5.3.3 Outdoor Light Pollution Study

The Institute compound lights are not upward looking thus, these do not cause light pollution.

5.4 Universally accessible premises

As per World Report on Disability, 2011 there are 180 million approx. Persons with Disabilities that makes it 15% of total population of India.

The following facilities are available on the premises for the specially-abled as part of universally accessible premises initiatives.

- Low height risers in the staircases

- Non-slippery floor surfaces
- Ramps at the entrance of blocks with Handrails for support

5.5 Fire Safety

Fire and life safety are an important consideration of the National Building Code 2016. This aspect is touched upon as part of this study in the capacity of an Architect registered with the Council of Architecture. As part of the research, fire safety audit was considered from the 'Building systems' perspective.

Systems such as fire extinguishers were available in the premises.

DETAILED REPORT

6. Suggestions

The following suggestions are section-wise recommendations and are supposed to be **executed within the next 2.5 years from the date of the Report submission**. The Institute can execute a plan after discussion with Project Head.

6.1 Site beautification

- ➔ **Bird house/ Feeders** - At appropriate locations there can be provisions for drinking water and some grains for birds as they visit the site much frequently.
- ➔ **Nutrition pits** - Certain pits can be demarcated as 'Nutrition pits' where the organic food from the kitchen and Canteen fruit peels and fruits or vegetables can be degraded for making nutrition-rich soil.
- ➔ **Garden development** - The existing open space should be designed as an Architectural landscape.
 - Nursery documentation, expansion and beautification – The premises should have a nursery, details can be decided as per the landscape beautification.
 - Scientific name plates and QR codes – The team should undertake a project to have name plates with QR codes on every plant of the premises.
 - The landscape redesign and ecological redesign – This should be done to increase the shade cover in the entire premises.
 - Introduce various types of gardens inside the premises – The examples such as Flower gardens, Woodland gardens, Rock gardens, Water gardens, Vegetable and herb gardens, Roof gardens, Scented gardens, Medicinal gardens and Botanical gardens can be practiced.

6.2 Heat island reduction

No suggestions are proposed for this section.

6.3 Universally accessible premises

- ➔ **Resting places** - There should be increased provision for resting places on-premises outdoor and indoors.
- ➔ **Provisions for visually impaired - Tactile flooring** – The indoor and outdoor of the premises should have dedicated tactile flooring for the visually impaired.
- ➔ **Provisions for hearing and speech impaired – Sensor based fire system** – There should be smoke detectors, sensor based facilities and signages, floor layouts for emergency situations such as fire. Additionally, one maintenance staff should be allocated for assistance at every corner of the Institute.
- ➔ **Design up gradation for Inclusive premises** – The following activities can be undertaken:
 - Wheelchair, Lifts in every block so that every block has its own wheelchair.
 - Include Disability Services staff/students with disabilities on planning boards and offer multiple ways to participate in programs
 - Information/materials provided in multiple forms (Standard, electronic, large print, Braille)
 - Class outlines/notes are available for all students on accessible websites.

6.4 Life safety

- ➔ **Fire station** – A dedicated fire station could be established within the premises as part of the Fire and Life safety practices.
- ➔ **Combustible equipment** - Every space which has a gas cylinder or combustible equipment should have a provision for the barricade around the gas cylinders, appropriate safety board's mentioning 'danger sign' and 'Do not touch' with an additional small fire extinguisher close by.
- ➔ **Fire and life safety practices** – Provisions such as signages, fire alarm, smoke detectors, fire hydrant cabinets, sand buckets, hose reel, fire cabinet, fire water tank and fire pump near the entrance block whichever is applicable should be practiced.
- ➔ **Awareness** - Fire layouts in immediate spaces outside the lift, on the staircase landing,

signages mentioning 'Do not use lift in case of fire' additionally fire exit signages, boards should be put up at all possible locations.

- ➔ **Sensitization programs** - Regular seminars/ webinars by experts such as Architects, Govt. Fire department on subjects related to fire and life safety should be organized and the outputs should be adopted and documented.

6.5 Pollution Control

- ➔ **Promote the use of Eco-friendly vehicles** - There can be student and staff sensitization program on eco-friendly and battery-operated vehicles/ low emission vehicles for daily use.
- ➔ **Avoid burning waste** - The waste produced on the premises should not be burned as it is dangerous to the health of students and staff
- ➔ **Bicycles as a gift** - As an appreciation gesture maybe the student's toppers/ staff best performers can be awarded a bicycle occasionally.
- ➔ **Paperless technologies for offices** - The Institute can go technology-friendly and go paperless in the functioning of premises to a certain extent maybe not fully.

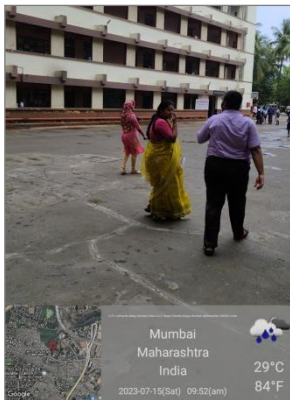
On-site investigation and physical verification
Audit Team during the visit and other photos collected during data documentation



Evidence of the visit - Investigation of the compost and waste management areas



Evidence of the visit – Water sampling testing and outdoor study



Investigative parameters – Site Aspects – Campus extent and facilities available in the premises



Investigative parameters – Site Aspects – Terrace study to understand waterproofing and cooling study

7. Compilation

The study is based on the data collected, analyzed, rechecked, and confirmed through multiple modes. For the quality study, some standards/ notes have been referred to. These are listed and noted below. However, no direct references have been used anywhere. These are used as a base to analyze and study the data collected.

- Uniform Plumbing Code – India, 2008
- IGBC Green Existing Buildings – Operation & Maintenance (O&M) Rating system, Pilot version, Abridged Reference Guide, April 2013
- IGBC Green Landscape Rating system, March 2013
- BOMA Canada Waste Auditing Guide, Best Environmental Standards, BOMA BEST – Canada
- Used only for understanding Universal design - Universal accessibility Guidelines for Pedestrian, Non-motorized vehicle and Public Transport Infrastructure – Report guidelines by Samarthyam (National centre for Accessible Environments) – an initiative supported by Shakti Sustainable Energy Foundation.
- Reference images for suggestions:
 - ❑ <https://www.gaf.com/en-us/blog/six-truths-about-cool-roofs-281474980105387>
 - ❑ <https://earthbound.report/2021/07/14/5-ways-to-reduce-the-urban-heat-island-effect/>

