# GREEN AUDIT REPORT

**2017-18 TO 2019-20**

# PATTAMUNDAI COLLEGE, PATTAMUNDAI, KENDRAPARA, ODISHA


*Prepared by:-*

**BIKASH RANJAN DASH**

**DIVISIONAL FOREST OFFICER**

**MANGROVE FOREST DIVISION (WILDLIFE)**

**RAJNAGAR, KENDRAPARA, ODISHA**

## EXECUTIVE SUMMARY

Educational institutions are the nursing grounds for the futures of a nation's growth. A conducive learning atmosphere in an educational institution requires a clean and healthy environment. While the concept of 'Eco Club' is being adopted in institutions of primary education level to imbibe the essence of environment among the young, more environmental responsibility is required in case of institutions of higher education to achieve environmental sustainability through wise resource utilization and waste discharge to the environment. Waste minimization plan and sustainable environmental management are now mandatory for educational institutions. Environmental Auditing or Green Auditing is a process to test the environmental performance of an organization against its environmental policies and objectives.

The audit process in Pattamundai College, Pattamundai involved initial interactions with the management to clarify policies, activities, records and cooperation of staff and students in the implementation of mitigation measures. This was followed by collection of data through questionnaire, review of records, observation of practices and observable outcomes. In order to assess the quality of water and soil, data on water and soil quality was obtained by testing of samples collected from different locations of the college campus by testing laboratories. In addition, the approach ensured that the management, staff and students are active participants in the green auditing process in the college.

This is the first Green Audit of Pattamundai College and the baseline data prepared for the college will be a useful tool for campus greening, resource management, planning of future projects, and a document for implementation of sustainable development of the college. It is expected that the management will be committed to implement the green audit recommendations.

# C O N T E N T S

## BRIEF BACKGROUND OF THE COLLEGE

Pattamundai College, affiliated to Utkal University, Odisha, is situated away from the din and bustle of the town with five meadows and rich corn fields around. It came into being in 1970 as an Arts College with the provision for teaching pre-University Humanities course. The institute at present is a family of 1475 students with boys and girls of 869 and 606 respectively taking education at under graduate level in Arts, Commerce and Science disciplines with 80 numbers of teaching and non teaching faculties.

With a long history of 50 years and a picturesque sprawling campus of 14.6 acres land of its own is indeed a testimony of truly materialized dream of education lovers of Pattamundai. Since fifty springs has been passed, this institution continuously ventilating knowledge and has been playing a pivotal role in the development of Pattamundai and its surrounding regions. With the modest strength of 128 students in the year of its inception-1970, besides all odds and constraints the college grew manifold in leaps and bounds. It is carefully nurtured by illustrious academicians, administrators, dedicated faculties and alumni, with institutionalised efforts over the years, and it has become a premiere institution in the academic map of Odisha.

In its onward march, the institution cradled with one faculty in Arts in 1970, and introduced Honours in Political Science, History, Economics in 1978 and English, Odia, Sociology, Philosophy & Education in 1989.Then Commerce faculty was opened in 1979 and Science faculty in 1989 with introduction of Chemistry and Mathematics Honours in 1994-94 and Botany, Physics and Zoology Honours in 1998 added to its glory. The University was pleased to open a vocational subject of Tourism and Travel Management in 1998 which illuminated as land mark in development and expansion of the academic area of the college. The college has a permanent affiliation and has been listed under 2(f) and 12(B) of the UGC act which withstands the academic and administrative standards of the college. In response to the changing needs of the society and as per UGC norms innovative experiments are being carried out with help of computer networking for making the teaching learning process interactive and participative.

With the need of the time, the institution expanded its area of innovation in different respects to meet the requirement of the students as well as different stake holders.

With the infrastructural growth such as addition of new buildings, hostels, renovation of library laboratories and playground, it also emphasized to enhance its academic quality to reach the institution to a new height. It contributed toppers in Sociology and Mathematics at University level in different years with many more best students along with achievements in sports and other fields. The institution also adopted the new curriculum as changed by Utkal University at different times and prepared the students accordingly with a new idea to compete with the other in national and international levels. The contribution of its NCC, NSS and YRC students has a remarkable effect in serving the society by awarding and donating blood, planting trees, campus cleaning, observing national days etc. The institution is one step ahead by planting about 4000 trees since 1990 to make the campus an eco-friendly environment with a permanent green and waste management policy of its own. The institution is diversified with a planed electricity management to save energy by switching off the unused buildings and converting whole institution with LED bulbs. This year, the institution has also planned to install solar power to provide the main building where main electric consumption is there.

The institution has a fully operational website providing day to day information and has also fully automated library with INFLIBNET connection and e-portals to provide easy access to its all the stake holders.


Location of Pattamundai College

**Vision of the College**

- To make higher education qualitative and value based for the socio-economic transformation of the nation.
- To instill a sense of discipline and morality among the student's community for the making the students socially responsible citizens.

**Mission of the College**

- To grow into an institution of excellence and exemplary at the university level
- To provide literary, scientific, professional and technical education to the aspiring rural youth at a minimum cost.
- To be recognized as an institution with proven capacity to provide quality education in Science, Commerce & Humanities.
- To create symbiotic relationship with the society to meet the changing needs
- To introduce self-financing courses in multidisciplinary area.
- To adopt continues measures to improve the quality of the programme.
- To provide need-based career-oriented courses to the needs of the society

- To involve the Alumni for all round development of the college

**NAAC Accredition**

Year: 2006

Grade: B+

**Courses offered:**

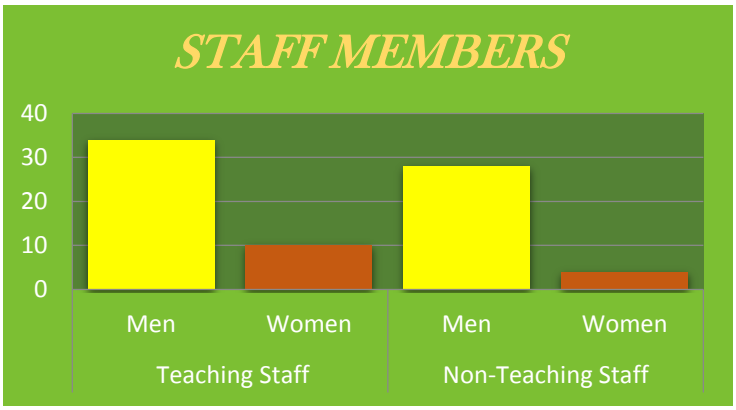
The institution offers following programmes which include the different courses as given in the table below.

| PROGRAMME OFFERED | COURSES OFFERED |
|---|---|
| Bachelor of Arts | Economics |
| | Education |
| | English |
| | History |
| | Odia |
| | Philosophy |
| | Political science |
| | Sociology |
| Bachelor of Science | Botany |
| | Chemistry |
| | Mathematics |
| | Physics |
| | Zoology |
| Bachelor of Commerce | Commerce |

**Strength of Staff (Teaching/ Non-teaching):**

Presently this institution runs with 76 Nos of both teaching and non teaching staff members whose continuous effort makes this institution a glorious one. Among the total staff, detailed analysis of men and women of both the categories are given.

| **Teaching Staff** | | **Non-Teaching Staff** | |
|---|---|---|---|
| Men | Women | Men | Women |
| 34 | 10 | 28 | 4 |




## Strength of Students:

| Year | Stream | General | | SC | | ST | | OBC | | PWD | | Minority | | Total | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | |
| 2017-18 | Arts | 124 | 352 | 88 | 126 | 0 | 0 | 24 | 105 | 0 | 0 | 0 | 5 | 236 | 588 | 824 |
| | Commerce | 185 | 103 | 34 | 22 | 0 | 0 | 43 | 36 | 0 | 0 | 2 | 3 | 264 | 164 | 428 |
| | Science | 97 | 109 | 25 | 16 | 0 | 0 | 26 | 42 | 0 | 0 | 3 | 0 | 151 | 167 | 318 |
| | Total | 406 | 564 | 147 | 164 | 0 | 0 | 93 | 183 | 0 | 0 | 5 | 8 | 651 | 919 | 1570 |

| Year | Stream | General | | SC | | ST | | OBC | | PWD | | Minority | | Total | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | |
| 2018-19 | Arts | 140 | 392 | 56 | 107 | 0 | 0 | 12 | 61 | 0 | 0 | 0 | 3 | 208 | 563 | 771 |
| | Commerce | 213 | 120 | 30 | 13 | 0 | 0 | 9 | 13 | 0 | 0 | 4 | 2 | 256 | 148 | 404 |
| | Science | 114 | 126 | 22 | 11 | 0 | 0 | 3 | 21 | 0 | 0 | 3 | 0 | 142 | 158 | 300 |
| | Total | 467 | 638 | 108 | 131 | 0 | 0 | 24 | 95 | 0 | 0 | 7 | 5 | 606 | 869 | 1475 |

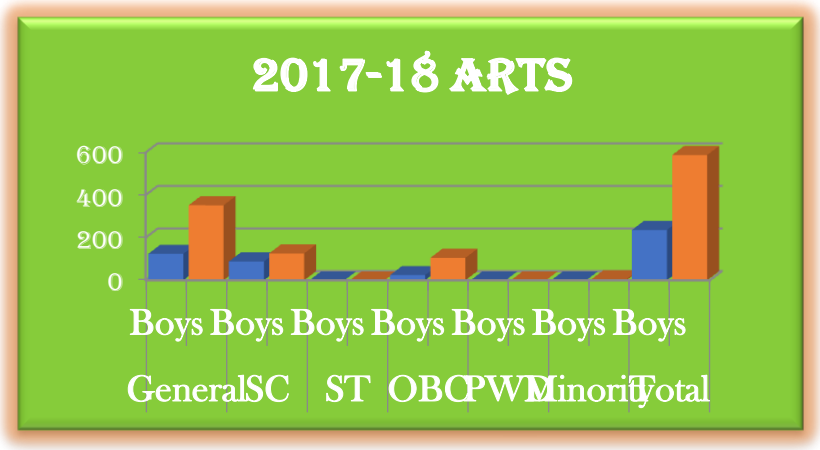
| Year | Stream | General | | SC | | ST | | OBC | | PWD | | Minority | | Total | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | |
| 2019-20 | Arts | 93 | 329 | 47 | 114 | 0 | 0 | 23 | 120 | 0 | 0 | 0 | 3 | 163 | 566 | 729 |
| | Commerce | 159 | 100 | 39 | 12 | 0 | 0 | 49 | 26 | 0 | 0 | 2 | 0 | 249 | 138 | 387 |
| | Science | 90 | 102 | 21 | 18 | 0 | 0 | 34 | 21 | 0 | 0 | 2 | 0 | 147 | 141 | 288 |
| | Total | 342 | 531 | 107 | 144 | 0 | 0 | 106 | 167 | 0 | 0 | 4 | 3 | 559 | 845 | 1404 |

| Year | Stream | General | | SC | | ST | | OBC | | PWD | | Minority | | Total | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | |
| 2017-18 | Commerce | 185 | 103 | 34 | 22 | 0 | 0 | 43 | 36 | 0 | 0 | 2 | 3 | 264 | 164 | 428 |

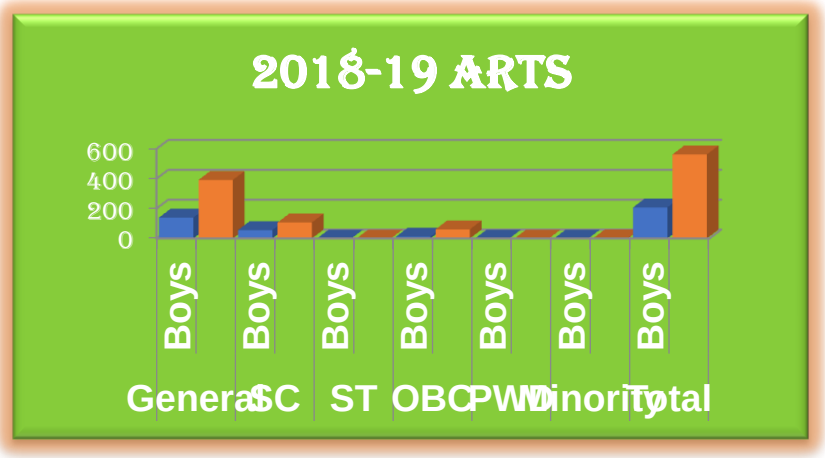

| Year | Stream | General | | SC | | ST | | OBC | | PWD | | Minority | | Total | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | |
| 2017-18 | Science | 97 | 109 | 25 | 16 | 0 | 0 | 26 | 42 | 0 | 0 | 3 | 0 | 151 | 167 | 318 |

*Table -7*

| Year | Stream | General | | SC | | ST | | OBC | | PWD | | Minority | | Total | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | |
| 2017-18 | Arts | 124 | 352 | 88 | 126 | 0 | 0 | 24 | 105 | 0 | 0 | 0 | 5 | 236 | 588 | 824 |

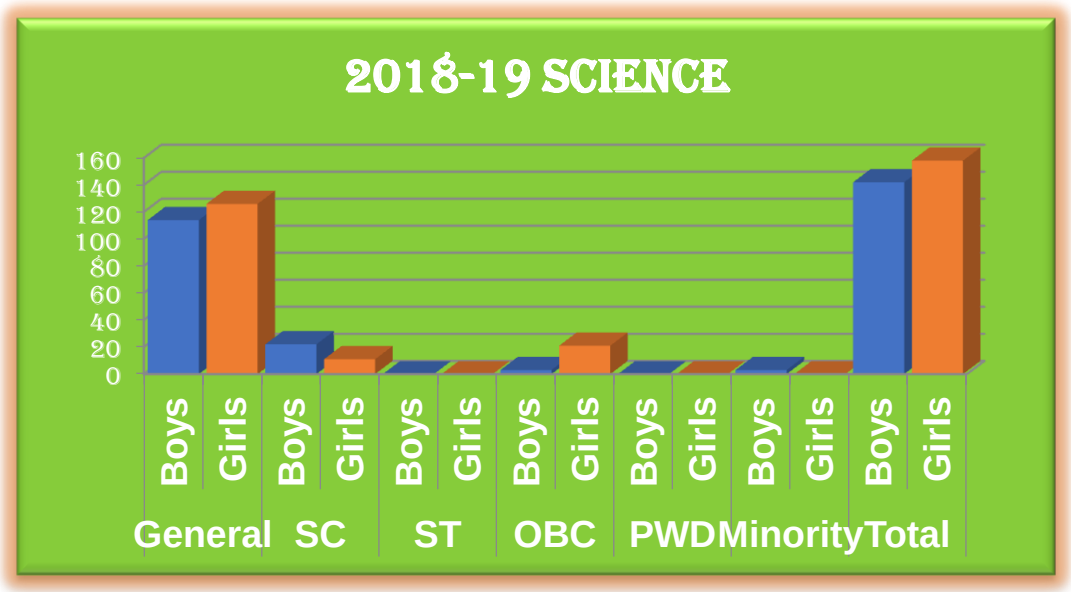



| Year | Stream | General | | SC | | ST | | OBC | | PWD | | Minority | | Total | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | |
| 2018-19 | Arts | 140 | 392 | 56 | 107 | 0 | 0 | 12 | 61 | 0 | 0 | 0 | 3 | 208 | 563 | 771 |




| Year | Stream | General | | SC | | ST | | OBC | | PWD | | Minority | | Total | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | |
| 2018-19 | Commerce | 213 | 120 | 30 | 13 | 0 | 0 | 9 | 13 | 0 | 0 | 4 | 2 | 256 | 148 | 404 |

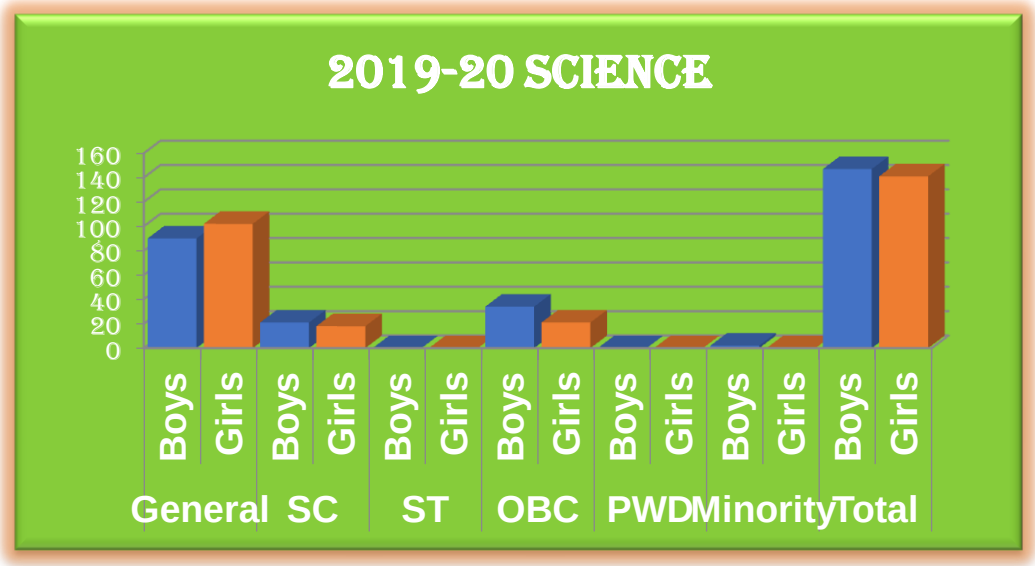

| Year | Stream | General | | SC | | ST | | OBC | | PWD | | Minority | | Total | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | |
| 2018-19 | Science | 114 | 126 | 22 | 11 | 0 | 0 | 3 | 21 | 0 | 0 | 3 | 0 | 142 | 158 | 300 |



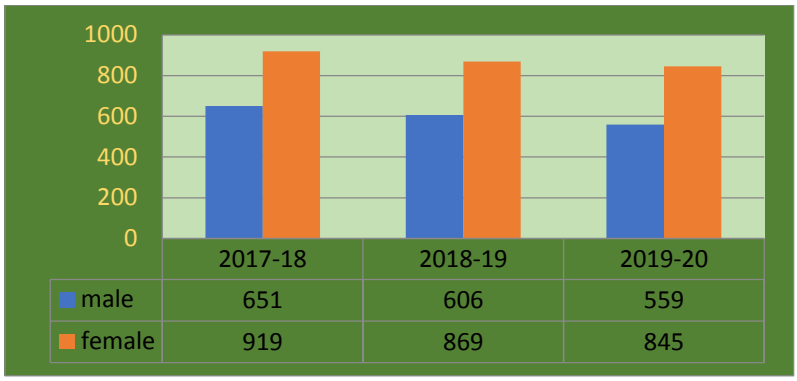

| Year | Stream | General | | SC | | ST | | OBC | | PWD | | Minority | | Total | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | |
| 2019-20 | Arts | 93 | 329 | 47 | 114 | 0 | 0 | 23 | 120 | 0 | 0 | 0 | 3 | 163 | 566 | 729 |


| Year | Stream | General | | SC | | ST | | OBC | | PWD | | Minority | | Total | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | |
| 2019-20 | Commerce | 159 | 100 | 39 | 12 | 0 | 0 | 49 | 26 | 0 | 0 | 2 | 0 | 249 | 138 | 387 |


| Year | Stream | General | | SC | | ST | | OBC | | PWD | | Minority | | Total | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | |
| 2019-20 | Science | 90 | 102 | 21 | 18 | 0 | 0 | 34 | 21 | 0 | 0 | 2 | 0 | 147 | 141 | 288 |




| Year | Male | Female | Total |
|---|---|---|---|
| 2017-18 | 651 | 919 | 1570 |
| 2018-19 | 606 | 869 | 1475 |
| 2019-20 | 559 | 845 | 1404 |




**Physical structure (Area/ Built up area/ No. of class rooms/ libraries/ administrative rooms/ laboratories/ auditoriums/ conference rooms/ staff common rooms/ students common rooms/ hostels/ canteens/ others)**

The institution has a land area of 14.6 acres of its own which is surrounded with pucca boundary fully to check the free access of the trespassers to overcome any kind of huddles in its academic atmosphere. Out of this, the built up area covers 10299.23$m^2$ which includes the physical

structures given in the list below to cater the need of the students as well as all other stakeholders. The rest part of the total area covers a huge playground with full of green lands of different plants. Different gardens inside the campus add to its beautification in many folds.

| . **Details of physical structures** | |
|---|---|
| **Physical Structure** | **Area/No** |
| Total Area | 14.6 Acre |
| Built Up Area | 10299.23 $m^2$ |
| Class Rooms | 32 |
| Libraries | 01 |
| Administrative rooms | 05 |
| Laboratories | 04 |
| Auditoriums | 01 |
| Conference rooms | 01 |
| Staff common rooms | 01 |
| Students common rooms | 02 |
| Hostels | 03 |
| Canteens | 01 |
| Guest House | 01 |
| Post Office | 01 |
| Staff Quarter | 02 |
| Stadium | 01 |
| Security Rooms | 03 |
| Principal Quarter | 01 |
| Cycle Stand | 01 |
| Examination Hall | 01 |
| Lavatories | 14 |

| **Construction Area in Sqft.** | | |
|---|---|---|
| **Specific area** | **Size in ft** | **Total area in $ft^2$.** |
| Staff Common Room to Boys Lavatories | 2(200 X 28 ) | 11200 |
| Administrative Block | 2(125 X 28 ) | 7000 |
| Zoology Department | 89 X 37 | 3293 |
| Examination Hall | 2(115 X 25) | 5750 |
| Room No-01 to 06 | 145 X 26 | 37770 |
| Room No-26 & 27 | 64 X 27 | 1727 |
| Library Hall | 2(137 X 38) | 10412 |
| Chemistry, Botany & Math Laboratory | 100 X 68 | 6800 |
| Boys Hostel | 92 X 67 | 6164 |
| Principal Quarter | 51 X 34 | 1734 |
| Guest House | 62 X 56 | 3472 |

| | | |
|---|---|---|
| Canteen | 34 X 23 | 782 |
| Old Chemistry Block | 87 X 42 | 3650 |
| Post Office | 36 X 46 | 1656 |
| New OBC Hostel | 3(94 X 52) | 14664 |
| Ladies Hostel | 2 (112 X 90) | 20160 |
| Staff Quarter | 79 X 35 | 2765 |
| Cycle Stand | 35 X 18 | 630 |
| Stadium | 72 X 31 | 2232 |
| Security 3 Nos. Room | 10 X 12.5 | 125 |
| | 25 X 10 | 250 |
| | 10 X 12.5 | 125 |
| **Total** | | **110860 $ft^2$ =10,299.23 $m^2$** |

**Establishment of Environment Management System**

- **Declaration of Environment Policy**

The institution has its own environment policy to set up the targets which technically possible for the environmental protection and economically possible to create eco-friendly green environment .The different policies are

- To create the sense for environmental protection for the society.
- To aware and educate different stake holders regarding relevant laws and regulations of environmental protection.
- To aware about planting of more number of trees and reduce fossil fuel consumption.
- To reduce energy consumption and avoid plastic based materials.
- To aware the local people by making continuous rally with placards, posters and road show by the students.
- To avoid the burning of coal, wood, leaves, dung cake for different purposes and give more emphasis on use of natural gas.
- To dispose the particular wastes in proper manner as per then rule.

- **Planning of programme or activity**

The institution has an annual plan and programme for the different activities relating to plantation, gardening (ornamental and medicinal), beautification, auction of uprooted trees, and waste disposal of its own. The different stake holders such as NCC, NSS, YRC, Alumni etc. are advised accordingly to perform such activities in due course of time to adhere the environmental policy of this institution.

- **Implementation and operation**

As per the programme, the institution is planted with different trees by our different stake holders and they are well aware to take care of these plants. Regular awareness programme, meetings and placards rally are going on to aware and activate the students, staff and people of this locality. Cleanness programme are regularly done to make the campus clean. The watering of plants and garden are regularly done through supplied, waste and harvested rain water. The waste management of the institution is properly done as explained in the waste management.

## OBJECTIVES OF GREEN AUDIT

The objectives of Environmental Audit in Pattamundai College are:

- To recognize the initiative taken by the College towards environment.
- To recognize, diagnose and resolve the environmental problems.
- To recognize the effects of the College on the environment and vice versa.
- To identify and control the impact of activities of the College on environment.
- To suggest the best protocols for sustainable environment.
- To assess environmental performance and the effectiveness of the measures to achieve the defined objectives and targets.
- To identify the different pressures on the College to improve their environmental performance.
- To ensure that the natural resources are utilized properly as per national policy of environment.
- To set the procedure for disposal of all types of harmful wastes.
- To reduce energy consumption.

- To give preference to the most energy efficient and environmentally sound appliances.
- To minimize the consumption of water and monitor its quality.
- To identify the risks of hazards and implement the policies for safety of stakeholders.
- To make sure that rules and regulations are taken care to avoid the interruptions in environment.
- To provide baseline information to enable the College to evaluate and manage environmental change, threat and risk.
- To identify the gap areas and suggest recommendations to improve the Green Campus status of the College.

## TARGET AREAS OF GREEN AUDITING

Green audit forms part of a resource management process. Although they are individual events, the real value of green audit is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time. The concept mainly focuses on the efficient use of energy and water; minimize waste generation or pollution and also economic efficiency.

All these indicators are assessed in the process of Green Auditing of this Institute. It focuses on the reduction of contribution to emissions, procure a cost effective and secure supply of energy, encourage and enhance energy use conservation, promotes personal action, reduce the institute's energy and water consumption, reduce wastes to landfill, and integrate environmental considerations into all services considered to have significant environmental impacts. Target areas included in this green auditing are water, energy, waste, green campus and carbon footprint.

### Auditing for Water Management

Water is a natural resource; all living organisms depend on water. Groundwater depletion and water contamination are taking place at an alarming rate. Hence it is essential to examine the quality and usage of water in the college. Water auditing is conducted for the evaluation of facilities of raw water intake and determining the facilities for water treatment and reuse. The

concerned auditor investigates the relevant method that can be adopted and implemented to balance the demand and supply of water.

**Auditing for Energy Management**

Energy conservation is an important aspect of campus sustainability which is also linked with carbon foot print of the campus. Energy auditing deals with the conservation and methods to reduce its consumption related to environmental degradation. It is therefore essential that any environmentally responsible institution examine its energy use practices.

**Auditing for Waste Management**

Human activities create waste, and it is the way these wastes are handled, stored, collected and disposed of, which can pose risks to the environment and to public health. Pollution from waste is aesthetically unpleasing and results in large amounts of litter in our communities which can cause health problems. Solid waste can be divided into three categories: bio-degradable, non-biodegradable and hazardous waste. Bio-degradable wastes include food wastes, canteen waste, wastes from toilets etc. Non-biodegradable wastes include what is usually thrown away in homes and schools such as plastic, tins and glass bottles etc. Hazardous waste is waste that is likely to be a threat to health or the environment like cleaning chemicals, acids and petrol. Unscientific management of these wastes such as dumping in pits or burning them may cause harmful discharge of contaminants into soil and water supplies, and produce greenhouse gases contributing to global climate change respectively. Special attention should be given to the handling and management of hazardous waste generated in the college. Bio-degradable waste can be effectively utilized for energy generation purposes through anaerobic digestion or can be converted to fertilizer by composting technology. Non-biodegradable waste can be utilized through recycling and reuse. Thus, the minimization of solid waste is essential to a sustainable college. The prevailing waste disposal policies are assessed and suggestions made on the best way to combat the problems.

### Auditing for Green Campus Management

Trees play an important ecological role within the urban environment, as well as support improved public health and provide aesthetic benefits to cities. In one year, a single mature tree will absorb up to 48 pounds of carbon dioxide from the atmosphere, and release it as oxygen. The amount of oxygen released by the trees of the campus is good for the people in the campus. So while you are busy studying and working on earning those good grades, all the trees in campus are also working hard to make the air cleaner for you.

### Auditing for Carbon Footprint

Burning of fossil fuels (such as petrol) has an impact on the environment through the emission of greenhouse gases into the atmosphere. The most common greenhouse gases are carbon dioxide, water vapour, methane, nitrous oxide and ozone. Of all the greenhouse gases, carbon dioxide is the most prominent greenhouse gas, comprising 402 ppm of the Earth's atmosphere. The release of carbon dioxide gas into the Earth's atmosphere through human activities is commonly known as carbon emissions. Vehicular emission is the main source of carbon emission in the campus, hence to assess the method of transportation that is practiced in the college is important.

## METHODOLOGY ADOPTED

The methodology adopted to conduct the Green Audit of the college had the following components

### Onsite Visit

Three day field visit was conducted by the Green Audit Team . The key focus of the visit was on assessing the status of the green cover of the college, their waste management practices and energy conservation strategies etc.

### Group Discussion

The Group discussions were held with the staff members, students and the management focusing various aspects of Green Audit. The discussion was focused on identifying the attitudes and awareness towards environmental issues at the institutional and local level.

**Energy, waste management and Carbon foot print analysis Survey**

With the help of teachers and students, the audit team assessed the energy consumption pattern and waste generation, disposal and treatment facilities of the college. The monitoring was conducted with a detailed questionnaire survey method.


Pre Audit Meeting

**AUDIT STAGE**

Green auditing began with the assessment of the status of the green cover of the Institution followed by waste management practices and energy conservation strategies etc. Different facilities at the college were monitored, different types of appliances and utilities (lights, taps, toilets, fridges, etc.) were determined as well as measuring the usage per item (Watts indicated on the appliance or measuring water from a tap) and identifying the relevant consumption patterns (such as how often an appliance is used) and their impacts. The staff were interacted to get details of usage, frequency or general characteristics of certain appliances.

Data collection was done in the sectors such as Energy, Waste, Greening, Carbon footprint and Water use. College records and documents were verified several times to clarify the data received through survey and discussions. The environment samples including water, soil from various location of the campus were collected and analyzed at government recognized testing laboratories.

Post Audit Discussion

**GREEN AUDIT REPORT**

**Water Quality assessment**

**Water quality:**

Water samples were collected from 4 different sites such as tube well water (boys hostel), pond water (near main building) and two bore wells of the campus and analysed for the basic parameters by sending State Food Testing Laboratory, Bhubaneswar, Odisha whose results are given in the tabular form.

| **Parameters** | **Tube Well Water (Boys hostel)** | **Pond Water (Near Main Building)** | **Bore Well Water 1** | **Bore Well Water 2** | **Standard BSI value (BIS)** |
|---|---|---|---|---|---|
| Colour | Nil | Nil | Nil | Nil | Agreeable |
| Odour | Nil | Nil | Nil | Nil | Agreeable |
| Alkalinity (mg/l) | 150 | 136 | 152 | 110 | 200 |
| Chloride (mg/l) | 32 | 28 | 36 | 34 | 250 mg/l Max |
| Residual Free | Nil | Nil | Nil | Nil | 0.2 mg/l Max |

| | | | | | |
|---|---|---|---|---|---|
| Chlorine(mg/l) | | | | | |
| Total Hardness (Total) | 62 | 54 | 64 | 58 | 200 mg/l Max |
| Iron (as Fe) (mg/l) | 3.5 | Nil | Nil | Nil | 1.0 mg/l Max |
| pH | 6.0 | 6.5 | 7.0 | 7.5 | 6.0 to 8.5 |
| Turbidity | 20 NTU | 15 NTU | Nil | Nil | 1 NTU Max |
| Sulphate as $SO_4^{-2}$(mg/l) | Nil | Nil | Nil | Nil | 200 mg/l Max |
| Total Alkalinity ( as $HCO_3^-$)(mg/l) | 150 | 136 | 152 | 110 | 200 mg/l Max |
| Nitrate ( as $NO_3^-$) | Nil | Nil | Nil | Nil | 45 mg/l Max |
| Nitrate ( as $NO_2^-$) | Nil | Nil | Nil | Nil | 0.02 mg/l Max |
| Test for E.Coli coliform | Negative | Negative | Negative | Negative | Absent |
| MPN of Coli form group of organisms per 100 ml | Negative | +5 | Absent | Absent | Negative |


Water samples for testing

**Water Management**

The institution has its own water management system. There are two deep Bore wells with two submersible pumps of capacity 2 hp and 1 hp each which meet all the need of the water. The distribution of water is properly done to different places as per the requirements. Different overhead tanks are available in different parts of the college to meet these requirements. There are 13 water purifiers and 1 cooler at different parts of the college to overcome the drinking water of the different stakeholders. The waste water obtained from different parts are well managed by watering the plants, ponds as well as sumps. Also college has access to the municipality supply water and also used at its need. Rain water harvesting system is also managed properly to watering the plants and rest to the ponds. There is also a well available in the college whose water is not used due to the supply of water from the Bore wells. The ponds are cleaned time to time for the pisciculture which add some funds to the college and consume biodegradable wastes left to the ponds through rain as well as waste water.

| Sl. No | Parameters | Response | Remarks |
|---|---|---|---|
| 1 | Source of water | Bore Well with submersible pump, Municipality water supply, Ponds | Bore Well-02<br>Ponds -02 |
| 2 | No of wells | 01 | Available but not in use<br>( Location- Physics Department back side) |
| 3 | No of motors used | 02 | |
| 4 | Horse power (motor) | 2 hp and 1 hp each | Total Quantity -02 |
| 5 | Depth of well | 20 feet | |
| 6 | Water level | 10 feet | |
| 7 | No of water tanks | 20 | |
| 8 | Capacity of tank | 18,000 L | 2000 L × 4 =8000 L<br>750 L × 4 =3000 L<br>1000 L × 6 =6000 L<br>500 L × 2 =1000 L |

| | | | |
|---|---|---|---|
| 9 | Qty of water pumped everyday | 10,000 L | Regular use before COVID-19 |
| 10 | No of ponds | 02 | Near College Canteen-01<br>Boys Hostel -01 |
| 11 | Any water wastage/ why? | No | |
| 12 | Water usage for gardening | Yes | |
| 13 | Waste water sources | 1) Lavatory College Office& Building<br>2) Laboratory(Physics, Chemistry, Zoology &Botany)<br>3) Water Cooler & Water Purifiers. Outlet<br>4) Boys & Girls Hostel, Toilets, Kitchen &wash basin outlet | |
| 14 | Use of waste water | Gardening, Plantation & Drained to ponds for storage. | |
| 15 | Fate of wastewater from labs | Soak pits are made at their outlet to absorb within | |
| 16 | Whether waste water from labs mixed with ground water | No | Absorbed fully within the soak pits. |
| 17 | Whether any green chemistry method practiced in labs | No | |
| 18 | Any treatment of lab water | No | Only absorbed through soak pits. |
| 19 | No of water coolers | 01+13 =14 | 01-Water Cooler<br>11-Kent RO water Purifier<br>02-UV water purifiers |
| 20 | Rain water | Yes | |

| | | | |
|---|---|---|---|
| | harvest available? | | |
| 21 | No of units and amount of water harvested | 02 units | |
| 22 | Any leaky taps | No | |
| 23 | Amount of water lost per day | Nil | |
| 24 | Any water management plant used | No | |
| 25 | Any water saving techniques followed | Yes | 1.Urinals are equipped with push pull angle cocks to prevent wastage of water.<br>2. Overhead water tanks connected with ball cock to prevent water spillages automatically |
| 26 | Are there any signs reminding people to turn off the water | | 1. Overhead tanks are also connected with drain Pipes in case water fall on ground because of faulty ball cock. |

**Soil Quality Assessment**

Soil samples were collected from four locations such as ornamental garden, playground , herbal garden and back side of the main building plantation area of the campus and analysed the basic Parameters Krushi Vigyan Kendra, Kendrapara, Odisha. The results are tabulated and presented in the table.

| **Parameter** | **Location 1** | **Location 2** | **Location 3** | **Location 4** |
|---|---|---|---|---|
| pH | 5.8 | 5.4 | 5.9 | 6.2 |
| Total Available Nitrogen (kg/ha) | 195.2 | 175.6 | 205.3 | 220.4 |
| Total organic carbon (%) | 0.39 | 0.35 | 0.41 | 0.44 |
| Available Phosphorous (kg/ha) | 10.2 | 9.3 | 10.4 | 11.3 |

Soil samples for testing

**Energy Audit**

A detailed data of consumption of electricity of the institution for the sessions 2017-18, 2018-19 and 2019-20 are given elaborately in table separately. The consumption of electricity is varied with the addition / modification of different items/ instruments. The institution is equipped with modern / updated electric appliances such as 5star rated instruments LED tube and bulbs to reduce the energy consumption. It also tried to add solar energy system to further save and use of green energy.

**Data Sheet for Energy Audit of the Session: 2017-18**

| **Room No./ Name** | **Electrical device/ Items (Bulbs: CFL/ Incandescent/ CFL; AC, Fan/ Computer, Instruments, Other appliances)** | **Number** | **Power In watt** | **Usage Time (Hr/Day)** |
|---|---|---|---|---|
| NAAC | Fan | 2 | 140 | 5 |
| | CFL | 2 | 36 | 5 |
| | Desktop | 8 | 440 | 5 |
| | Laptop | 1 | 150 | 5 |
| | AC | 1 | 1500 | 2 |
| Principal's Office | Fan | 3 | 210 | 7 |
| | CFL | 3 | 36 | 7 |
| | Laptop | 1 | 150 | 7 |

| | | | | |
|---|---|---|---|---|
| Principal's Rest Room | Fan | 1 | 70 | 5 |
| | CFL | 1 | 36 | 5 |
| | CCTV DVR | 1 | 220 | 24 |
| | AC | 1 | 1500 | 2 |
| | Refrigerator | 1 | 125 | 24 |
| Account Section | Fan | 2 | 140 | 7 |
| | CFL | 2 | 48 | 7 |
| | Desktop | 1 | 220 | 7 |
| | Printer | 2 | 220 | 5 |
| Administrative Office | Fan | 2 | 140 | 7 |
| | CFL | 3 | 96 | 7 |
| | Printer | 1 | 220 | 5 |
| Office Veranda | Tube Light | 4 | 48 | 5 |
| Staff Common Room | Fan | 8 | 560 | 7 |
| | CFL | 6 | 240 | 7 |
| | AC | 3 | 4500 | 3 |
| | Water Purifier | 1 | 30 | 24 |
| Examination Section | Fan | 8 | 560 | 5 |
| | Tube Light | 9 | 360 | 5 |
| | Desktop | 1 | 220 | 5 |
| SAMS | Fan | 1 | 70 | 5 |
| | Tube Light | 2 | 80 | 5 |
| | Desktop | 3 | 220 | 5 |
| | Xerox | 1 | 350 | 5 |
| Education Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 3 | 120 | 5 |
| | Laptop | 1 | 150 | 5 |
| Economics Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 3 | 120 | 5 |
| Sociology Seminar | Fan | 2 | 140 | 5 |
| | Tube Light | 2 | 80 | 5 |
| English Seminar | Fan | 1 | 70 | 5 |
| | Tube Light | 1 | 40 | 5 |
| | Laptop | 1 | 150 | 5 |
| | Printer | 1 | 220 | 5 |
| Philosophy Seminar | Fan | 2 | 140 | 5 |
| | Tube Light | 1 | 40 | 5 |
| Vocational Office | Fan | 1 | 70 | 5 |
| | Tube Light | 2 | 80 | 5 |
| Odia Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 2 | 80 | 5 |
| History Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 3 | 120 | 5 |
| Political Sc | Fan | 3 | 210 | 5 |

| | | | | |
|---|---|---|---|---|
| Seminar | Tube Light | 3 | 120 | 5 |
| Commerce Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 4 | 160 | 5 |
| Ladies Common Room | Fan | 2 | 14 | 5 |
| | Tube Light | 6 | 240 | 5 |
| | Water Purifier | 1 | 30 | 24 |
| Zoology Department | Fan | 9 | 630 | 5 |
| | Tube Light | 10 | 400 | 5 |
| | CFL | 3 | 72 | 5 |
| Motor Room | Motor | 1 | 1492 | 4 |
| | Bulb | 1 | 40 | 4 |
| Class Room No 08 | Fan | 8 | 560 | 5 |
| | CFL | 3 | 60 | 5 |
| Class Room No 10 | Fan | 4 | 280 | 5 |
| | CFL | 2 | 45 | 5 |
| Class Room No 09 | Fan | 1 | 70 | 5 |
| | CFL | 1 | 15 | 5 |
| Class Room No 07 | Fan | 2 | 140 | 5 |
| | CFL | 1 | 30 | 5 |
| Class Room No 14 | Fan | 1 | 70 | 5 |
| | CFL | 1 | 15 | 5 |
| Class Room No 15 | Fan | 1 | 70 | 5 |
| | CFL | 1 | 15 | 5 |
| Class Room No 16 | Fan | 6 | 210 | 5 |
| | CFL | 2 | 45 | 5 |
| Class Room No 17 | Fan | 1 | 70 | 5 |
| | CFL | 1 | 15 | 5 |
| Class Room No 18 | Fan | 1 | 70 | 5 |
| | CFL | 1 | 15 | 5 |
| Class Room No 19 | Fan | 1 | 70 | 5 |
| | CFL | 1 | 15 | 5 |
| Class Room No 20 | Fan | 6 | 420 | 5 |
| | CFL | 2 | 45 | 5 |
| Class Room No 21 | Fan | 8 | 560 | 5 |
| | CFL | 2 | 60 | 5 |
| Class Room No 23 | Fan | 6 | 420 | 5 |
| | CFL | 2 | 45 | 5 |
| Class Room No 24 | Fan | 2 | 140 | 5 |
| | CFL | 2 | 30 | 5 |
| Class Room No 25 | Fan | 10 | 700 | 5 |
| | CFL | 2 | 75 | 5 |
| Physics Department | Fan | 9 | 630 | 5 |
| | CFL | 10 | 295 | 5 |
| | Desktop | 1 | 220 | 5 |

| | | | | |
|---|---|---|---|---|
| | Water Purifier | 1 | 30 | 24 |
| | Refrigerator | 1 | 125 | 24 |
| | Printer | 1 | 220 | 5 |
| Botany Department | Fan | 11 | 770 | 5 |
| | CFL | 7 | 140 | 5 |
| | Desktop | 1 | 220 | 5 |
| | Printer | 1 | 220 | 5 |
| | Refrigerator | 1 | 125 | 24 |
| Mathematics Department | Fan | 4 | 280 | 5 |
| | CFL | 6 | 90 | 5 |
| | Desktop | 1 | 1320 | 5 |
| | Printer | 1 | 220 | 5 |
| Chemistry Department | Fan | 12 | 840 | 5 |
| | CFL | 3 | 45 | 5 |
| | Refrigerator | 1 | 125 | 24 |
| | Tube light | 7 | 280 | 5 |
| Library | Fan | 25 | 1750 | 5 |
| | Tube Light | 13 | 520 | 5 |
| | CFL | 20 | 300 | 5 |
| | Desktop | 3 | 660 | 5 |
| | Water Purifier | 1 | 30 | 24 |
| | Printer | 1 | 220 | 5 |
| | Xerox | 1 | 350 | 5 |
| Boys Hostel | Fan | 12 | 840 | 5 |
| | Tube Light | 16 | 192 | 5 |
| | Water Purifier | 1 | 30 | 24 |
| | CFL | 3 | 132 | 5 |
| Ladies Hostel | Fan | 24 | 1680 | 5 |
| | Water Purifier | 1 | 30 | 24 |
| | Tube Light | 25 | 1000 | 5 |

**Data Sheet for Energy Audit of the Session: 2018-19**

| **Room No./ Name** | **Electrical device/ Items (Bulbs: CFL/ Incandescent/ CFL; AC, Fan/ Computer, Instruments, Other appliances)** | **Number** | **Power In watt** | **Usage Time (Hr/Day)** |
|---|---|---|---|---|
| NAAC | Fan | 2 | 140 | 5 |
| | LED | 2 | 18 | 5 |
| | Desktop | 8 | 440 | 5 |

| | | | | |
|---|---|---|---|---|
| | Laptop | 1 | 150 | 5 |
| | AC | 1 | 1500 | 2 |
| Principal's Office | Fan | 5 | 210 | 7 |
| | LED | 3 | 27 | 7 |
| | Laptop | 1 | 150 | 7 |
| Principal's Rest Room | Fan | 1 | 70 | 5 |
| | LED | 2 | 18 | 5 |
| | CCTV DVR | 1 | 220 | 24 |
| | AC | 1 | 1500 | 2 |
| | Refrigerator | 1 | 125 | 24 |
| Account Section | Fan | 2 | 140 | 7 |
| | LED | 3 | 27 | 7 |
| | Desktop | 1 | 220 | 7 |
| | Printer | 2 | 220 | 5 |
| Administrative Office | Fan | 2 | 140 | 7 |
| | LED | 5 | 45 | 7 |
| | Printer | 1 | 220 | 5 |
| Office Veranda | Tube Light | 4 | 48 | 5 |
| Staff Common Room | Fan | 8 | 560 | 7 |
| | LED | 8 | 72 | 7 |
| | AC | 3 | 4500 | 3 |
| | Water Purifier | 1 | 30 | 24 |
| Examination Section | Fan | 8 | 560 | 5 |
| | Tube Light | 9 | 360 | 5 |
| | Desktop | 1 | 220 | 5 |
| | LED | 3 | 27 | 7 |
| SAMS | Fan | 1 | 70 | 5 |
| | Tube Light | 2 | 80 | 5 |
| | Desktop | 3 | 220 | 5 |
| | Xerox | 1 | 350 | 5 |
| Education Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 3 | 120 | 5 |
| | Laptop | 1 | 150 | 5 |
| Economics Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 3 | 120 | 5 |
| Sociology Seminar | Fan | 2 | 140 | 5 |
| | Tube Light | 2 | 80 | 5 |
| English Seminar | Fan | 1 | 70 | 5 |
| | Tube Light | 1 | 40 | 5 |

| | | | | |
|---|---|---|---|---|
| | Laptop | 1 | 150 | 5 |
| | Printer | 1 | 220 | 5 |
| Philosophy Seminar | Fan | 2 | 140 | 5 |
| | Tube Light | 1 | 40 | 5 |
| Vocational Office | Fan | 1 | 70 | 5 |
| | Tube Light | 2 | 80 | 5 |
| Odia Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 2 | 80 | 5 |
| History Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 3 | 120 | 5 |
| Political Sc Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 3 | 120 | 5 |
| Commerce Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 4 | 160 | 5 |
| Ladies Common Room | Fan | 2 | 14 | 5 |
| | Tube Light | 6 | 240 | 5 |
| | Water Purifier | 1 | 30 | 24 |
| Zoology Department | Fan | 9 | 630 | 5 |
| | Tube Light | 10 | 400 | 5 |
| | LED | 5 | 45 | 5 |
| Motor Room | Motor | 1 | 1492 | 4 |
| | LED | 1 | 9 | 6 |
| Class Room No 08 | Fan | 8 | 560 | 5 |
| | LED | 5 | 45 | 5 |
| Class Room No 10 | Fan | 4 | 280 | 5 |
| | LED | 3 | 27 | 5 |
| Class Room No 09 | Fan | 1 | 70 | 5 |
| | LED | 1 | 9 | 5 |
| Class Room No 07 | Fan | 2 | 140 | 5 |
| | LED | 1 | 9 | 5 |
| Class Room No 14 | Fan | 1 | 70 | 5 |
| | LED | 1 | 9 | 5 |
| Class Room No 15 | Fan | 1 | 70 | 5 |
| | LED | 1 | 9 | 5 |
| Class Room No 16 | Fan | 6 | 210 | 5 |
| | LED | 4 | 36 | 5 |
| Class Room No 17 | Fan | 1 | 70 | 5 |
| | LED | 1 | 9 | 5 |
| Class Room No 18 | Fan | 1 | 70 | 5 |

| | | | | |
|---|---|---|---|---|
| | LED | 1 | 9 | 5 |
| Class Room No 19 | Fan | 1 | 70 | 5 |
| | LED | 1 | 9 | 5 |
| Class Room No 20 | Fan | 6 | 420 | 5 |
| | LED | 4 | 36 | 5 |
| Class Room No 21 | Fan | 8 | 560 | 5 |
| | LED | 4 | 36 | 5 |
| Class Room No 23 | Fan | 6 | 420 | 5 |
| | LED | 4 | 36 | 5 |
| Class Room No 24 | Fan | 2 | 140 | 5 |
| | LED | 2 | 18 | 5 |
| Class Room No 25 | Fan | 10 | 700 | 5 |
| | LED | 4 | 36 | 5 |
| Physics Department | Fan | 9 | 630 | 5 |
| | LED | 10 | 90 | 5 |
| | Desktop | 1 | 220 | 5 |
| | Water Purifier | 1 | 30 | 24 |
| | Refrigerator | 1 | 125 | 24 |
| | Printer | 1 | 220 | 5 |
| Botany Department | Fan | 11 | 770 | 5 |
| | LED | 7 | 63 | 5 |
| | Desktop | 1 | 220 | 5 |
| | Printer | 1 | 220 | 5 |
| | Refrigerator | 1 | 125 | 24 |
| Mathematics Department | Fan | 4 | 280 | 5 |
| | LED | 6 | 54 | 5 |
| | Desktop | 1 | 1320 | 5 |
| | Printer | 1 | 220 | 5 |
| Chemistry Department | Fan | 12 | 840 | 5 |
| | LED | 8 | 72 | 5 |
| | Refrigerator | 1 | 125 | 24 |
| | Tube light | 7 | 280 | 5 |
| Library | Fan | 25 | 1750 | 5 |
| | Tube Light | 13 | 520 | 5 |
| | LED | 20 | 180 | 5 |
| | Desktop | 3 | 660 | 5 |
| | Water Purifier | 1 | 30 | 24 |
| | Printer | 1 | 220 | 5 |
| | Xerox | 1 | 350 | 5 |

| | | | | |
|---|---|---|---|---|
| Boys Hostel | Fan | 12 | 840 | 5 |
| | Tube Light | 16 | 192 | 5 |
| | Water Purifier | 1 | 30 | 24 |
| | LED | 3 | 27 | 5 |
| Ladies Hostel | Fan | 24 | 1680 | 5 |
| | Water Purifier | 1 | 30 | 24 |
| | Tube Light | 25 | 1000 | 5 |

**Data Sheet for Energy Audit of the Session: 2019-20**

| **Room No./ Name** | **Electrical device/ Items (Bulbs: CFL/ Incandescent/ CFL; AC, Fan/ Computer, Instruments, Other appliances)** | **Number** | **Power** | **Usage Time (Hr/Day)** |
|---|---|---|---|---|
| NAAC | Fan | 2 | 140 | 5 |
| | LED | 3 | 36 | 5 |
| | Desktop | 2 | 440 | 5 |
| | Laptop | 1 | 150 | 5 |
| | AC | 1 | 1500 | 2 |
| | Printer | 2 | 440 | 5 |
| Principal's Office | Fan | 3 | 210 | 7 |
| | LED | 3 | 36 | 7 |
| | Laptop | 1 | 150 | 7 |
| Principal's Rest Room | Fan | 1 | 70 | 5 |
| | LED | 3 | 36 | 5 |
| | Desktop | 1 | 220 | 5 |
| | CCTV DVR | 1 | 220 | 24 |
| | AC | 1 | 1500 | 2 |
| | Printer | 1 | 220 | 5 |
| | Refrigerator | 1 | 125 | 24 |
| Account Section | Fan | 2 | 140 | 7 |
| | LED | 4 | 48 | 7 |
| | Desktop | 1 | 220 | 7 |
| | Printer | 2 | 220 | 5 |
| Administrative Office | Fan | 2 | 140 | 7 |
| | LED | 8 | 96 | 7 |
| | Desktop | 1 | 220 | 7 |

| | | | | |
|---|---|---|---|---|
| | Printer | 1 | 220 | 5 |
| Office Veranda | Tube Light | 4 | 48 | 5 |
| Staff Common Room | Fan | 8 | 560 | 7 |
| | LED | 16 | 240 | 7 |
| | AC | 3 | 4500 | 3 |
| | Water Purifier | 1 | 30 | 24 |
| Examination Section | Fan | 8 | 560 | 5 |
| | Tube Light | 9 | 360 | 5 |
| | Desktop | 1 | 220 | 5 |
| SAMS | Fan | 1 | 70 | 5 |
| | Tube Light | 2 | 80 | 5 |
| | Desktop | 3 | 220 | 5 |
| | Xerox | 1 | 350 | 5 |
| Education Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 3 | 120 | 5 |
| | Laptop | 1 | 150 | 5 |
| Economics Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 3 | 120 | 5 |
| | Laptop | 1 | 150 | 5 |
| | Printer | 1 | 220 | 5 |
| Sociology Seminar | Fan | 2 | 140 | 5 |
| | Tube Light | 2 | 80 | 5 |
| | Laptop | 1 | 150 | 5 |
| English Seminar | Fan | 1 | 70 | 5 |
| | Tube Light | 1 | 40 | 5 |
| | Laptop | 1 | 150 | 5 |
| | Printer | 1 | 220 | 5 |
| Philosophy Seminar | Fan | 2 | 140 | 5 |
| | Tube Light | 1 | 40 | 5 |
| | Laptop | 1 | 150 | 5 |
| Vocational Office | Fan | 1 | 70 | 5 |
| | Tube Light | 2 | 80 | 5 |
| Odia Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 2 | 80 | 5 |
| History Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 3 | 120 | 5 |
| | Desktop | 1 | 220 | 5 |
| Political Sc Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 3 | 120 | 5 |

| | | | | |
|---|---|---|---|---|
| | Laptop | 1 | 150 | 5 |
| Commerce Seminar | Fan | 3 | 210 | 5 |
| | Tube Light | 4 | 160 | 5 |
| | Laptop | 1 | 150 | 5 |
| Ladies Common Room | Fan | 2 | 14 | 5 |
| | Tube Light | 6 | 240 | 5 |
| | Fan | 9 | 630 | 5 |
| Zoology Department | Tube Light | 10 | 400 | 5 |
| | Laptop | 1 | 150 | 5 |
| | LED | 6 | 72 | 5 |
| Motor Room | Motor | 1 | 1492 | 4 |
| | Bulb | 1 | 40 | 4 |
| Class Room No 08 | Fan | 8 | 560 | 5 |
| | LED | 4 | 60 | 5 |
| Class Room No 10 | Fan | 4 | 280 | 5 |
| | LED | 3 | 45 | 5 |
| Class Room No 09 | Fan | 1 | 70 | 5 |
| | LED | 1 | 15 | 5 |
| Class Room No 07 | Fan | 2 | 140 | 5 |
| | LED | 2 | 30 | 5 |
| Class Room No 14 | Fan | 1 | 70 | 5 |
| | LED | 1 | 15 | 5 |
| Class Room No 15 | Fan | 1 | 70 | 5 |
| | LED | 1 | 15 | 5 |
| Class Room No 16 | Fan | 6 | 210 | 5 |
| | LED | 3 | 45 | 5 |
| Class Room No 17 | Fan | 1 | 70 | 5 |
| | LED | 1 | 15 | 5 |
| Class Room No 18 | Fan | 1 | 70 | 5 |
| | LED | 1 | 15 | 5 |
| Class Room No 19 | Fan | 1 | 70 | 5 |
| | LED | 1 | 15 | 5 |
| Class Room No 20 | Fan | 6 | 420 | 5 |
| | LED | 3 | 45 | 5 |
| Class Room No 21 | Fan | 8 | 560 | 5 |
| | LED | 4 | 60 | 5 |
| Class Room No 23 | Fan | 6 | 420 | 5 |
| | LED | 3 | 45 | 5 |
| Class Room No 24 | Fan | 2 | 140 | 5 |

| | | | | |
|---|---|---|---|---|
| | LED | 2 | 30 | 5 |
| Class Room No 25 | Fan | 10 | 700 | 5 |
| | LED | 5 | 75 | 5 |
| Physics Department | Fan | 9 | 630 | 5 |
| | LED | 13 | 295 | 5 |
| | Desktop | 1 | 220 | 5 |
| | Water Purifier | 1 | 30 | 24 |
| | Refrigerator | 1 | 125 | 24 |
| | Printer | 1 | 220 | 5 |
| Botany Department | Fan | 11 | 770 | 5 |
| | LED | 7 | 140 | 5 |
| | Desktop | 1 | 220 | 5 |
| | Water Purifier | 1 | 30 | 24 |
| | Refrigerator | 1 | 125 | 24 |
| Mathematics Department | Fan | 4 | 280 | 5 |
| | LED | 6 | 9 | 5 |
| | Desktop | 6 | 1320 | 5 |
| | Printer | 1 | 220 | 5 |
| Chemistry Department | Fan | 12 | 840 | 5 |
| | LED | 3 | 45 | 5 |
| | Tube light | 7 | 280 | 5 |
| Library | Fan | 25 | 1750 | 5 |
| | Tube Light | 13 | 520 | 5 |
| | LED | 20 | 300 | 5 |
| | Desktop | 3 | 660 | 5 |
| | Printer | 1 | 220 | 5 |
| Boys Hostel | Fan | 12 | 840 | 5 |
| | Tube Light | 16 | 192 | 5 |
| | LED | 11 | 132 | 5 |
| Ladies Hostel | Fan | 24 | 1680 | 5 |
| | Tube Light | 25 | 1000 | 5 |

**Annual Electricity Bill**: 2017-18: Rs 93,844/-

2018-19: Rs 77,582/-

2019-20: Rs 81,681/-

The total energy utilization of the college for different purposes is approximately **17856.97 units/month**. Increased production of solar energy a type of nonconventional category of energy will be a good energy management system for the college. Electricity charges per month are **Rs.100000/month**. Energy saving through the replacement of incandescent bulbs, CFL lamps and tube lights to LED light could be a good option. Energy efficient electrical equipment especially fans and pump sets can be replaced against old ones. Awareness programs for the stakeholders to save energy may also increase sustainability in the utilization of various energy sources.

**Availability of solar power with details:**

The college has a plan to install luminous PCU 7.5 KVA solar power system since beginning of this session with an agreement with M/s Swarna Tyres to supply electric energy to the main building where main drain of current is carried out. But due to CORONA Pandemic the firm is unable to install it in time. So, the agreement of this firm is canceled and a new process of agreement is going on to install it very soon.

**Waste Management**

Waste management is important for an eco-friendly campus. In a college different types of wastes are generated, its collection and management are very challenging. The following data provide the details of the waste generated and the disposal method adopted by the college. Annexure -2

**Waste Management for the session 2017-18**

Approximate quantity of waste generated per day (in kg)

| **Approx.** | **Biodegradable** | **Non-biodegradable** | **Hazardous** | **Others** |
|---|---|---|---|---|
| Office | | | | |
| <1 Kg | √ | √ | Nil | Nil |
| 2-10 Kg | | | | |
| >10 Kg | | | | |
| Laboratories | | | | |
| <1 Kg | √ | √ | Nil | Nil |

| | | | | |
|---|---|---|---|---|
| 2-10 Kg | | | | |
| >10 Kg | | | | |
| Canteen/ Kitchen | | | | |
| <1 Kg | | √ | Nil | Nil |
| 2-10 Kg | | | | |
| >10 Kg | √ | | | |

**Waste Management for the session 2018-19**

Approximate quantity of waste generated per day (in kg)

| **Approx.** | **Biodegradable** | **Non-biodegradable** | **Hazardous** | **Others** |
|---|---|---|---|---|
| Office | | | | |
| <1 Kg | √ | √ | Nil | Nil |
| 2-10 Kg | | | | |
| >10 Kg | | | | |
| Laboratories | | | | |
| <1 Kg | √ | √ | Nil | Nil |
| 2-10 Kg | | | | |
| >10 Kg | | | | |
| Canteen/ Kitchen | | | | |
| <1 Kg | | √ | Nil | Nil |
| 2-10 Kg | | | | |
| >10 Kg | √ | | | |

**Waste Management for the session 2019-20**

Approximate quantity of waste generated per day (in kg)

| **Approx.** | **Biodegradable** | **Non-biodegradable** | **Hazardous** | **Others** |
|---|---|---|---|---|
| Office | | | | |
| <1 Kg | √ | √ | Nil | Nil |
| 2-10 Kg | | | | |
| >10 Kg | | | | |
| Laboratories | | | | |
| <1 Kg | √ | √ | Nil | Nil |
| 2-10 Kg | | | | |
| >10 Kg | | | | |
| Canteen/ Kitchen | | | | |
| <1 Kg | | √ | Nil | Nil |

| | | | | |
|---|---|---|---|---|
| 2-10 Kg | | | | |
| >10 Kg | √ | | | |

**How the waste generated in the college are managed**

| | **Yes/ No** | **Remark** |
|---|---|---|
| Composting/ Vermicomposting | Yes | |
| Recycling | Yes | Waste water used for gardening |
| Reusing | | |
| Other ways | | |

**Waste generated in the College**

| | **Yes/ No** | **Remark** |
|---|---|---|
| E-waste | Yes | All the E-Wastes (315 Kg) of the College up to 30-09-2020 have already been disposed to State Pollution Control Board, Odisha in College letter No 946 dated 30-09-2020 with generation of Rs 4094/- towards college fund. |
| Hazardous waste | Yes | Hazardous wastes generated from different laboratories are well managed by dumping in sealed sump. |
| Solid waste | Yes | The Biodegradable solid wastes are consumed for Vermi composting purpose and Non- biodegradable wastes are handed over to municipality through its regular collection vehicle. |
| Dry leaves | Yes | Used for Vermi composting purpose. |
| Canteen | Yes | The waste generated from the canteen is disposed as mentioned in the above process. |
| Liquid waste | Yes | All types of liquid wastes are used for gardening, plantation and pond watering. |
| Glass | Yes | As this is treated as solid waste, it is handed over to |

| | | |
|---|---|---|
| | | municipality for its proper disposal. |
| Unused equipment | Yes | Disposed as E-Waste |
| Napkins | Yes | Biodegradable and disposed as me |
| Others (specify) | - | |

**Green Campus**

The institution is sincerely concerned about the environmental pollution too early for which many timber yielding plants as well as medicinal plants were planted in the campus since 1990. This is a continuous practice of this institution for which it has reached around 4000 trees of different kinds. It not only reduces the green house gases but also supplies huge amount of oxygen to create an eco-friendly environment. The Google earth picture and detailed list of plants are given below for the information. As this is a cyclone prone area, almost every year the institution suffers loss of some trees which is used for the generation of funds by selling the broken trees. The details of fund generation in different years are given in annexure- V.

Tree Enumeration by staff and students

**List of plants in the campus: 2017-18**

| Sl.No | Botanical Name | Common Name | Number |
|---|---|---|---|
| 1 | Ficus benghalensis | Bara | 1 |
| 2 | Cedrus deodara | Debadaru | 94 |
| 3 | Terminalia arjuna | Arjuna | 292 |
| 4 | Syzygium cumini | Jamu | 7 |
| 5 | Emblica officinalis | Amla | 6 |
| 6 | Callistemon citrinus: | Bottle brush | 3 |
| 7 | Alstonia scholaris | Chhatiana | 15 |
| 8 | Azaridichta indica | Nimba | 204 |
| 9 | Millettia pinnata | Karanja | 231 |
| 10 | Bombax ceiba | Simili | 7 |
| 11 | Simarouba glauca | Simrua | 103 |
| 12 | Saraca asoca | Asoka | 4 |
| 13 | Phoenix dactylifera | Khajuri | 33 |
| 14 | Neolamarckia cadamba | Kadamba | 5 |
| 15 | Melia azedarach | Mahanimba | 15 |
| 16 | Cocus nucifera | Nadia | 41 |
| 17 | Syzygium austral | Australian Cherry | 6 |
| 18 | Terminalia bellirica | Bahada | 1 |
| 19 | Swietenia macrophylla | Mahogany | 106 |
| 20 | Artocarpus heterophyllus | Panasa | 7 |
| 21 | Hevea brasiliensis | Rubber | 1 |
| 22 | Mangifera indica | Amba | 15 |
| 23 | Dalbergia sisso | Sisu | 39 |
| 24 | Tectona grandis | Saguan | 252 |
| 25 | Roystonea regia | Areca palm | 2 |
| 26 | Ficus carica | Dimiri | 5 |
| 27 | Acacia auriculiformis | Akasia | 8 |

| | | | |
|---|---|---|---|
| 28 | Psidium guava | Pijuli | 12 |
| 29 | Albzia lebbeck | Sirisa | 21 |
| 30 | Casuarina equisetifolia | Jhaun | 41 |
| 31 | Magnolia Champaka | Swarna champa | 7 |
| 32 | Dellenia indica | Ou | 7 |
| 33 | Terminallia cattappa | Katha badam | 27 |
| 34 | Streblus asper | Sahada | 18 |
| 35 | Delonix regia | Krushnachuda | 17 |
| 36 | Caesalpinia pulcherrima | Radhachuda | 15 |
| 37 | Mimusops elengi | Baula | 14 |
| 38 | Gmelina arborea | Gambhari | 19 |
| 39 | Aegle marmelos | Bela | 6 |
| 41 | Diospyros melanoxylon | Kendu | 5 |
| 42 | Schleichera oleosa | Kusum | 1 |
| 43 | Annona reticulata | Ata | 1 |
| 44 | Eucalypatus radiata | Eucalypatus | 2217 |
| 45 | Samanea saman | Chakunda | 8 |
| 46 | Annona squamosa | Neua | 1 |

**Total= 3940**

**List of plants in the campus: 2018-19**

| Sl.No | Botanical Name | Common Name | Number |
|---|---|---|---|
| 1 | Ficus benghalensis | Bara | 1 |
| 2 | Cedrus deodara | Debadaru | 98 |
| 3 | Terminalia arjuna | Arjuna | 284 |
| 4 | Syzygium cumini | Jamu | 7 |
| 5 | Emblica officinalis | Amla | 6 |
| 6 | Callistemon citrinus: | Bottle brush | 3 |
| 7 | Alstonia scholaris | Chhatiana | 18 |

| | | | |
|---|---|---|---|
| 8 | Azaridichta indica | Nimba | 204 |
| 9 | Millettia pinnata | Karanja | 248 |
| 10 | Bombax ceiba | Simili | 7 |
| 11 | Simarouba glauca | Simrua | 108 |
| 12 | Saraca asoca | Asoka | 4 |
| 13 | Phoenix dactylifera | Khajuri | 34 |
| 14 | Neolamarckia cadamba | Kadamba | 5 |
| 15 | Melia azedarach | Mahanimba | 15 |
| 16 | Cocus nucifera | Nadia | 41 |
| 17 | Syzygium austral | Australian Cherry | 6 |
| 18 | Terminalia bellirica | Bahada | 1 |
| 19 | Swietenia macrophylla | Mahogany | 118 |
| 20 | Artocarpus heterophyllus | Panasa | 7 |
| 21 | Hevea brasiliensis | Rubber | 1 |
| 22 | Mangifera indica | Amba | 17 |
| 23 | Dalbergia sisso | Sisu | 44 |
| 24 | Tectona grandis | Saguan | 256 |
| 25 | Roystonea regia | Areca palm | 2 |
| 26 | Ficus carica | Dimiri | 5 |
| 27 | Acacia auriculiformis | Akasia | 8 |
| 28 | Psidium guava | Pijuli | 14 |
| 29 | Albzia lebbeck | Sirisa | 21 |
| 30 | Casuarina equisetifolia | Jhaun | 41 |
| 31 | Magnolia Champaka | Swarna champa | 7 |
| 32 | Dellenia indica | Ou | 7 |
| 33 | Terminallia cattappa | Katha badam | 27 |
| 34 | Streblus asper | Sahada | 19 |
| 35 | Delonix regia | Krushnachuda | 20 |

| | | | |
|---|---|---|---|
| 36 | Caesalpinia pulcherrima | Radhachuda | 16 |
| 37 | Mimusops elengi | Baula | 14 |
| 38 | Gmelina arborea | Gambhari | 20 |
| 39 | Aegle marmelos | Bela | 6 |
| 41 | Diospyros melanoxylon | Kendu | 5 |
| 42 | Schleichera oleosa | Kusum | 1 |
| 43 | Annona reticulata | Ata | 1 |
| 44 | Eucalypatus radiata | Eucalypatus | 2246 |
| 45 | Samanea saman | Chakunda | 8 |
| 46 | Annona squamosa | Neua | 1 |

**Total=4022**

**List of plants in the campus: 2019- 20**

| Sl. No | Botanical Name | Common Name | Number |
|---|---|---|---|
| 1 | Ficus benghalensis | Bara | 1 |
| 2 | Cedrus deodara | Debadaru | 107 |
| 3 | Terminalia arjuna | Arjuna | 347 |
| 4 | Syzygium cumini | Jamu | 7 |
| 5 | Emblica officinalis | Amla | 6 |
| 6 | Callistemon citrinus: | Bottle brush | 3 |
| 7 | Alstonia scholaris | Chhatiana | 15 |
| 8 | Azaridichta indica | Nimba | 215 |
| 9 | Millettia pinnata | Karanja | 262 |
| 10 | Bombax ceiba | Simili | 7 |
| 11 | Simarouba glauca | Simrua | 124 |
| 12 | Saraca asoca | Asoka | 4 |
| 13 | Phoenix dactylifera | Khajuri | 33 |
| 14 | Neolamarckia cadamba | Kadamba | 5 |

| | | | |
|---|---|---|---|
| 15 | Melia azedarach | Mahanimba | 17 |
| 16 | Cocus nucifera | Nadia | 41 |
| 17 | Syzygium austral | Australian Cherry | 6 |
| 18 | Terminalia bellirica | Bahada | 1 |
| 19 | Swietenia macrophylla | Mahogany | 121 |
| 20 | Artocarpus heterophyllus | Panasa | 7 |
| 21 | Hevea brasiliensis | Rubber | 1 |
| 22 | Mangifera indica | Amba | 15 |
| 23 | Dalbergia sisso | Sisu | 41 |
| 24 | Tectona grandis | Saguan | 275 |
| 25 | Roystonea regia | Areca palm | 2 |
| 26 | Ficus carica | Dimiri | 5 |
| 27 | Acacia auriculiformis | Akasia | 8 |
| 28 | Psidium guava | Pijuli | 12 |
| 29 | Albzia lebbeck | Sirisa | 21 |
| 30 | Casuarina equisetifolia | Jhaun | 41 |
| 31 | Magnolia Champaka | Swarna champa | 7 |
| 32 | Dellenia indica | Ou | 7 |
| 33 | Terminallia cattappa | Katha badam | 27 |
| 34 | Streblus asper | Sahada | 18 |
| 35 | Delonix regia | Krushnachuda | 17 |
| 36 | Caesalpinia pulcherrima | Radhachuda | 15 |
| 37 | Mimusops elengi | Baula | 14 |
| 38 | Gmelina arborea | Gambhari | 19 |
| 39 | Aegle marmelos | Bela | 6 |
| 41 | Diospyros melanoxylon | Kendu | 5 |
| 42 | Schleichera oleosa | Kusum | 1 |
| 43 | Annona reticulata | Ata | 1 |

| | | | |
|---|---|---|---|
| 44 | Eucalypatus radiata | Eucalypatus | 2297 |
| 45 | Samanea saman | Chakunda | 8 |
| 46 | Annona squamosa | Neua | 1 |

**Total= 4193**

**No of trees planted:**

| Session | No. of trees planted | No. of trees broken | Total no. of trees |
|---|---|---|---|
| 2017-18 | 550 | Nil | 3940 |
| 2018-19 | 127 | 35(Due to cyclone) | 4022 |
| 2019-20 | 194 | 23(Due to cyclone) | 4193 |

**No of gardens:**

| Garden Types | Number |
|---|---|
| Ornamental Garden | 02 |
| Medicinal Garden | 01 |
| Orchards | 01 |
| Others | 01 |


College Garden

**List of Medicinal plants in herbal garden of Pattamundai College**

| Sl.No | Common Name | Botanical Name |
|---|---|---|
| 1 | Amla | *Phyllanthus emblica* |
| 2 | Bela | *Aegle marmelos* |
| 3 | Gangasiuli | *Nictanthes arbor-tristis* |
| 4 | Amarpoi | *Kalanchoe pinnata* |
| 5 | Manjuati | *Lawsonia inermis* |
| 6 | Bahada | *Terminalia bellirica* |
| 7 | Mandara | *Hibiscus rosa-sinensis* |
| 8 | Dhanwantari | *Cymbopogan flexuosus* |
| 9 | Pipali | *Piper longum* |
| 10 | Tulasi | *Ocimum sanctum* |
| 11 | Ghritkumari | *Aloe vera* |
| 12 | Badiamla | *Phyllanthus fraternus* |
| 13 | Satabari | *Asparagus racemosus* |
| 14 | Brahmi | *Bacopa monnieri* |
| 15 | Dayana | *Artemisia vulgaris* |
| 16 | Rukuna | *Coleus barbatus* |
| 17 | Banadhania | *Eryngium foetidum* |
| 18 | Karpura tulasi | *Ocimum kilimandscharicum* |
| 19 | Chireita | *Andrographis paniculata* |
| 20 | Pasaruni | *Paederia foetida* |
| 21 | Salaparni | *Desmodium gangeticum* |
| 22 | Ramatulasi | *Ocimum gratissimum* |
| 23 | Satabari | *Asparagus racemosus* |
| 24 | Gugula | *Commiphora caudata* |
| 25 | Agaru bacha | *Alpina galanga* |
| 26 | Ankaranti | *Cauroupita guianensis* |
| 27 | Dalchini | *Cinnamomum verum* |
| 28 | Tejapatra | *Cinnamomum tamala* |
| 29 | Kanchana | *Bauhinia variegata* |
| 30 | Insulin | *Costus igneus* |

| | | |
|---|---|---|
| 31 | Thalkudi | *Centella asiatica* |
| 32 | Pana | *Piper betle* |
| 33 | Kanaka champa | *Pterospermum acerifolium* |
| 34 | Kaladudura | *Datura metel* |
| 35 | Anatamula | *Hemidesmus indicus* |
| 36 | Annapurna | *Pandanus amaryllifolius* |
| 37 | Arsha | *Crinum asiaticum* |
| 38 | Aswagandha | *Withania somnifera* |
| 39 | Bacha | *Acorus calamus* |
| 40 | Bajramuli | *Sida cordifolia* |
| 41 | Bhrungaraj | *Wedelia chinensis* |
| 42 | Brudhadaraka | *Argyreia nervosa* |
| 43 | Dhala arakha | *Calotropis procera* |
| 44 | Durlava | *Ocimum basillicum* |
| 45 | Golamaricha | *Piper nigrum* |
| 46 | Guluchi | *Tinospora cordifolia* |
| 47 | Hadajoda | *Cissus quandrangularis* |
| 48 | Hemasagar | *Kalanchoe lanceolate* |
| 49 | Keukeua | *Costus specious* |
| 50 | Sarpagandha | *Rauwolfia serpentina* |
| 51 | Pipermint | *Mentha arvensis* |
| 52 | Raktakhai | *Ventilago madrasapatana* |
| 53 | Sadabihari(Dhala) | *Catharanthus pusillus* |
| 54 | Patalagaruda | *Rauwolfia tetraphylla* |
| 55 | Stevia | *Stevia rebaudiana* |
| 56 | Akarakara | *Spilanthes calva* |
| 57 | Amba ada | *Curcuma amda* |
| 58 | Bisalyakarani | *Tridax procumbens* |
| 59 | Ayapan | *Eupatorium ayapana* |
| 60 | Koilikhia | *Hygrophylla auriculata* |
| 61 | Lajakuli | *Mimosa pudica* |
| 62 | Madaranga | *Alternanthera sessilis* |
| 63 | Pitasaga | *Glinus oppositifolius* |
| 64 | Antamula | *Hemidesmus indicus* |
| 65 | Antamuli | *Tylophora indica* |
| 66 | Aparajita(Dhala) | *Clitoria ternatea* |
| 67 | Aparajita(Kala) | *Clitoria pusilis* |
| 68 | Dahadahia | *Ipomoea reniformis* |
| 69 | Gudumari | *Gymnema sylvestre* |
| 70 | Multivitamin green | *Sauropus androgynus* |
| 71 | Loni | *Morinda citrifolia* |
| 72 | Kalama | *Ipomoea aquatica* |
| 73 | Sadabihari(violet) | *Catharanthus roseus* |
| 74 | Apamaranga | *Achyranthes aspera* |

| | | |
|---|---|---|
| 75 | Kala arakha | *Calotropis gigantea* |
| 76 | Brahmajasti | *Clerodendrum serratum* |
| 77 | Gayasa | *Leucas aspera* |
| 78 | Raktachita | *Plumbago indica* |
| 79 | Swetachita | *Plumbago zeylanica* |
| 80 | Pauinsia | *Aerva lanata* |
| 81 | Talamuli | *Curculigo orchioides* |
| 82 | Bena | *Vetiveria zizanioides* |
| 83 | Gada | *Diospyros sylvatica* |
| 84 | Krushna parni | *Uraria picta* |
| 85 | Gandhasunthi | *Kaempferia galanga* |
| 86 | Sunusunia | *Marsilea quadrifolia* |
| 87 | Swetachandana | *Santalum album* |
| 88 | Raktachandana | *Pterocarpus santalinus* |
| 89 | Nagachampa | *Couroupita guianensis* |
| 90 | Bhadraksya | *Gauzuma ulmifolia* |
| 91 | Banapiaja | *Urginea dubius* |
| 92 | Biribiri | *Spilanthes paniculata* |
| 93 | Kalahaladi | *Curcuma caesia* |
| 94 | Methi | *Trigonella foenum-graecum* |
| 95 | Bathua | *Chinopodium album* |
| 96 | Bhuinamla | *Phyllanthus niruri* |
| 97 | Ambiliti | *Oxalis pes-caprae* |
| 98 | Mashaparni | *Teramnus labialis* |
| 99 | Sankhapushpi | *Evolvulus alsinoides* |
| 100 | Olatakamala | *Abroma augustum* |
| 101 | Kaincha | *Mucuna radians* |
| 102 | Podina | *Mentha arvensis* |
| 103 | Kala tulasi | *Ocimum tenuiflorum* |
| 104 | Queen Pineapple | *Ananas comosus* |
| 105 | Brajamalli | *Clerodendron chinense* |
| 106 | Gobinda garuda | *Trewia nudifloraa* |
| 107 | Akadia | - |
| 108 | Akalmundi | - |
| 109 | - | *Aclema radicans* |



**Herbal Garden**

**Routine Green Practices: Celebration of important days**

The institution celebrated the following important days during each year to aware, observe and perform the activities by the different stakeholders.

| Sl. No. | Important days | Activities |
|---|---|---|
| 1 | National Youth Day | Awareness |
| 2 | Republic Day | Campus Cleaning and Awareness |
| 3 | World Sustainable Energy Day | Energy Saving Awareness |
| 4 | World Wildlife Day | Plantations and Awareness |
| 5 | Gopabandhu Jayanti | Campus Cleaning and Awareness |
| 6 | World Water Day | Water Conservation Awareness |
| 7 | World Earth Day | Campus Cleaning |

| | | |
|---|---|---|
| 8 | World Red Cross Day | Blood Donation |
| 9 | Netaji Jayanti | Observation & Awareness |
| 10 | NSS Day | Campus Cleaning and Social work |
| 11 | World Environment Day | Plantations and Awareness |
| 12 | International Yoga Day | Yoga Camp & Seminar |
| 13 | NCC Day | Parade, Campus Cleaning and Awareness |
| 14 | Gandhi Jayanti | Campus Cleaning and Awareness |
| 15 | World Aids Day | Observation and Awareness |
| 16 | Human Right Day | Observation and Awareness |
| 17 | Kargil Vijay Diwas | Observation and Awareness |

**Carbon footprint analysis**

Burning of fossil fuels such as petrol has an impact on the environment through the emission of greenhouse gases into the atmosphere; of these carbon dioxide is the most prominent greenhouse gas, comprising 402 PPM of the Earth's atmosphere. The release of carbon dioxide gas into the Earth's atmosphere through human activities is commonly known as carbon emissions in which the vehicular emission and burning of natural gas are the main sources in the campus. As this is a rural based institution, maximum stakeholders use public transport as well as own cycle through which realise of green house gases is minimised. A very few numbers of two wheelers and cars are used by students, staff members and other stakeholders coming to the college. The natural gas used by different laboratories, hostels and canteen are very less which contribute very less green house gas for environment pollution. As there are around 4000 of trees are present in the campus this not only balances the green house gases but also supplies a huge amount of oxygen to the atmosphere to make an eco-friendly environment.

| **Sl No** | **Particulars** | **Numbers** |
|---|---|---|
| 1 | No of cycles used in college by stakeholders | 345 |
| 2 | No of two wheelers used<br>Average Distance Travelled :<br>Quantity of Fuel<br>Amount used per day | 50<br>5 K.M<br>5 L<br>Rs 400/- |
| 3 | No of cars used<br>Average Distance Travelled :<br>Quantity of Fuel<br>Amount used per day | 06<br>15 K.M<br>6 L<br>Rs 480/- |

| | | |
|---|---|---|
| 4 | No of persons using public transportation | 920 |
| 5 | No of persons using college conveyance | - |
| 6 | No of generators used per day | Rarely used as institution has invertor systems in different parts. |
| 7 | Amount of fuel used for generators per day | - |
| 8 | No of LPG cylinders used in canteen/ labs | 07<br>Canteen – 01<br>Hostel - 02<br>Lab- 04 |
| 9 | Use of any other fossil fuels in the college | - |
| 10 | Any suggestions/ planning to reduce the use of fuel | |

**MAJOR AUDIT OBSERVATIONS**

- The college has developed its own environmental policy
- The college has developed very good greenery in the campus. Almost all the available spaces have been planted with trees.
- Gardens are well maintained. It is good to have a herbal garden which would boost the knowledge of staff, students and visitors on medicinal plants.
- Purchase policy should be developed to procure environment friendly items.
- Programmes on green initiatives have to be increased.

**Water Management**

- The water sources are safe in terms of contamination.
- The college at present does not have waste water treatment for waste water generated from laboratories and other sources.
- Per day consumption of water is high.
- Measurement of quantity of water obtained from rain water harvesting should be done.

**Energy Management**

- Monthly use of electricity in the college is very high. As expansion is going on, the consumption would further increase.
- The communication process for awareness in relation to energy conservation is inadequate.

**Waste Management**

- The college has proper communication with the local body for regular collection of solid waste from the college.
- E-waste disposal has been done properly as per procedure.
- Hazardous waste management need to be re-visited and local municipal body be consulted for its proper disposal.

**Carbon Foot Print Audit**

- Motorized vehicles are not more in number in comparison to the strength of staff and students.
- Use of inverters has reduced consumption of fossil fuel for functioning of college.
- Use of gas cylinder is moderate.

**Green Campus**

- Tree cover in the campus is adequate.
- Regular planting of trees is found adequate.
- Display boards for medicinal plants in the herbal garden have been placed with required information.

**SUGGESTIONS AND RECOMMENDATIONS**

**Water**

- Students can be advised to take back the food waste which would help in reducing the consumption of water for washing.
- The wells can be recharged with rainwater from rooftops of buildings.

- Construction of rainwater harvesting structures for each building can be thought of.
- Awareness programmes for water conservation can be arranged with local NGOs/ Municipal Body. Water quality monitoring should be done periodically.
- Water consumption monitoring system for the entire college should be developed.
- Display boards against the misuse of water need to be developed.

**Energy**

- It is recommended to avoid using of more energy consuming older electrical appliances and to replace with more environment friendly and energy efficient appliances eg. Five star rating appliances in the college.
- Potential for renewable energy sources have to be explored. The advantage of large roof areas of the college can be taken for installing solar grid.
- It is recommended to use solar powered water heater and cooker in the canteens of college/ hostels and solar powered street lights.
- The plan to establish 7.5 KVA solar greed should be materialized soon to reduce electricity consumption.
- Regular monitoring of equipment and immediate rectification of any problem should be done.

**Green Campus**

- In order to increase the carbon credit and greenery of the campus more indigenous and evergreen trees should be planted in the spaces available and spaces created/ likely to be created due to damage and uprooting of old trees.
- Registry of flora and fauna of the college should be developed.
- Display boards for tree with scientific names in the campus need to be developed for identification and learning.
- Possibility of drip watering system for the gardens can be thought of.

**Waste**

- Use of plastic should be avoided as far as possible and biodegradable materials should be encouraged as alternatives. The management should try to achieve the goal of plastic free campus.
- Leaf litter from the campus can be effectively used for aerobic/ vermi composting, so that the composted material can also be used as good manure.
- Paper waste can be recycled instead of incineration or burning.
- The canteen waste from college/ hostels can be subjected to aerobic composting by setting-up of few composting yards in the campus. This will provide a chance for the students to learn by seeing and operating such compost yards by themselves. Also a good practice of managing their own waste (from lunch box) instead of carrying them back home they can be trained in operating the compost yard, by using their lunch time waste to produce good organic manure.
- Establishment of a bio-gas plant can be thought of.
- Waste bins should be placed more in number at desired places.
- Green chemistry laboratory practice should be developed.

**Carbon Footprint**

- College should take initiative for carbon accounting.
- Students should be encouraged to use cycle.
- Efficient cooking system should be established to save cooking gas.

TEAM MEMBERS

Green Audit

PRINCIPAL

Pattamundai College

Principal
Pattamundai College

(PROF. ALN DASH)

AUDITOR

Green Audit

Divisional Forest Officer
Mangrove Forest Division (WL)
Rajnagar