

# **GREEN AUDIT REPORT**

**2022-2023**



**HOLY CROSS COLLEGE (AUTONOMOUS)**

**Nagercoil  
Tamilnadu 629 004,  
INDIA**

**TJ Solutions**

**4/101, Raja Sir  
Muthiah Nagar,  
Bye-pass road,  
EllisNagar,  
Madurai-625 016.**

# **GREEN AUDIT REPORT**

**2022-2023**



**HOLY CROSS COLLEGE (AUTONOMOUS)**

**Nagercoil  
Tamilnadu 629 004,  
INDIA**

**TJ Solutions  
4/101, Raja Sir  
Muthiah Nagar,  
Bye-pass road,  
EllisNagar,  
Madurai-625 016.**



## ACKNOWLEDGEMENT

We at TJ Solutions, Madurai are thankful to the Principal for giving us the opportunity to carry out the Green audit of HOLY CROSS COLLEGE, Nagercoil -629004, Tamilnadu, India. TJ Solutions team is also thankful to all other supporting Officers / Staffs of the above institute for their wholehearted support, hospitality and the courtesy extended to the Audit team during the course of the visit.

The following officers from TJ Solutions under the guidance of Mr. S.Balraj M.E.,Ph.D., have carried out the Green Audit.

Name	Qualifications	Certification Number
Mr.S.Balraj	M.E.,Ph.D.,Energy auditor	EA-15051
Mr. N. Tamil selvan	B.Sc.,	ISO Lead Auditor / Energy Consultant
Mrs.Tamil selva parvathi	MSc.,DTC.,PGDESD.,	Environmentalist
Mr. R.Manikandan	DEEE	Electrical Data Analyst
Er.A.Rajendran	B.E	Electrical Engineer C. Licence Holder; C 39095
Er. P.Deleepan	B.E	Assistant Engineer (Electrical / Energy)



## Index

Sl. No.	Contents	Page No
1	Summary of the Green Audit	4
1.1	Green Environmental policy	6
1.2	Total Campus Area	6
1.3	NAAC Grading	7
1.4	ISO 9001:2015	7
1.5	Campus Infrastructure	7
2.0	Pre-Audit Stage	8
2.1	Management's Commitment	8
2.2	Scope and Goals of Green Auditing	8
2.3	Benefits of Green Auditing	9
2.4	Target Areas of Green Auditing	10
3.0	Audit Stage	12
3.1	Student Clubs and Forums	12
3.2	Comments on Site Tour	13
3.3	Review of Documents and Records	13
3.4	Review of Policies	13
3.5	Interviews	13
3.6	Site Inspection	13
4.0	Post Audit Stage	14
4.1	Key Findings ,Observations and Evaluations	14
4.2	Consolidation of Audit Findings	29
4.3	Preparation of Action Plan	32
4.4	Follow-up Action and Plans	32
4.5	Environmental Education	32
4.6	Recommendations	33



## I. Summary of the Green Audit

Green audit of HOLY CROSS COLLEGE and its HOSTEL was carried by TJ solutions. The green audit reports assist in the process of attaining an eco- friendly approach to the sustainable development of the college. Green audit report is a very powerful and valuable communications tool to use when working with various stakeholders who need to be convinced that things are running smoothly and systems and procedures are coping with natural changes and modifications that occur.

A few recommendations are added to curb the menace of waste management using eco- friendly and scientific techniques. This will lead to a prosperous future in the context of Green Campus leading to sustainable environment and community development. It has been proved frequently that the practical suggestions, alternatives, and observations that have resulted from audits have added positive value to the audited organisation. It is hoped that the results presented in the Green Audit Report will serve as a guide for educating HOLY CROSS COLLEGE on the existing environment related practices and resource usage and spawn new activities and innovative practices.

### Noteworthy activities

- Rainwater harvesting system covers the entire build up area of 146.37 sq ft.
- Pedestrian friendly pathway is available.
- Initiation and implementation for less paper consumption.
- Clean and Green campus.
- Green buildings are constructed on the campus.
- Ramps and Divyangja friendly washrooms are available in the campus.
- Sensor based energy conservation unit is constructed.
- Restricted entry of automobile premise is maintained.
- Press type water tap is used to reduce the water usage.
- Initiation and implementation for less paper consumption.

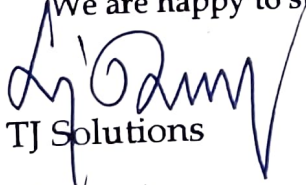


- Clean and Green campus.
- Digital display board is maintained in the campus for daily notice.
- Carbon sequestration trees are grown in the campus to reduce the carbon content in the atmosphere.
- Ro reject water is used for gardening purposes.
- AC outlet water is used as distilled water in LAB

**The audit outputs and recommendations are summarised as follows:**

- Total water consumption for Holy cross college and Hostel -78.9 KL/Day
- Electrical Energy consumption from TNEB GRID alone -132952 units
- Diesel Generator electrical energy consumption-900 units
- Solar photovoltaic power plant electric energy consumption- 6387 units
- Total Electrical Energy consumption -140239 units
- Total Renewable energy utilisation- 9387 units (equivalents)
- GreenHouse Gas Emission - 226.9 t CO<sub>2</sub>e Total GHG emission

We are happy to submit this detailed green audit report to the Holy cross college.

  
TJ Solutions  
Madurai



## CERTIFICATE

GREEN AUDIT –July-2023

This is to certify that **Holy Cross College, Kurusady Nagercoil** has conducted a detailed **Green Audit** of their campus and has submitted the necessary data and credentials for scrutiny. The activities and measures carried out by the College have been verified based on the field visit and reports submitted and were found to be **excellent**. The efforts taken by the faculty and students towards environment and sustainability are highly appreciated and commendable.

*Dr. S. Balraj*  
22/7/23

Dr.S.BALRAJ, M.E.,Ph.D.,  
Certified Energy Auditor.,  
B.E.E. Reg.No: EA-15051

Dr.S.BALRAJ,M.E.,Ph.D.,

**TJ Solutions**

**Dr.S.Balraj,M.E.,Ph.D., - (EA-15051 – Certified Energy Auditor)**

---

4/101 , Raja Sir Muthiah Street, Bye Pass Road , Ellis Nagar,  
Madurai – 625 016      Email : [tjsolutionsmadurai@gmail.com](mailto:tjsolutionsmadurai@gmail.com)  
Ph no: 94431 54641

## 1.1 Environment Policy

Holy Cross College has formulated a detailed Green Policy to guide all its green initiatives. Cleanliness in the campus is maintained through proper disposal of wastes, utilisation of eco-friendly supplies and effective recycling program. The concept of eco-friendly culture is disseminated among the students through various seminars/workshops and community-oriented programs. Institution strictly follows reduce, reuse and recycle method to limit energy usage and also to replace non-renewable energy sources to renewable energy resources

The main objectives are as follows:

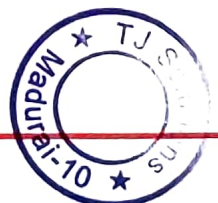
- To create a pollution free environment through a proper waste management system.
- To encourage rainwater harvesting.
- To signify the effective use of water among students and for future needs.

The Institution vouchsafes:

- Its commitment to sustainability and environmental management
- It reiterates the stand that managing environmental issues is a high priority for the College
- Its commitment to prevent pollution and to continuously improve upon environmental protection.
- A commitment to keeping students and staff safe from any environmental hazards.

## 1.2 Total Campus Area & Building Spread Area

- Campus area -20 Acres
- Build up area-4.7 Acres.





### 1.3 NAAC Grading

- Re-accredited (3rd cycle) by NAAC with 'A+' Grade - CGPA 3.35 on a 4-point scale

### 1.4 ISO 9001:2015

- ISO certification is issued till 29.06.2026.

### 1.5 Campus Infrastructure

HOLY CROSS COLLEGE is located in calm and quiet surroundings that are conducive to learning. It helps to stimulate both personal and professional growth of the students. The campus is located about 4.5 Kms from the Nagercoil railway station.

#### CLASSROOMS

Spacious, well ventilated and well-equipped classrooms with projectors and screens facilitate and reinforce effective teaching-learning experience for the faculty and students.

#### LABORATORIES

HOLY CROSS COLLEGE has set up highly advanced science and computer laboratories attached to different departments. These are adequately equipped with the latest gadgets, instruments and apparatus with the aim of providing students conceptual as well as practical understanding of the subject through hands-on training.

#### LIBRARIES

The library is dedicated to support the student's activities and programs of the institution. It accomplishes college mission by maintaining an up- to-date collection of books, journals, audio-visual items and other library materials related to study. A Total of 54825 books are available. The library subscribes to daily 3 newspapers, 7798 journals and magazines, relating to different subjects. An open access system of reference for easy accessibility is available for both UG & PG students. E books are available with unlimited access. The whole college community has the benefit of the open access system.

The library also responds to the needs of the teaching staff for effective teaching and research.



## **DRINKING WATER**

The College provides safe drinking water to all on campus by RO Water System. These water purifiers are maintained and serviced by authorised professionals at regular intervals.

### **2. Pre-Audit Stage**

A pre-audit meeting provided an opportunity to reinforce the scope and objectives of the audit and discussions were held on the practicalities associated with the audit. This meeting is an important prerequisite for the green audit because it is the first opportunity to meet the audited and deal with any concerns.

The meeting was an opportunity to gather information that the audit team can study before arriving on the site. The audit protocol and audit plan was handed over at this meeting and discussed in advance the audit itself.

In HOLY CROSS COLLEGE pre-audit meeting was conducted successfully and necessary documents were collected directly from the College before the initiation of the audit processes. Actual planning of audit processes was discussed in the pre-audit meeting. Audit team was also selected in this meeting with the help of staff and the college management.

The audit protocol and audit plan were handed over at this meeting and discussed in advance of the audit itself. The audit team worked together, under the leadership of the lead auditor, to ensure completion within the brief and scope of the audit.

#### **2.1 Management's Commitment**

The Management of the college has shown the commitment towards the green auditing during the pre-audit meeting. They were ready to encourage all green activities. It was decided to promote all activities that are environment friendly and planting more trees on the campus etc., after the green auditing.

#### **2.2 Scope and Goals of Green Auditing**

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

Green Audit is the most efficient and ecological way to manage environmental problems. It is a kind of professional care which is the responsibility of each individual who is part of economic, financial, social, and environmental factors. It is necessary to conduct a



green audit in the College campus because students become aware of the green audit, its advantages to save the planet and they become good citizens of our country.

A very simple indigenized system has been devised to monitor the environmental performance of HOLY CROSS COLLEGE Nagercoil. It comes with a series of questions to be answered. This innovative scheme is user friendly. The aim of this is to help the Institution to set environmental examples for the community and to educate the young learners.

### 2.3 Benefits of the Green Auditing

- More efficient resource management
- To create a green campus
- To enable waste management through reduction of waste generation, solid- waste and water recycling
- To create plastic free campus and evolve health consciousness among the stakeholders
- Recognize the cost saving methods through waste minimizing and management
- Point out the prevailing and forthcoming complications
- Authenticate conformity with the implemented laws
- Empower the organizations to frame a better environmental performance
- Enhance the alertness for environmental guidelines and duties
- Impart environmental education through systematic environmental management approach and Improving environmental standards
- Benchmarking for environmental protection initiatives
- Financial savings through a reduction in resource use
- Development of ownership, personal and social responsibility for the College and its environment
- Enhancement of college profile
- Developing an environmental ethic and value systems in youngsters.
- Green auditing should become a valuable tool in the management and monitoring of environmental and sustainable development programs of the college.



## 2.4 Target Areas of Green Auditing

Green audit forms part of a resource management process. Although they are individual events, the real value of green audits is the fact that they are carried out, at defined intervals and their results can illustrate the improvement.

Eco-campus 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 process of "Green Auditing of educational institute". Eco-campus focuses on the reduction of contribution to emissions, procure a cost effective and secure supply of energy, encourage and enhance energy use conservation, reduce the institute's energy and water consumption, reduce wastes to landfill and integrate environmental considerations into all contracts and 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 matters depend on water. While freely available in many natural environments, in human settlements potable (drinkable) water is less readily available. We need to use water wisely to ensure that drinkable water is available for all, now and in future. Aquifer depletion and water contamination are taking place at unprecedented rates. It is therefore essential that any environmentally responsible Institution should examine its water use practices.

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. It is therefore essential that any environmentally responsible Institution examine its water use practices.

### Auditing for Energy Management

Energy cannot be seen, but we know it is there because we can see its effects in the forms of heat, light and power. This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliances, and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. An old incandescent bulb uses approximately 60 W while an energy efficient light emitting diode (LED) uses only less than 10 W. 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**

Pollution from waste is aesthetically unpleasing and results in large amounts of litter in our communities which can cause health problems. This indicator addresses waste production and disposal of plastic waste, paper waste, food waste, and recycling.

Solid waste can be divided into two categories: general waste and hazardous waste. General wastes include what is usually thrown away in homes and schools such as garbage, paper, tins and glass bottles. Hazardous waste is waste that is likely to be a threat to health or the environment like cleaning chemicals and used oils.

Unscientific landfills may contain harmful contaminants that leach into soil and water supplies, and produce greenhouse gases contributing to global climate change. Furthermore, solid waste often includes wasted material resources that could otherwise be channelled into better service through recycling, repair, and reuse. Thus the minimization of solid waste is essential to a sustainable college. It is therefore essential that any environmentally responsible institution examine its waste processing practices.

## **Auditing for Green Campus Management**

Unfortunately, biodiversity is facing serious threats from habitat loss, pollution, over consumption and invasive species. Species are disappearing at an alarming rate and each loss affects nature's balance and our quality of life. Without this variability in the living world, ecological systems and functions would break down, with detrimental consequences for all forms of life, including human beings.

Newly planted and existing trees decrease the amount of carbon dioxide in the atmosphere. Trees play an important ecological role within the urban environment, as well as support improved public health and provide aesthetic benefits to cities. The amount of oxygen that a single tree produces is enough to provide one day's supply of oxygen for people. So while the students are busy studying and working on earning those good grades, all the trees on campus are also working hard to make the air cleaner.

Trees on our campus impact our mental health as well; studies have shown that trees greatly reduce stress, which the students feel.



## Auditing for Carbon Footprint

Commutation of stakeholders has an impact on the environment through the emission of greenhouse gases into the atmosphere consequent to burning of fossil fuels (such as petrol). 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 around 415 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.

An important aspect of doing an audit is to be able to measure your impact so that we can determine better ways to manage the impact. In addition to the water, waste, energy and biodiversity audits we can also determine what our carbon footprint is, based on the amount of carbon emissions created. One aspect is to consider the distance and method travelled between home and college every day. It undertakes the measure of bulk of carbon dioxide equivalents exhaled by the organization through which the carbon accounting is done. It is necessary to know how much the organization is contributing towards sustainable development. It is therefore essential that any environmentally responsible institution examine its carbon footprint.

### 3. Audit Stage

In HOLY CROSS COLLEGE green auditing was done with the help of TJ solutions involving different student groups, teaching and non-teaching staff. The green audit began with the teams walking through all the different facilities at the college, determining the different types of appliances and utilities as well as measuring the usage per item and identifying the relevant consumption patterns and their impacts.

The staff and learners were interviewed 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 to clarify the data received through survey and discussions.

#### 3.1 Student Clubs and Forums Involved

Youth Red Cross, N)SS, Red Ribbon Club, Consumer Club, Human Right/Legal Literacy Committee, All India Catholic University Federation (AICUF), Rotaract Club, Reaching the unreached Neighbourhood(RUN), Child line, Crossian Centre For Documentation, ECO club, UBA cell, Women Cell.



### **3.2 Comments on Site Tour**

Site inspection was done along with students and staff. Questionnaires were answered during the site tour. Students and staff took much interest in the data collection processes. It was quite interesting and fascinating. It was an environmental awareness program for the students who participated in the green auditing. The experience of green auditing was totally a new experience for most of the students. They have shared their expectations about a green campus and gave suggestions for the audit recommendations.

### **3.3 Review of Documents and Records**

Documents such as electricity and water charge remittance, laboratory equipment registers, audited statements and office registers were examined and data were collected. College calendars, college magazines, annual report of the college and NAAC self-assessment reports, UGC report etc. were also verified as a part of data collection.

### **3.4 Review of Policies**

Discussions were made with the College management regarding their policies on environmental management. Future plans of the college were also discussed. The management would formulate an environment / green policy for the college in the light of green auditing. The purpose of the green audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the Institution.

### **3.5 Interviews**

In order to collect information for green auditing different audit groups interviewed teaching and non-teaching staff, students and other stakeholders of the college.

### **3.6 Site inspection**

College and its premises were visited and analysed by the audit-teams several times to gather information. Campus trees were counted and identified. Vegetable gardens, play grounds, canteen, library, office rooms and parking grounds were also visited to collect data. Number and type of vehicles used by the stakeholders were counted. Number of LPG cylinders used in labs, canteen and hostel kitchen were also counted.



## 4. Post Audit Stage

The base of any green audit is that its findings are supported by documents and verifiable information. The audit process seeks, on a sampled basis, to track past actions, activities, events, and procedures to ensure that they are carried out according to systems requirements and in the correct manner.

Green audits form a part of a process. Although they are individual events, the real value of green audits is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time. Although green audits are carried out using policies, procedures, documented systems and objectives as a test, there is always an element of subjectivity in an audit.

The essence of any green audit is to find out how well the environmental organisation, environmental management and environmental equipment are performing. Each of the three components is crucial in ensuring that the organisation's environmental performance meets the goals set in its green policy. The individual functioning and the success of integration will all play a role in the degree of success or failure of the organisation's environmental performance.

### 4.1 Key Findings, Observations and Evaluations

#### a) Water Usage at College for women

Total number of students studied during the academic year 2022-2023: 2474

Teaching & non-Teaching staff in the institution during the academic year 2022-2023:  
208

Total number of stakeholders: 2682

#### Water for college and hostel

Borewell water- 90000 litres/day (college and hostel)

Total water usage -90000 litres/day





## Water usage at College

Main water uses in the College campus are Laboratories, Drinking, Rest room, Canteen, Garden, and Construction

Sl. No	Place	Water usage Quantity Litres / Day
1	Laboratories	1,000
2	Drinking	2500
3	Garden	30,000
4	Rest room	10,000
5	Construction	3500
6	Canteen	4000
	<b>Total</b>	<b>51,000</b>

Water usage in the College- 51 KL / Day

Water usage per day per stakeholder in the college -19 litres

Waste water generation in the college - 15 KL/day

## Water usage at Hostel

Number of students and staff residing in the hostel in the year 2022-2023: 220

Main water uses in the Hostel are Drinking, Washing of clothes, Cooking & Vessel cleaning and for Restroom

## Water usage at Hostel

Sl. No	Place	Water usage Quantity Litres / Day
1	Cooking	900
2	Drinking	500
3	Garden	5000
4	Toilet ,Bath room and clothes washing	20,000
5	Vessel Cleaning	1500
	Total	27,900

Water usage at Girls Hostel -27.9 KL / Day

Water consumption per day per stakeholder in the hostel - 126.8 litres

Waste water generation in the Hostel - 22.4 KL /day

## For drinking water: RO water system was installed

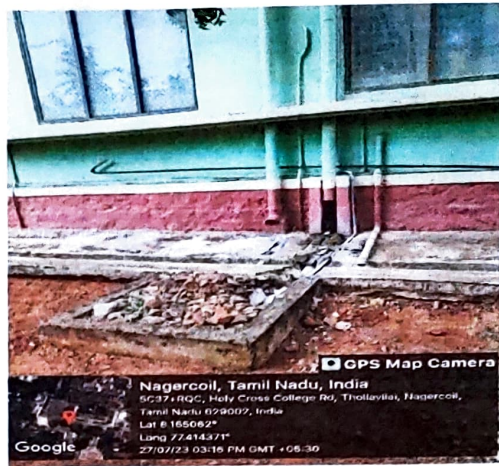
- A RO plant for drinking water is installed in the campus.
- Analysis of Drinking water and bore well water samples are done periodically.
- The quality of Drinking water is within the norms.
- Microbial tests for Drinking water are carried out in a periodical manner.



## Rainwater Harvesting

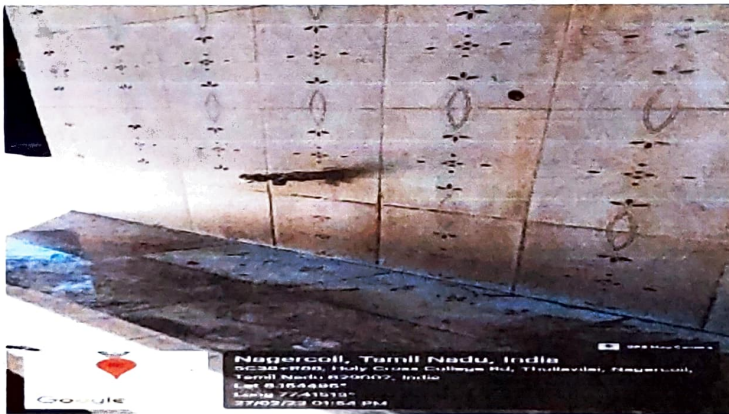
At Holy Cross College rainwater harvesting is done effectively to enhance the ground water level.





## Water Conservation initiatives

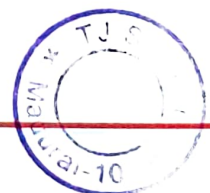
- Water taps are changed to press type to reduce the wastage of water
- RO water rejects are collected and used for garden



## b) Energy

### Non Renewable Energy

TNEB Grid Electrical Energy Consumption: 2022-2023



## ELECTRICAL ENERGY CONSUMPTION IN THE COLLEGE AND HOSTEL

TNEB ENERGY CONSUMPTION -COLLEGE					
Sl. No	SERVICE NO	TARIFF	Units Consumed	Bill Amount -Rs	Average Unit cost-Rs
1	7123014167	LM2B1	42292	459148	10.8
2	7123014181	LM2B1	53290	489002	9.17
3	7123014166	LM51	1780	21012	11.8
4	7123014335	LM61	40	6555	163.8
5	7123014180	LM51	470	12335	26.2
6	7123014321	LM51	5160	68664	13.3
7	7123010534	LM51	2210	27722	12.5
	<b>Total</b>		<b>105242</b>	<b>1084438</b>	

TNEB ENERGY CONSUMPTION -HOSTEL					
Sl. No	SERVICE NO	TARIFF	Units Consumed	Bill Amount -Rs	Average Unit cost-Rs
1	7123014168	LM51	300	8731	28.1
2	7123014169	LM51	2520	27066	10.7
3	7123014170	LM51	12260	133909	10.9
4	7123014171	LM51	12630	130555	10.3
	<b>Total</b>		<b>27710</b>	<b>300261</b>	

**Diesel Generator Electrical Energy Consumption: 900 units**



## Total electrical energy consumption

<b>ELECTRICAL ENERGY CONSUMED</b>	<b>UNITS</b>
Diesel Generator (Based on diesel consumption)	900
College and Hostel	132952
<b>Total electrical energy</b>	<b>133852</b>

### Solar power Electric energy consumption:2022-2023

<b>Sl. No</b>	<b>Solar Capacity KW</b>	<b>Solar Power Generation Units</b>
1	5	6387

**Total Electrical Energy consumption in the College & Hostel -140239 units**

**Electrical Energy consumption per stakeholder per year - 52.28 units**

## LPG

For cooking LPG gas is used in the hostels & College canteen and for heating in the lab

**LPG cylinders used- commercial cylinders of 19 kgs capacity**

- **LPG consumption in the hostel mess during the year 2022-2023- 420 nos.**
- **LPG consumption in the college during the year 2022-2023- 6 nos.**
- **LPG consumption in the canteen during the year 2022-2023- 188 nos.**
- **Total LPG consumption during the year 2022-2023- 614 nos.**



# Renewable Energy

## Solar Water Heater

Total solar water heater installed capacity in the hostel - 200 LPD



## The energy conservation measures followed

- The fans, lights, air-conditioners and other electronic and electrical equipment are switched off when not in use.
- Computers are switched to sleep mode or hibernate mode automatically when not in use.
- Electrical equipment like CROs, Oscillators, Sodium lamps are switched off in the laboratory when the students complete their observations.
- At the end of every practical session, Computer monitors and UPS are switched off.
- Periodical maintenance and overhauling of generators is being carried out.

- Soft copies are maintained instead of hard copies, to reduce power consumption and paper.
- Work supervisor and electrician regularly check the usage of lights, fans and all other energy sources during and out of the college hours.
- Staff and Students are made aware of vehicle pooling.
- Lights and fans are switched off by the students whenever they are out of hostel rooms

### c) WASTE

#### Quantity of waste generated:-

##### Office

- Biodegradable - <0.25 kg/day
- Non-biodegradable -< 0.1kg/day

##### Labs

- Biodegradable - <0.5kg/day
- Non-biodegradable -< 0.5 kg/day
- Hazardous waste -<500 ml/day

##### College Canteen

- Biodegradable -2 kg/day
- Non-biodegradable -<0.5kg/day

##### Hostel

- Biodegradable - 60- 75 kg/day
- Non-biodegradable - <1kg/day

##### Open area

- Biodegradable (Dry leaves)- 25 Kg/Day



## ❖ Waste Management

Each Class Room bins are placed with instruction to drop paper waste and non -bio degradable waste

### Biodegradable waste management

Biodegradable waste is utilised effectively and efficiently

- ❖ Separate dustbins are kept to collect the waste food and used plates.
- ❖ BioDegradable and nonbiodegradable waste are collected in separate bins provided.
- ❖ Withered dry leaves are collected separately and dumped in the pits and converted into Bio fertilizer



## Plastic Waste Management

- Use of polythene bags, plastic cubs and laminated papers are prohibited.
- Students and staff are advised to bring cloth bags
- All the stakeholders are motivated to use stainless steel water bottles and lunch boxes.
- Plastic utensils in the stores, canteen and hostel kitchen are replaced with stainless steel plates, tumblers etc
- Use of plastic folders for assignments and projects are prohibited.
- Plastic waste that comes in through lab equipment's package, empty chemical containers etc. are collected separately and disposed periodically for recycling.

## Used Battery Management

- Used batteries are disposed as waste to the local vendor

## E-Waste Management

- E-waste is not properly collected and kept in the E-waste collection point for disposal through authorized e-waste recyclers.



## Hazardous Waste Management

- To get rid of toxic fumes in the Chemistry laboratory, a separate fume hood and industrial exhaust fans are installed.

## Other Solid Waste Management

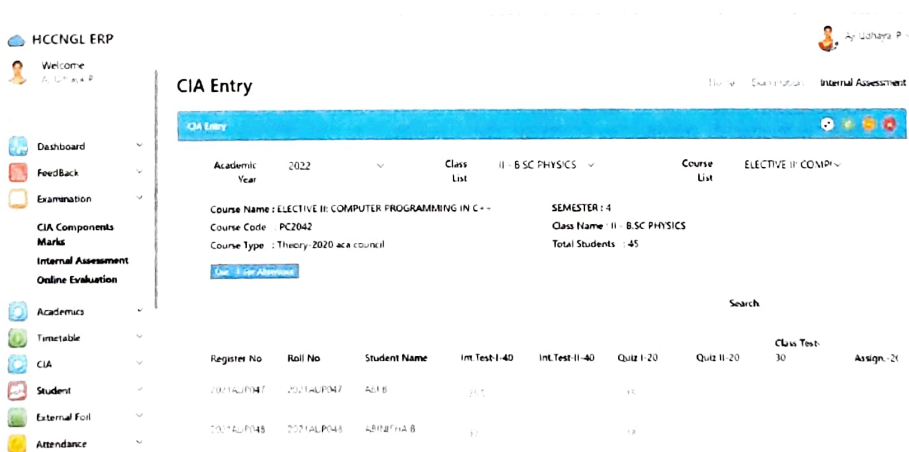
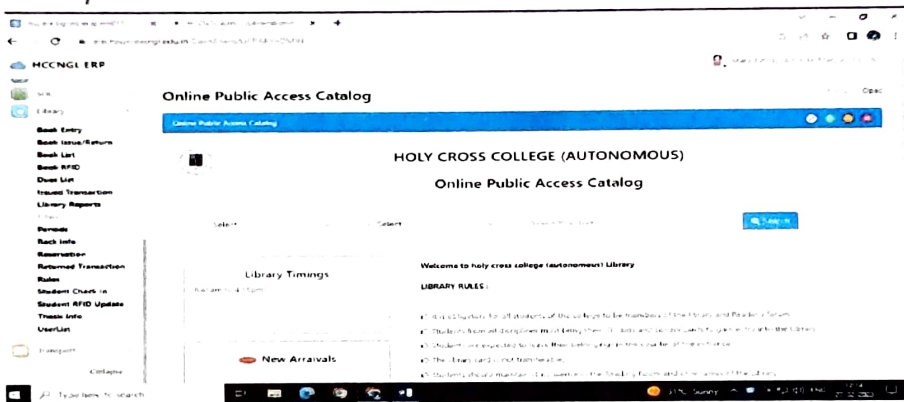
- Solid wastes generated from damaged furniture are sent to the waste wood collection centre. Useful furniture and other wooden materials are made from the waste
- Glass wastes are disposed of periodically through the municipal waste collection system.



## Waste Reduction

- ❖ Students are instructed not to waste paper while writing examinations.
- ❖ In order to reduce the use of paper the following initiative were taken
  - Student admission-Attendance - Electronic Method
  - Payment of fees- Through Bank net banking system
  - Selection of elective courses

- Online assignments
- Submission of e-assignment through email
- Profile of staff and students are made online
- Office circulars through SMS, WHATSAPP or Email
- Online Admission Process - Printing of applications reduced & submission of applications through admission portal.
- All inter department communications are through intranet
- Online exams are conducted to reduce paper usage.
- Library accessibility through library smart card.



## Absentees Entry

Home &gt; Attendance &gt; Absentees Entry

Absentees Entry

Shift: I Hours: I (Regular Hour)

Course Code: PP2025  
Course Title: Elective II: Introductory Astronomy, Astrophysics and Cosmology

Click Here If All Present

Search

#	Roll No	First Name	Attendance Type
1	2022APP818	AHUSHINE A	Present
2	2022APP819	AJILALAN FEMIJ	Present
3	2022APP820	AMINI RINI SHAS	Present

## d) Green Campus

- The campus is lush green with gardens, lawns and plants wherever there is open space.
- The eco-friendly ambience of the campus is a noteworthy feature of Holy Cross College.
- Green belt was developed in 19870 sqft. Area.
- The list of trees and the arrival of new saplings are recorded every year.
- All the plant specimens are identified and documented.





## Routine Green Practices

- Every year new tree saplings are planted inside the college campus.
- The Green campus drive is an initiative of the College to protect the environment.
- The campus protects age-old trees in addition to several new trees and plants planted.
- Tree plantation programs are organized regularly in co-ordination with the external environmental organizations.
- Environmental awareness rallies are conducted regularly to spread the message of environment preservation.



## e) Carbon Footprint

Release of carbon dioxide into the atmosphere contributes to global warming and increases the pace of climate change. More trees in the campus will make a source of sink for the carbon dioxide and for other greenhouse gases.

- Diesel consumption by college buses per year-21780 L
- Diesel consumption by DG sets in the college/hostel – 300 L

- Total Diesel Consumption- 22080 L
- Radius of Nagerkovil town-4 KM
- Average distance travelled by staff and students per day from home to College and back to home -43 KM
- No of four wheelers being used by students and staff -16
- No of two wheelers being used by students and staff -187
- College working days during the year 2022-2023: 180 days
- Average Fuel efficiency of four wheelers – 20 KM/ L
- Average Fuel efficiency of two wheelers -60 KM/ L
- Average Petrol consumption by four wheelers -2160 L
- Average Petrol consumption by two wheelers-8415 L
- Total Petrol consumption-10575 L
- Total LPG consumption(Hostel & canteen & College) per year- 11666 Kg
- Total electrical power consumed from Grid- 1,32,952 units

• GreenHouse Gas emission due to diesel	58953.6 Kg CO <sub>2</sub> e
• GreenHouse Gas emission due to petrol	24957 Kg CO <sub>2</sub> e
• GreenHouse Gas emission due to LPG	35347.9 Kg CO <sub>2</sub> e
• GreenHouse Gas emission due to Grid power	107691.1 Kg CO <sub>2</sub> e
• Total GHG emission	226949.6 Kg CO <sub>2</sub> e
	226.9 t CO <sub>2</sub> e

## 4.2 Consolidation of Audit Findings

We hope that students would have developed a greater appreciation and understanding of the impact of their actions on the environment. They have successfully been able to determine the impacts on the environment through the various auditing exercises. Participating in this green auditing procedure they have gained knowledge about the need for sustainability of the college campus. It will create awareness on the use of the Earth's resources in their home, college, local community and beyond.

### General

- Green Policy is stated and objectives are reflected very well in the functioning of the college and Hostel
- Gardens inside the college premises are found to be well maintained.



- More number of notice and sign boards are placed in the campus to create awareness
- Campus is declared plastic free and a lot of initiatives and innovative actions are taken to maintain the green policy.
- Online registration facility is available for all documentation work.

## **Water**

Total water consumption -89.7 KL/day

- Water management & waste water management strategies are well maintained.
- Ro reject water is used for gardening purposes.

## **Water Conservation**

- Water taps are converted into press types to reduce water wastage.

## **Rainwater Harvest system**

Appreciable work has been carried out for harvesting the rainwater both from college buildings & hostel for charging the well water level and usage.

## **Energy**

Total electrical energy consumption from TNEB Grid-132952 units

Energy saving activities implemented.

## **Renewable energy- Solar Thermal water heaters**

- Solar water heater installed capacity - 200 LPD
- Grid electrical energy(equivalent) saved due to Solar water heaters-3000 units/year.





## Renewable Energy usage-

Sl. No.	Renewable Energy	Electrical Energy/Equivalent Electrical Energy
1	Solar Photovoltaic	6387 units- Electrical Energy
2	Solar Thermal	3000 units- Equivalent Electrical Energy
	Total	9387 units

## Waste to Wealth

### Inside the campus

- Dry leaves are converted into bio fertilizer.

### Reduction in usage of Hazardous chemical

- Most of the Hazardous chemicals are replaced with green chemicals
- Micro scale laboratory is implemented in chemistry to reduce the usage of chemicals

### Waste Recycle

- E - wastes are collected
- Milk cover from Hostels and canteen are collected separately and disposed

### Green Campus

- Tree cover of the college with respect to the stakeholder strength is good
- Regular planting of trees inside and outside campus are to be continued
- Usage of water for gardens are to be measured

- Solar street light is installed in the campus

## **Carbon Footprint**

- Initiatives for accounting of GreenHouse Gas reduction other than Solar Power also have to be taken into consideration.
- Apart from students/staff using public transport, some of the Students/staff who come to college by own vehicles shall be reduced by pooling.

### **4.3 Preparation of Action Plan**

Policies referring to college's management and approach towards the use of resources need to be considered. The college green policy/environmental policy for its sustainable development to be monitored consciously.

### **4.4 Follow-up Action and Plans**

Green Audits are exercises which generate considerable quantities of valuable management information. The time, effort and cost involved in this exercise is often considerable and in order to be able to justify this expenditure, it is important to ensure that the findings and recommendations of the audit are considered at the correct level within the organization and that action plans and implementation programs result from the findings. Audit follow up is part of the wider process of continuous improvement.

### **4.5 Environmental Education**

The following environmental education program may be implemented in the college before the next green auditing:-

- Training programs in Liquid waste management, setting up of Water management, Carbon footprint concepts, Awareness on Global warming



- Increase the number of display boards on environmental awareness such as – save water, save electricity, no wastage of food/water, switch off light and fan after use, plastic free campus etc.

### **Awareness on Carbon Consumption**

- Students and Staff members may be made totally aware of pollution caused by use of vehicles.
- The carbon consumption awareness programs on carbon emission at individual as well as social level will help to avoid air and noise pollution in the campus due to vehicles.

### **4.6 Recommendations**

Targets for environmental policy shall be fixed

Establish a purchase policy to procure environmental friendly materials

### **Criteria Wise Recommendations**

#### **Water**

- Water consumption monitoring system and wastewater treatment facility has to be implemented in the college campus and hostel
- Establish waste water treatment systems and reuse the water for gardening and toilet flushing
- More awareness programs on water conservation to be conducted
- UV light to be fixed at the outlet of RO unit for disinfection.
- Flow meter to be provided at source to know the water consumption and for better water management.

#### **Energy**

- Maximize the utilization of Solar Power Plants generation in the college
- Install more capacity solar power plants shall be planned.



- Conduct more awareness program and energy saving for students and staffs
- Old tube lights were replaced with LED tube lights.
- Sensor based power switch off systems may be installed in more places.
- Green building concept shall be planned for the new buildings.

## Waste

- Conduct exhibition of recyclable waste products.
- STP can be constructed for waste water treatment.
- Targets for reduction in waste generation shall be planned.
- Every six months e-waste to be disposed of as per e-waste Management rules 2016. Not to be stored for more than 180 days.
- Register to be maintained for collection, storage and disposal of E waste& used batteries.
- MoU may be signed with agencies to dispose of paper waste.

## Green Campus

- Grow potted plants at both veranda and class rooms.
- Beautify the college building with indoor plants
- Keep continuously encouraging students for making the campus green
- Periodically remove the dead trees and plant a new saplings
- Roof garden for some building shall be planned in future



## Carbon footprint

- Fix a target to reduce Green House Gas emission
- Plan to achieve Net-Zero Energy building in future
- Plan for E vehicle for commutation.
- Motivate the students to use public transport system and bicycle.

