

ENVIRONMENTAL AUDIT REPORT | 2021

GREEN AUDIT REPORT - 2021

is presented to

ADICHUNCHANAGIRI UNIVERSITY

Nagamangala Taluk, BG Nagara – 571 448

has successfully demonstrated knowledge on Energy conservation, Water conservation, Bio diversity, Waste management, Indoor Environmental quality, Carbon footprint.

10.02.2022

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GREEN BUILDING CONSULTANT



Acknowledgement

Environment assessment team thanks the management of Adichunchanagiri University, for assigning this important work of Environment Audit. We appreciate the cooperation to us for completion of study.

Firstly, we would like to pay our abeisance to the almighty and would like to start this audit with blessings of His Holiness The Hon'ble Chancellor, Param Poojya Jagadguru Sri Sri Sri Dr. Nirmalanandanatha Mahaswamiji an ardent disciple of His Holiness Bhairavaikya Jagadguru Padmabhushana Sri Sri Sri Dr. Balagangadharanatha Mahaswamiji.

Our special thanks are due to:

Dr Chandrashekar Shetty Hon'ble Vice Chancellor, Dr. B K Narendra Dean of Engineering & Management Adichunchanagiri University, Dr. T Mahadevaiah Vice-Principal & Head, Dept. of Civil Engg BGSIT.

We are also thankful to other staff members who were actively involved in giving us necessary inputs to carry out this very vital exercise for Environment audit.





The Registrar,
Adichunchanagiri University,
Bengaluru – Hassan National Highway (NH-75),
Nagamangala Taluk, BG Nagara – 571 448,
Mandya District, Karnataka State, India.



Audited by:

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Disclaimer

Environment audit team has prepared this report for Adichunchanagiri University based on input data submitted by the representatives of the University and is 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 calculations 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.

The detailed Information and analysis presented in this report are valid as on the date of visit and period of study at the site. The work presented represents our best efforts and judgments based on the information available at the time this report was prepared. Green Aura makes no assurances as to the accuracy of any such information or any conclusions based thereon. The observations made in this report are only an indication of the performance of the facility based on our assessment and should not be considered as the comment on the functioning of the facility. The observation is purely based on the data recorded at that point of time.

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Executive Summary

Universities and Institutions have broad impacts on the world around them, both negative and positive. A nation's growth starts from its educational institutions, where the ecology is thought as a prime factor of development associated with the environment. The activities pursued by University can create a variety of environmental impacts. A clean and healthy environment aids effective learning and provides a conducive learning environment. Adichunchanagiri University is very sensitive to environmental factors as more concepts are being introduced to make them ecofriendly.

Adichunchanagiri University expresses its commitment to sustainability in many ways. It has taken a number of positive steps to reduce its environmental impact. But many areas remain in which substantial improvements can be made. This report serves to highlight Adichunchanagiri University's many accomplishments, and to make recommendations for improving the University's environmental sustainability. The University has conducted the Environment audit for the year **2021** and strives to maintain eco-friendly atmosphere on the campus.

The aim of the report is to identify scope for improvement and recommend implementable and economically viable solutions in achieving the most optimized utilization of energy and water in the campus. If self-enquiry is a natural and necessary outgrowth of a quality education, it could also be stated that institutional self-enquiry is a natural and necessary outgrowth of a quality educational institution. Therefore, it is imperative that the University evaluate its own contributions toward a sustainable future.

The initiatives taken by the University to make the campus Ecofriendly:

- 1. Energy conservation
- 2. Water conservation
- 3. Efforts for carbon neutrality
- 4. Hazardous and E-waste waste management
- 5. Health and Well-Being
- 6. Plantation
- 7. Carbon neutrality and Institutional footprint

University and its constituent college have undertaken various activities through N.S.S. and other activity to create eco-friendly awareness among the students, University and its constituent arranges special programs by inviting the eminent personalities, who in turn train and educate public. Students are encouraged to participate in eco-friendly activities.

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Environmental Auditing

Environmental Audit is the most efficient way to identify the strength and weakness of environmental sustainable practices and to find a way to solve problem. Environmental Audit is one kind of professional approach towards a responsible way in utilising economic, financial, social and environmental resources. Environmental Audit can "add value" to the management approaches being taken by the University and is a way of identifying, evaluating and managing environmental risks (known and unknown).



I. About Adichunchanagiri University

The University is situated in a Lush Green Unitary Campus of 67 acres at B.G. Nagara, Nagamangala Tq., Mandya District, Karnataka on the Bangalore – Mangalore National Highway No. 75, 105 Kms from Bangalore, the Capital City of Karnataka.

The University consists of six Constituent colleges in the disciplines of Medicine, Pharmacy, Nursing, Engineering, Management, Commerce and Education. The environment friendly campus has adequate infrastructure and physical facilities for Academics and Research. The campus possesses around 5000 students, 400 teachers and 1800 support staff.

The University employs a broad range of strategies to achieve its Vision, Mission and Objectives to expand the horizon of World Knowledge, provide instruction, Teaching-Learning, Training, Research and Development at the level of Higher Education in the faculties of Health Sciences, Engineering and Technology, Management and Technology, Humanities & Social Sciences and other Emerging and Thrust areas.



Logo of Adichunchanagiri University

Logo of Adichunchanagiri University symbolizes its vision "Education for all with Value Systems of Empathy, Enrichment, Equity, Excellence, Empowerment, Entrepreneurship & Enlightenment to Serve the Society".

i. Campus Details

The University consists of six Constituent colleges in the disciplines of Medicine, Pharmacy, Nursing, Engineering, Management, Commerce and Education. The environment-friendly campus has adequate infrastructure and physical facilities for Academics and Research. The campus possesses around 5000 students, 400 teachers and 1800 support staff.

Adichunchanagiri Institute of Medical Sciences (AIMS) was established in the year 1986 at BG Nagar, near Sri Adichunchanagiri Kshetra with a vision of providing medical education to aspiring students from rural areas. AIMS was inaugurated by the then Honorable Chief Minister of Karnataka, Sri Ramakrishna Hegde on 17th Jan 1986 in the holy presence of Padmabhushana Dr. Sri Sri Sri Balagangadharanatha Maha Swamiji. AIMS has evolved into a prestigious institution in the region since its inception



"Adichunchanagiri Institute of Medical Sciences"

BGS Institute of Technology (BGSIT) is a community that is dedicated for creating tomorrow's engineers and supporting today's pioneers. BGSIT is situated in a lush green and pollution-free environment, which is very much favorable and motivates the students to earnestly pursue their studies. The campus is 90 kilometers away from Bengaluru City known as Silicon Valley of India on the Bengaluru – Hassan – Mangalore National Highway (NH-75). BGS Institute of Technology (BGSIT), BG Nagar was established in 2005, The campus with 21 acres of land is unique in nature and located within a lush green environment. It is situated on Bengaluru-Hassan-Mangaluru National Highway (NH-75) (Alight: Bellur Cross, BG Nagar) and equidistant of 80 kilometers from Bengaluru, Mysuru, Mandya, Hassan and Tumkur.

Fresh oxygen rich air point of great attraction. BGSIT is approved by all Council for Technical Education, New Delhi; affiliated by Visveswaraya Technological University, Belagavi, and recognized by Government of Karnataka. It has the unique distinction of having learned faculty for teaching in respective disciplines. The dynamic and committed faculty and staff ensure high standards of learning and embedding social and ethical values.



Adichunchanagiri College of Nursing, The College of Nursing is a Part of Adichunchanagiri University, Adichunchanagiri College of Nursing(ACN) is one of the leading institutions in the country, offering Nursing education at the undergraduate, postgraduate and doctoral level.

Adichunchanagiri College of Nursing was started in the year 1995, Five years after the commencement of Diploma in Nursing Course (1991), Basic B.Sc.(Nursing)course was started in 1995, P.B.B.Sc. Nursing) started in the year 2008 and M.Sc.(Nursing) in Community Health Nursing started in the year 2011 and other M.Sc. Nursing Specialties started in the year 2015. PhD was started in the year 2019-2020 to meet the increasing demands for nursing Graduates in Hospitals, Nursing educational Institutions, Clinics, Industrial Nursing etc.

The success of ACN as an acknowledged institution for quality learning is an outcome of the various facets that give ACN its characteristic value – the faculty, enterprising students, infrastructure facilities and industry partnerships. The Institute is reputed for the outstanding students graduating from its undergraduate and postgraduate programmes. The alumni have distinguished themselves through their achievements and contributions to the industry, academics, research, business, government, and social domains.



"Adichunchanagiri College of Nursing"

Adichunchanagiri College of Pharmacy was started in the year 1981 is a Part of Adichunchanagiri University for providing an outstanding professional educational programme in pharmacy. Ten years after the commencement of Diploma course, B. Pharma degree course was started in 1992 to meet the increasing demand for Pharmacy graduates in Pharmaceutical Industries, Hospital Pharmacy, Drug Control Department and R & D department etc. SACCP has a distinctive atmosphere where the emphasis is on teamwork, cooperation, and friendly competition. Smaller student groups in classes lead to students developing closer supportive relationships with each other and faculty members. SACCP provides exceptional campus facilities to serve the needs of the student community.



"Adichunchanagiri College of Pharmacy"

BGS First Grade College, the primary objective of education is to create dynamic leaders in the corporate sector, entrepreneurs, and professionals who contribute to the development of society and nation at large. We are committed to maintaining high academic standards and preparing our students to secure rewarding employment on graduation. At the same time, we believe that S.F.G.C students should develop as individuals, gaining in self-confidence and developing a sense of enterprise.



"BGS First Grade College"

BGS College of Education (BGSCE), We at College of Education produce & develop value-added human resources. BGS College of Education ensures quality teacher education programme with ardent effort supported by high-level facilities of laboratories, library, classrooms, Auditorium, Seminar hall, Sports equipment, spacious playground & free hostel facilities for both male and female etc.

BGS College of Education is equipped with all necessary amenities for Teachers' Education Programme. There are Classrooms, Lecture Hall, Activity Room, Library with adequate number of books for use of the teachers and the students, Learning Resource Centre and rooms for Principal, Faculty, Office and Store. Equipment's for the Geography, Psychology and Work Education laboratories are in place. A fullfledged computer laboratory with all other accessories has also been setup.



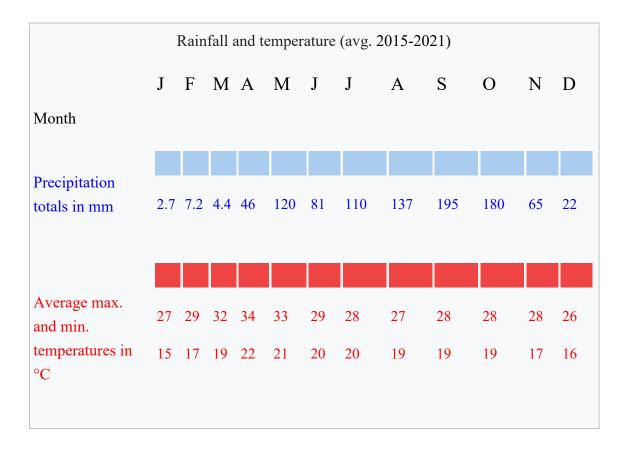
ii. Site details

a. Location

Bengaluru – Hassan National Highway (NH-75), Nagamangala Taluk, Mandya District, B G Nagar, Karnataka 571448.,

It is positioned at 12°57'53.60"N 76°43'40.90"E and covers an area of 112158.249 square meters, it has an average elevation of 796 meters. Seismicity, it lies in the seismically stable region, Zone III.

b. Climate Chart



c. Master Plan





Adichunchanagiri University Campus map

d. Total built-up area of the university

| AIMS College Block | | | | | | |
|--------------------|---|-------------|---------------|------------------|--|--|
| | | Old Exiting | New building | Total Building | | |
| Sr. No | Building Name | Building Up | Build up Area | Build Up Area in | | |
| | | Area (sqm) | (sqm) | (sqm) | | |
| 1 | AIMS College | 12,505.20 | 11801 | 24,306.20 | | |
| 2 | AIMS Library block | 2750 | 4799 | 7,549 | | |
| 3 | Auditorium Block | 2882.62 | 0 | 2,882.62 | | |
| 4 | AIIMS Forensic block | 1103 | 2151 | 3,254 | | |
| 5 | Animal house | 372.67 | 0 | 372.67 | | |
| 6 | AIMS Teaching block | 6569.66 | 0 | 6,569.66 | | |
| | Total AIMS college Buildup area 44,934.15 | | | | | |

| Hospital block | | | | | | | |
|----------------|-------------------------------|--|--|---|--|--|--|
| Sl. No | Building Name | Old Exiting Building Up Area (sqm) | New building Build up Area (sqm) | Total Building Build Up Area in (sqm) | | | |
| 1 | Hospital Block | 3436.77 | 20343 | 57,779.77 | | | |
| 2 | Ward Block | 0 | 16820 | 16,820 | | | |
| 3 | Casualty block | 0 | 5792 | 5,792 | | | |
| 4 | OBG Block | 0 | 1400 | 1,400 | | | |
| 5 | OT Block | 0 | 3542 | 3,542 | | | |
| 6 | ICU Block | 0 | 1987 | 1,987 | | | |
| 7 | OPD 2nd Floor | 0 | 3018 | 3,018 | | | |
| 8 | OPD 2nd Floor | 0 | 1138 | 1,138 | | | |
| 9 | Medical gas generator | 0 | 374 | 380 | | | |
| 10 | OT block to ward block | 0 | 604 | 604 | | | |
| 11 | ICU block to ward block | 0 | 806 | 307 | | | |
| | Total Build up Area 92,767.77 | | | | | | |

| Residential Block | | | | | | |
|-------------------|-----------------------|--|--|---------------------------------------|--|--|
| Sl. No | Building Name | Old Exiting Building Up Area (sqm) | New building Build up Area (sqm) | Total Building Build Up Area in (sqm) | | |
| 1 | AIMS Boys hostel | 5480.92 | 10981 | 16,461.92 | | |
| 2 | AIMS Girls hostel | 12246.47 | 0 | 12,246.47 | | |
| 3 | K B Boys PG Hostel | 4361.05 | 0 | 4,361.05 | | |
| 4 | K B Girls PG Hostel | 3647.58 | 0 | 3,647.58 | | |
| 5 | AIMS Staff quarter | 12601.76 | 0 | 12,601.76 | | |
| 6 | Nursing staff quarter | 0 | 6977 | 6,977 | | |

| 7 | Principal quarter | 1253.53 | 0 | 1,253.53 |
|----|--------------------------|-------------|---|----------|
| 8 | Vijnatha bhawan | 1894.28 | 0 | 1,894.28 |
| 9 | Manasa complex | 2328.62 | 0 | 2,328.62 |
| 10 | Bank building | 507.99 | 0 | 507.99 |
| 11 | Working women HO 3801.11 | | 0 | 3,801.11 |
| 12 | Hospital canteen | 351.3 | | |
| | Total hos | 66,432.61 | | |
| | Total | 2,04,134.53 | | |

| BGSIT Building Details | | | | |
|------------------------|--------------------------|--------------------|--|--|
| Sl.No. | Building Name | Roof Top Area (m²) | | |
| 1 | CIVIL ENGG BLOCK 1 | 261.09 | | |
| 2 | CIVIL ENGG BLOCK 2 | 261.09 | | |
| 3 | CIVIL ENGG BLOCK 3 | 261.09 | | |
| 4 | GUEST HOUSE BLOCK | 266.79 | | |
| 5 | STAFF BLOCK | 266.79 | | |
| 6 | BOYS HOSTEL 1 BLOCK | 679 | | |
| 7 | BOYS HOSTEL 2 BLOCK | 887.58 | | |
| 8 | LIBRARY AND ME BLOCK | 801 | | |
| 9 | WORKSHOP BLOCK | 1542.5 | | |
| 10 | TEACHING BLOCK | 1420 | | |
| 11 | CS EC BLOCK | 1625 | | |
| 12 | ADMIN BLOCK | 1826.7 | | |
| 13 | Mechanical BLOCK | 763 | | |
| | TOTAL roof top area (m²) | 10861.76 | | |



II. Built Environment

i. Development Footprint and Green Cover

Adichunchanagiri University has retained some site features to minimize site damage and associated negative environmental impacts such as, greenery within the campus, thereby providing habitat and promoting biodiversity. Top Soil Preservation is done to protect the top soil and control soil erosion, thereby reducing negative impacts to the site and surroundings, Adichunchanagiri University is having a vegetated area of 31.5acre i.e. nearly 50% area in the university and is equally balanced with the building footprint.



Adichunchanagiri University campus development footprint and green cover







University has encouraged to retain the site features of the campus to minimize site damage and associated negative environmental impacts by retaining the existing trees, topography, landscape natural rock, water bodies and channels without any disturbance whatsoever.

ii. Outdoor Light Pollution Reduction

To Reduce light pollution to increase night sky access and enhance the nocturnal environment. The institute has designed exterior lighting such that no external light fixture emits more than 5% of the total initial designed fixture Lumens, at an angle of 90 degrees or higher from nadir i.e. straight down.





iii. Air quality

Air pollution has long term and short term impact on the biotic and abiotic component of the environment. The ambient air quality at the core zone of university was monitored. The study area represents it is very calm environment with very less pollutants which was recorded in portable air quality monitor pollution meter with PM 2.5 detector, the preliminary test PM2.5 range was around 5and it's within the required range of 12.0 so based on the reading Air quality testing was not suggested to the university as the vegetated area is more than the building footprint.

Based on the interaction with building occupants i.e. students and staff members there is no symptoms are often linked to poor indoor air quality such as Dryness and irritation of the eyes, nose, throat, and skin, headache, fatigue, dizziness.

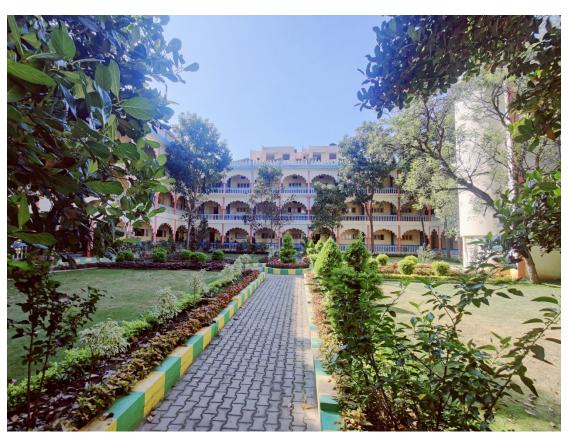
| Current Pollutan | ts Air Quality Scale Over | the past hour |
|-----------------------------|--|-----------------------|
| PM ₁₀ Excellent | Particulate Matter 2 are inhalable pollutant particles with a diameter less than 10 micrometers. Particles that are larger than 2.5 micrometers can be deposited in airways, resulting in health more | 6 6 µg/m³ |
| PM _{2.5} Excellent | Fine Particulate Matter 2 are inhalable pollutant particles with a diameter less than 2.5 micrometers that can enter the lungs and bloodstream, resulting in serious health issues. The most severe more | 3 2 µg/m³ |
| O ₃ Excellent | Ground-level Ozone L can aggravate existing respiratory diseases and also lead to throat irritation, headaches, and chest pain. | 2 5 µg/m³ |
| NO ₂ Excellent | Breathing in high levels of Nitrogen Dioxide Increases the risk of respiratory problems. Coughing and difficulty breathing are common and more serious health issues such as respiratory more | 1 2 μg/m³ |
| CO Excellent | Carbon Monoxide is a colorless and odorless gas and when inhaled at high levels can cause headache, nausea, dizziness, and vomiting. Repeated long-term exposure can lead to heart disease | 1 104 μg/m³ |
| SO ₂ | Exposure to Sulfur Dioxide can lead to throat and eye irritation and aggravate asthma as well as chronic bronchitis. | 0 0 µg/m³ |

The values of air quality data are within permissible limits. Regular check on these parameters should be kept.

Teachers can be powerful advocates for creating healthy indoor environments, including improving University indoor air quality. As they are on the front lines, teachers can perceive when IAQ changes affect students and themselves. By being involved in creating a clean and healthy learning environment, teachers can promote health, wellness and academic productivity.

Top Actions Teachers Staff and Health Professionals Can Take to Address to improve Indoor Air Quality is by,

- 1. Keep ventilation units in classrooms free of clutter
- 2. Report any IAQ issues and maintenance problems occurring in classrooms and hallways immediately
- 3. Reduce the number of items made of cloth in your classroom, including furniture, draperies. These materials attract dust mites, which can negatively impact sensitive students
- 4. Practice chemical management in your classrooms, if appropriate
- 5. Keep Indoor plants which purifies Indoor air quality



Vegetation inside and outside the building to purify air

III. Biodiversity Audit.

A scientific survey of flora and fauna of the campus is carried out covering rainy, winter and summer seasons during 2020-21, this biodiversity audit has revealed more than 1500 trees, various species of Mammals, Aves, Arthropods and Annelids were also recorded. This indicated excellent composition of Flora and Fauna. Many birds are reported in the campus seasonally. Institution has started naming the trees and plants with their botanical name and numbering. Biodiversity audit has revealed different species as follows,

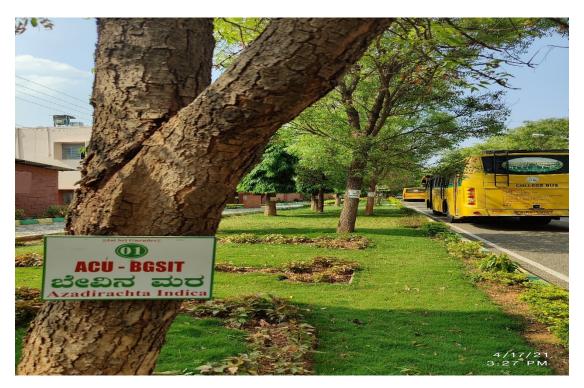
| Sr.no | SCIENTIFIC NAME | LOCAL NAME |
|-------|--------------------------|-------------------------------|
| 1 | Grevillea robusta | Silver oak |
| 2 | Millettia pinnata | Honge |
| 3 | Saraca asoca | Ashoka tree |
| 4 | Artocarpus Heterophyllus | Jack fruit |
| 5 | Rose wood | Beetae |
| 6 | Peepal(bodhi) | Arali |
| 7 | Phyllanthus | Nelli |
| 8 | Mangifera indica | Mango |
| 9 | Azadirachta indica | Bevu |
| 10 | Melia dubia | Hebevu |
| 11 | Swieteniamacrophylla | Mahogany |
| 12 | Rubiaceae | Tega |
| 13 | Magnolia Champaca | Sampige |
| 14 | Citrus x sinensis | Ketale |
| 15 | Indian almond | Kadu badami |
| 16 | Mulberry | Neralae |
| 17 | Ficus drupacea | Goni mara |
| 18 | Peltophorum pterocarpum | Copperpod Tree |
| 19 | Delonix regia | Royal Poinciana Tree |
| 20 | Pithecellobium dulce | Manila Tamarind Tree |
| 21 | Azadirachta indica | Neem Tree |
| 22 | Moringa oleifera | Drumstick Tree |
| 23 | Eucalyptus globulus | Eucalyptus Tree |
| 24 | Millingtonia hortensis | Indian Cork Tree |
| 25 | Emblica officinalis | Indian Gooseberry Tree (Amla) |
| 26 | Dalbergia sissoo | Indian Rosewood Tree |
| 27 | Tamarindus indica | Tamarind Tree |
| 28 | Tectona grandis | Teakwood Tree |
| 29 | Ficus recemosa | Cluster Fig Tree |
| 30 | Ficus religiosa | Peepal Tree |
| 31 | Ficus benghalensis | Banyan Tree |
| 32 | Samanea saman | Rain Tree |

Various species of Mammals, Aves, Arthropods and Annelids were also recorded. This indicated excellent composition of Flora and Fauna quite unique considering that the campus is situated in the heart of the city. Many birds are reported to breed in the campus seasonally. Animals and Birds most observed are as follows:

| | Sr. No. | Common Name | Species |
|-----------|------------|------------------------------------|------------------------|
| | 1 | House Sparrow | Passer domesticus |
| | 2 | Great Egret | Ardea alba |
| | 3 | Rosy Starling | Paster roseus |
| Birds | 4 | Large Grey Babbler | Turtoides malcolmi |
| Bilus | 5 | Alpine swift | Apus melba |
| | 6 | Common Cuckoo | |
| | 7 | Common Myna | |
| | 8 | Pigeon | Columbidae |
| | 1 | Indian cobra | Naja naja |
| | 2 | Graceful racer | Platyceps gracilis |
| | 3 | Indian saw scaled viper | Echis carinatus |
| | 4 | Indian python | Python molurus |
| Dantilaa | 5 | Indian Green Keelback | Rhabdophis plumbicolor |
| Reptiles | 6 | Common Bronzebeck tristis | Dendrelaphis tristis |
| | 7 | Indian Chamaleon | Chamaelaeo zeylanicus |
| | 8 | Oriental rat snake | Ptyas mucosa |
| | 9 | Common cat snake | Boiga trigonata |
| | 10 | Indian Palm Squirrel | |
| A : al a | 1 | Scorpion | Heterometrus fulvipes |
| Arachnids | 2 | | Hottentota tamulus |
| | 1 | Sphinx moths | |
| | 2 | Common Gull | Cepora nerissa |
| | 3 | Common grass yellow | Eurema hecabe |
| | 4 | Lemon migrant | Catopsilia Pomona |
| | 5 | White orange tip | Ixias Marianne |
| | 6 | Common Jay | Grapium doson |
| | 7 | Peacock pancy | Junonia almanac |
| | 8 | Common crow butterfly | Euploea core |
| Insects | 9 | Lesser grass blue | Zizina otis |
| | 10 | Forget Me Not | Catochrysops Strabo |
| | 11 | Common Mormon Swallowtail | Papilio polytes |
| | 12 | Lime Swallowtail | Papilio demoleus |
| | 13 | Lime blue | Chilades lajus |
| | 14 | Grasshopper | Poekilocerus pictus |
| | 15 | Blue Tiger | Tirumala limniace |
| | 16 | Common evening brown | Melanitis leda |
| | 17 | Ants, Bees and Wasps, Sawflies etc | |

On an average campus is having about 500 trees and plant tree saplings that can mature into fully grown-up trees with large canopy in the next 5 to 8 years.

Institution is Minimizing disturbances and restoring vegetation in the campus, so as to promote habitat and biodiversity.



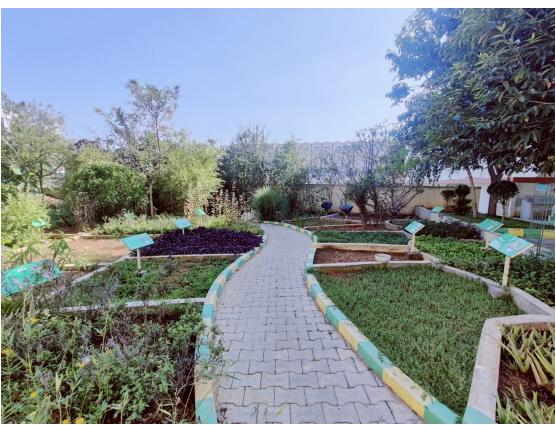




World Water Day and World Forest Day 2021 was celebrated by planting 150 tree samplings on 22/3/2021







Cultivation workshop was organized by the university for improving the sustainability of small farming systems through the recycling of organic matter, which can be used as a growing substrate, and then returned to the land as fertilizer



IV. Waste Management Audit.

Institution facilitate segregation of waste at source to encourage reuse or recycling of materials, thereby avoiding waste being sent to landfills. The waste management is in order with the installation of dust bins. The waste is segregated at source by providing separate dust bins for Biodegradable and Plastic waste. Daily cleaning is carried out and most of the non-biodegradable waste is lifted by the City Municipal service.

Various types of chemical waste are collected and disposed by the Department of Chemistry.

The E-waste and defective item from computer lab is being stored properly. The institution has decided to contact approved E- waste management and Disposal facility in order to dispose E-waste in scientific manner. Hazardous Waste, Radioactive Waste not found.

Institution strongly believes in 3R's Reduce, Reuse and Recycle of waste as follows,

Reduce: Institution has replaced the use of paper in admissions of the candidates, filling of the examination forms, cash book etc. This has drastically helped in reduction of use of paper. The students also encouraged to use both the sides of the paper for writing tests and are asked to use the paper binding for their academic practical records instead of plastic. Notice and circulars are shared to faculty through email.

Reuse: The E-waste and defective item from computer lab is being stored properly. The institution has decided to contact approved E- waste management and Disposal facility in order to dispose E-waste in scientific manner, which can be reused.

Electronic goods are put to optimum use; the minor repairs are set right by the Laboratory assistants and teaching staff; and the major repairs are handled by the Technical Assistant and are reused. ACU has entered into MoU with SOGO Synergy which buys our damaged computers and other non-reparable e-waste and issues a Recycling certificate. SOGO Synergy has a State-Of-The-Art Warehouse measuring 20,000 sq. feet meant for storage, dismantling and recycling of electronic waste with the support of latest technology. The equipment which cannot be refurbished for re-use is dismantled and remanufactured into raw materials (i.e. metals, plastics, glass) to be marketed as recyclable. The company assures that the E-waste does not end up in a landfill. It is sent to an agency authorized by Karnataka State Pollution Control Board (KSCB) for disposal, which processes E-waste in a Zero dumping technology. UPS Batteries are recharged / repaired / exchanged by the suppliers. The waste compact discs and other disposable non-hazardous items are used by students for decoration.

The Wet Waste generated from the institution has entered into an arrangement with a local farmer, who collects wet waste and left over food every evening and uses the same as fodder to his live stock.





Farmer collecting the wet waste from the college canteen.

Recycle: The waste management is in order with the installation of dust bins. The waste is segregated at source by providing separate dust bins for Biodegradable and Plastic waste. Students and staff members are given sufficient information regarding the effective management of the waste generated in the campus.

Organic Waste Management

To ensure effective waste management, so as to avoid organic waste being sent to landfills and to improve sanitation & health. Institution has Installed an on-site waste treatment system for handling organic (food and garden) waste generated in the campus, including buildings. The generated manure or bio-gas will be utilized as appropriate.

Institution is practicing organic waste composting method by implementing the pipe composting undertaken to compost the biodegradable waste collected from Boy's Hostel. The raw waste was put to active composting without any source separation and pulverization. It is a kind of vermi-composting, often called Tube Composting, carried out within a PVC tube.









Tube Composting

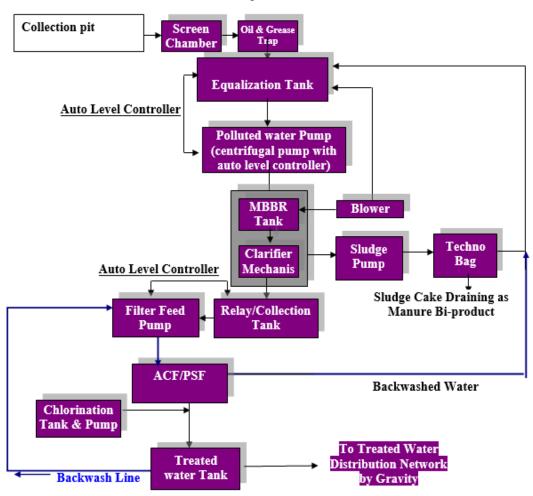
Sewage Treatment Plant

Institution has designed a sewage treatment plant and will treat waste water to tertiary standards, so as not to pollute the water streams, Sewage treatment plant is provided for 750 KLD capacity of Sewage Treatment Plant advanced technology of MBBR wastewater treatment plant.



MBBR unit in Sewage Treatment Plant. Screening unit in Sewage Treatment Plant.

GENERIC FLOW CHART: MBBR BASED DOMESTIC POLLUTED WATER POLLUTION CONTORL EQUIPEMT AND SYSTEM



Hydraulic Flow Drawing for 750kld Sewage Treatment Plant.

Characteristics of Raw Sewage Water

| Sl | Description | Raw Water | Treated |
|----|---------------------|----------------|------------|
| No | | | Water |
| 1. | Design Capacity | 750 KLD | 750 KLD |
| 2. | Average Feed Flow | 18KL | 18KL |
| 3. | Peak/Max. Feed Flow | 50KL | 50KL |
| 4. | Operating Hours | 24 Hours | 24 Hours |
| 5. | РН | 6.5 – 8.5 | 6.5 – 8.5 |
| 6. | BOD | 250 – 400 mg/l | < 20 mg/l |
| 7. | COD | 400 – 600 mg/l | < 100 mg/l |
| 8. | TSS | 150 – 250 mg/l | < 50 mg/l |
| 9. | Oil & Grease | 30 – 80 mg/l | <10 |

Waste Management plan

Waste Management plan as per university green policy, building up a system though university has implemented Green Protocol and started segregation of wastes, it has still not become fully functional. Efforts should be taken for building up a fully functional system for waste management which should rest on the principles of reduce, reuse, repair, redesign, replenish, refuse, reconsider and recycle.

- 1. Awareness should be given to the entire university community on waste management and waste segregation.
- 2. Waste auditing: wastes generated by the university should be audited to ascertain the source, type and amount of waste generated in a year. The yearly action plans should address ways to reduce this waste.
- 3. The cleaning staff should be authorized to report the increase or decrease in the waste generated by each department and the departments who are able to demonstrate reduction in their levels of waste produced should be honored.
- 4. The system for waste segregation and storing should be put firmly in place. Segregations should be reorganized into different chambers for storing plastic wastes, e-wastes and other non biodegradable wastes, which could be sold to the vendors during periodic intervals.
- 5. A panel of vendors, including those who are capable of managing e-waste should be contacted and their periodic removal should be ensured.
- 6. The fine arts University departments could be approached to find out possibilities of creating works of art from the waste generated from within the

- university like, installations, gardens which would ensure the up-cycling of solid wastes.
- 7. Start reducing the paper wastes (paper recycling unit) through relying more on electronic devices at all levels including governance, examinations, admission, and finance etc. e-governance should be ensured.
- 8. Bio-gas plants established at the canteen and university hostel premises should be well maintained. The staffs who are managing those plants should be given training about its maintenance. The capacity to create gas from degradable wastes should be explored fully and used in the canteen or hostels.
- 9. Thumburmuzzhi Model Aerobic composting pit could be constructed to manage the biodegradable waste that could not be put into biogas plants.
- 10. Incinerators should be installed into all women's toilets and properly maintained. The female students should be given awareness on the use of alternative eco-friendly ways of managing menstruation.

V. Green Policy and Education.

The institution promotes green education by involving students, local communities to increase awareness levels and encourage implementation of eco-friendly practices through Eco Club.

Eco Club helps the students to understand environment, environmental law and their role in the environmental protection. The institution conduct lot of programmes and awareness initiatives relating to protection of environment. In this regard many activities are conducted by the club periodically, such activities include many outreach and educational programmes in a year with the involvement of campus occupants, local communities to increase public awareness on environment sustainability and green features of the campus.

The whole campus involved in the Swachh Bharat Abhiyan by creating awareness around the institution regarding clean India mission by keeping their campus and its premises clean all the staffs and students were participated and made the mission successful in the whole campus.

Every year Environmental Day, Earth Day and Water Day is celebrated in the institution. Plantation activities are taken up to bring awareness and to increase the green coverage area in and around the campus.

Adichunchanagiri University – BGS Institute of Technology, BG Nagara, has Conducted Plantation Program on behalf of "World Environment Day" on 05th June 2020. Plantation Program was organized by Civil Dept. & NSS Unit at BGSIT Campus.



The Principal, The Registrar Evaluation, ACU, Finance Officer, ACU, HOD's, NSS Program Officer, Staff members, Non-teaching staff and Horticulture workers actively participated in the program.

World Water Day and World Forest Day 2021 was celebrated on 22/3/2021 by Adichunchanagiri University BGS Institute of Technology. The program was graced by the chief guest Dr. B Nagappa, Former Scientific Officer, Karnataka State Pollution Control Board, Bangalore, Dr. B K Narendra, Principal, BGSIT, Dr. T Mahadevaiah, Professor and Head, Dept. of Civil Engg. Dr. T Mahadevaiah extended warm welcome to the guest and the gathering. Dr B K Narendra, honoured the chief guest and in his presidential remarks stated about the importance and preservation of water.







Adichunchanagiri University BGS Institute of Technology, Celebrated world **Environment day** by doing activities such as the planting of trees and highlighting the urgency to increase the green cover. The plantation programme was headed by his Holiness Param Poojya Jagadguru Sri Sri Sri Dr. Nirmalanandanatha Maha Swamiji.

World Environmental Day 2021 Celebration on 05/06/2021

On the occasion of World Environmental Day plating of sapling program was arranged on 5th July 2021 in the BGSIT Campus. More than 50 saplings were planted in the campus.



Sapling Program on Environmental Day 2021 Celebration

As a part of societal activity "Rural development program" was organized at Brahmadevanahalli. The program was organized with the objective of Empowering, Educating, creating environment awareness among the stake holders. On this occasion Hon'ble Vice Chancellor Dr S Chandrasekhar Shetty addressed the gathering and distributed computers and also Nali kali (enjoy while learning) desks and tables were distributed to the schools 11 Schools which comes under Brahmadevanahalli Gram panchayat.





As a part of environmental initiative, tree samplings were planted around the village with the help of all the members of society activity along with Brahmadevanahalli volunteers.

The guests of the program highlighted mainly on the need and importance of protecting the Environment and also educating the rural students with latest facilities. All the members of the committee agreed to work on developing this village as a model village in the areas of **Education**, **Environment**, **Empowerment** of all the people.



"Clean Campus Mission" was organized on 01/02/2021. On this day, the NSS volunteers and students gathered to clean around the campus and shopping complex in front of the college campus. NSS volunteers enthusiastically collected plastic wastes, tea cups and glass bottles spread around the campus. The volunteers collected all the waste and trash bags to the place where the university has arranged for waste disposal. The whole cleaning drive was quite inspiring and motivating for the NSS team members.

The main aim of the program was to remove the garbage/ plastic around campus. The Principal, HODs, NSS Program Officer, Staff members & NSS Volunteers actively participated in the program. It was very well appreciated by the general public.









Clean Campus Mission.

Activities through NSS

National Service Scheme is an educational programme with primary focus on the personality development of students through community service. The NSS Unit of BGS Institute of technology has 100 volunteers. The activities and programmes of NSS Unit BGS Institute of technology aim the overall development of students.

A brief outline of the activities conducted during the academic year 2021-22 is given below

- Department of Civil Engineering has organized Webinar on "Issues & Challenges in Urban Waste Water Management", by Sri Thippe Swamy M N Ex. Chief Engineer BWSSB, Bengaluru on 5-6-2021
- Webinar on Issues & Challenges in Urban Waste Water Management on 5th June 2021
- Webinar on Design and Validation of Mechanical Components through Virtual Methods on 8th June 2021
- Webinar on Presentation on Public Speaking Software on 9th June 2021
- Webinar on Microsoft Certification on Machine Learning on 11th June 2021
- Inauguration of BGSIT IEEE CAS STUDENT CHAPTER and Webinar on Fighter Aircraft Technologies. Dr. NNSSRK Prasad Outstanding Scientist Aeronautical Development Agency (ADA), BAngalore
- Department of Mechanical organized webinar On "Design Approach On Clutches And Brakes" on 15th June 2021
- Webinar on Mind-to Tune Your Life on 19-6-2021
- Webinar on Outcome Based Education on 20th June 2021
- Webinar on Artificial Intelligence The New Electricity on 21st June 2021
- On the occasion of Seventh International Yoga Day, Morning Yoga was conducted at BGSIT Campus on 21st June 2021, Monday.
- A Webinar on Mind and Life Modification was organized by Department of Management Studies, BGS Institute of Technology, Adichunchanagiri University on Saturday, 03rd July 2021
- Department of Management Studies jointly organized One day National Webinar on "Innovation and Entrepreneurship with Purpose – Opportunities for YOUth" on Monday, 12th July 2021
- Department of CSE organizes webinar on Important Algorithms Concepts Through Real Life Examples on 16.07.2021.
- A webinar on Important Algorithms Concepts through Real Life Examples held on 20.07.2021.
- On23rdJuly, 2021 Friday, Department of Electronics and Communication Engineering, BGS Institute of Technology
- A webinar on Important Artificial Intelligence in Social Networks with Exclusively for Facebook and Twitter concept held on 29.07.2021

- Department of CSE & ISE, organized international webinar on "Intelligent Edge Network(5G)" on 8th October 2021
- Department of Civil Engineering in association with ICI, IGBC & Institutions
 Innovation Council conducted the webinar on "OPPORTUNITY & FUTURE of
 AEC INDUSTRY" on 22.10.2021.
- The Department of ECE, BGS Institute of Technology, ACU, BG Nagara in association with Innovation & Science Club, IEEE & IETE has organized The Quiz Challenge on "Electronics" on 12th November 2021
- Department of Management Studies, had organized "Think Green Recycle,
 Reuse, Reduce", a product launch event on 13.11.2021.
- Department of Mechanical organize the a "IIF Student Chapter" on 17.11.2021
- Department of CSE organizes Code Hunt Event under Coding Club on 17.11.2021
- Department of Management Studies had organized Industrial Visit to HAL
 Heritage Center and Aerospace Museum, Bengaluru 19th November
- Department of Computer Science & Engineering had organized Webinar on MuleSoft's Anypoint Platform (Digital Transformation) on 19th November
- Library and Information Centre has organized a Workshop in association with BGSIT-IQAC on "Enhancing the Research Visibility: Strategies and Techniques" on 20.11.2021
- Department of Civil Engineers organized Walkathon on Building Safety at Freedom Park on 25.11.2021
- Department of Information Science and Engineering has organized Webinar on "Higher Education at Monash University, Australia" by AECC Global India on 30th November 2021
- Department of Mechanical has organized technical talk on "Fundamentals of Tool Design" on 01st December 2021
- Department of Mechanical has organized a Industrial Visit to Toyotetsu India Private Limited on 04.12.2021.
- Department of Mechanical has organized a Industrial Visit to Rajamane industries Pvt. Ltd. on December 8, 2021.
- Department of CSE had organized Two Days Hands-on Workshop on "Building Vaccination Technology Using ASP.Net Core" on 9th & 10th of December 2021.
- National Mathematics Day is celebrated on 22nd December 2021

• Department of MBA organized Awareness Programme on Micro Finance on 24th December, 2021.

| Sl. | Academic | Date | Event Description |
|-----|--------------------|------------|--|
| No | year | | _ |
| 1 | | 16/04/2021 | Awareness program on the side effects of Drugs Abuse |
| 2 | | 13/07/2021 | Vaccination Drive at BGSIT Campus |
| 3 | | 15/08/2021 | Independence Day Celebration 2021 |
| 4 | | 18/08/2021 | Fit India Freedom Run 2.0 |
| 5 | | 27/08/2021 | BGSIT-NSS Blood Donation Camp 2021 |
| 6 | 2021-22 05/10/2021 | | "Swachh Bharath Abhiyan" at Adopted Village |
| 7 | | 02/12/2021 | ACU-NSS Blood Donation Camp |
| 8 | | 15/12/2021 | National Energy Conservation Day – 2021 |
| 9 | | 25/01/2022 | National Voter's Day - 2022 |
| 10 | | 28/02/2022 | National Science Day |
| 11 | | 08/03/2022 | International Women's Day |



Celebration of World Water Day and World Forest Day



Celebration of World Water Day and World Forest Day



National Energy Conservation Day



"Think Green - Recycle, Reuse, Reduce"

VI. Observation and Recommendation

Observations of the Environmental Audit

- 1. Signages have been well maintained at all applicable places in all campuses
- 2. Paper consumption is monitored in all buildings
- 3. Waste bins/containers are available at appropriate places. Separate bins are kept for different types of wastes. Waste quantity is monitored
- 4. E-waste is returned to suppliers for disposal
- 5. Used Lead-acid batteries are returned to manufacturers or their agents during replacement
- 6. More 500 number of saplings are planted as a part of NSS and other activity in and around the campus
- 7. Environment friendly cleaning agents were used for cleaning of floors and toilets at all the campuses
- 8. Oil cans stored are provided with secondary containment in all campuses
- 9. Fire-extinguishers are periodically refilled in all campuses
- 10. Mock drills are carried out towards fire emergencies
- 11. First aid kits are available in all campuses on each floor at convenient places and monitored for availability of all the items
- 12. University is successfully implementing majority of the suggestions and recommendation provided in previous 4 years' audit.

Recommendation

- 1. Training on sustainability should be provided.
- 2. Mock drills are carried out for other emergencies (snake bite, fall from height, electric shock)
- 3. Energy monitoring to be done strictly by conducting energy auditing every year.
- 4. Energy saving measures to be followed by using LED instead of T12 tube & T8 tube light
- 5. Energy star rated appliances usage to be made mandatory
- 6. In future refrigerant selected for the Air Conditioning System to be selected with HFC based refrigerant like R 410A.
- 7. Every year Environmental Day, Earth Day and Water Day to be celebrated to create awareness about Environment.
- 8. Plantation activities to be followed in regular intervals to increase the green coverage area in and around the campus.
- 9. Adopt the proposed Environmentally Responsible Purchasing Policy, and work towards creating and implementing a strategy to reduce the environmental impact of its purchasing decisions.
- 10. Practice Institutional Ecology- Set an example of environmental responsibility by establishing institutional ecology policies and practices of resource conservation, recycling, waste reduction, and environmentally sound operations
- 11. Involve All Stakeholders- Encourage involvement of government, foundations, and industry in supporting interdisciplinary research, education, policy formation, and information exchange in environmentally sustainable development.
- 12. Renovation of cooking system in the canteen to save gas by installation solar water heater system with heat pump.
- 13. Ensure participation of students and teachers in local environmental issues.
- 14. Tree ownership can be given to employees
- 15. Develop a butterfly garden that arouses appreciation towards flora and fauna diversity.
- 16. Sanitary waste: Sanitary napkin burning machine/destroyer called as incinerator" in the ladies' washroom to be installed in every ladies' toilet for a greener tomorrow.

