SCIENT INSTITUTE OF TECHNOLOGY

Ibrahimpatnam, R.R Dist 501506

(NAAC Accredited, Approved by AICTE & Affiliated to JNTUH)

7.1.3 Quality audits on environment and energy regularlyundertaken by the Institution.

Certification by the auditing agency

PRINCIPAL

PRINCIPAL
Scient Institute of Technology
Ibrahimpatnam, R. R. Dt -501 506

PowerTech Energy Solutions
Conserve to Consume

ENERGY & GREEN AUDIT COMPLETION CERTIFICATE

This is to certify that following utility has carried out Energy & Green Audit as per guidelines laid down in The Energy Conservation Act, 2001 in the month of November 2021

Name of the Installation	Scient Institute of Technology, Ibrahimpatnam. R.R. Dist- 501506.
Details of Facilities Audited	Main college building including laboratories, libraries, etc.
Date of Energy and Green Audit	08 November 2021
Name of Certified Energy Auditor	Mr. Swapnil Gaikwad
Certification No.	EA 20121
Validity of the Certificate	30 December 2022

POWERTECH ENERGY SOLUTIONS

Signature of Auditor

(Swapnil Gaikwad)

PRINCIPAL
Scient Institute of Technology
Ibrahimpatnam, R. R. Dt.-501 506

SCIENT INSTITUTE OF TECHNOLOGY
Ibrahimpatnam, R.R Dist 501506
(NAAC Accredited, Approved by AICTE & Affiliated to JNTUH)

7.1.3 Quality audits on environment and energy regularlyundertaken by the Institution.

Green Audit/Environment Audit Report

PRINCIPAL

PRINCIPAL
Scient Institute of Technology
Ibrahimpatnam, R. R. Dt.-501 506

PowerTech Energy Solutions
Conserve to Consume

Energy & Green Audit Report

Of

Scient Institute of Technology, Ibrahimpatnam.

Submitted By

Power Tech
Energy Solutions

Reg. Office: - 6, Vaikuntha Apt, Hire Nagar, Nashik-Pune Road, Nashik.422 011

Mumbai Office: Shop No.39, Gokul Nagri 1, Thakur Complex, 90 Feet Road, Kandivali (E), Mumbai. 400101 Pune Office: - 4th Floor, Devika Heights, Opp.RegentHotel, Shivajinagar. 411 005

Mob. +91 9226936163, Email: info@ptesolutions.in

GREEN AUDIT

The "NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL" (NACC) guidelines under
"Institutional Values and Social Responsibilities" also stipulates campuses to adopt green practices educate and display sensitivity towards issues like climate change and environmental issues.

Definition

Green audit can be defined as systematic identification, quantification, recording, reportingand analysis of components of environmental diversity.

Objectives of the Study:

The main objective of green audit is to access the performance and activities related to environmental conservation and management in the campus. The purpose of this initiative is also to promote projects for environment protection and sustainability and use the findings of Green Audit as a guidance tool

- To bring in accountability for environment conservation
- To create concern among students for environment and sustainability.
- To minimize human exposure to risk from environmental, health and safetyproblems.

Scope of the Audit

The audit examines the data and the activities with respect broad parameters andmetrics used to measure and monitor environmental performance of

a) Energy conservation
b) Renewable Energy
c) Water conservation
d) Waste Management and Recycling
e) carbon sequestration
f) Training and skill development
g) Recommendation & Suggestions
h) Conclusion

About the college:

SCIENT Institute of Technology, Popularly Known as SCIENT. It is the first Engineering College in Ibrahimpatnam, on the Sagar Road established in 2001 and is one of the most reputed engineering colleges in the state of TELAGANA affiliated to JNTU, Hyderabad.

SCIENT offers 4 Under Graduate Programmers B.Tech. CSE, ECE, EEE and MBA & M.Tech Programs at PG level with a fine blend of young and experienced teaching faculty. In all about 500 students take admission per year. The instructional facilities are spacious, and the laboratories are continuously upgraded with state of the art equipment. There are over 100 highly qualified and dedicated faculties. The college is well- equipped with excellent instructional facilities in all branches as well as other amenities. About 65% of the students get jobs through campus placements in the top MNC's like Cognizant, Infosys, TCS, Wipro, Capgemini, Deloitte, etc., and reputed core companies.

The College has a sophisticated Digital Library and also has an impressive repository of technical reference books, Magazines, National and International Journals catering to the needs of the students and faculty. Students and staff are provided with very good indoor and outdoor sports facilities. A dispensary is provided on the campus for the benefit of students and staff. Every effort is made to ensure that the students are trained in technical skills while inculcating in them a sense of social responsibility, in tune with the vision and mission of the college. All the A-category seats have been filled since the year of inception and the college is one of the most sought after ones for admissions.

Vision and mission:

Vision:

To impart quality education in building engineering and management professionals striving for a symbiosis of innovative technological excellence, research and human values with global standards to meet skills, knowledge and behavior of industry and societal needs with global exposure

Mission:

- To achieve excellence by imparting innovative Teaching &Learning and

Research.

- To generate, empower, disseminate, and preserve knowledge and information.
- To render social relevant technical services and inculcating entrepreneurial talents in technologicaladvancements.
- To nurture, inculcate and develop skills, knowledge and attitudes to render technical services forindustry and societal needs.

Energy Policy

We, at Scient Institute of Technology, are engaged in providing technical & management education are committed to continual improvement in energy efficiency in all areas of our operations.

To achieve this, we shall, in particular,

1. Have in place an Energy Management System.
2. Comply with applicable legal and other requirements related to energy usage.
3. Minimize wastages through efficient use of resources by adopting Reduce, Reuse &Recycle practices.
4. Imbibe best practices and technology.
5. Purchase energy-efficient products and services.
6. Ensure involvement and participation of staff & students by providing training andawareness.
7. Ensure availability of information and of all necessary resources to achieve energyobjectives and targets.
8. Evaluate effectiveness of the Energy Management System through regular audits andmanagement reviews.

Energy conservation & Renewable Energy

The efficient use and conservation of energy has been one of the focus areas of the institution, we have also taken steps towards augmenting our energy portfolio using renewable energy.

The college has a dedicated transformer of 160KVA capacity and the contract demand with the state electricity board for 80 KVA. The consumption of the campus is generally within the limits except for few months where the demand exceeds contract demand due to additional load in the laboratory section.

The college has dedicated skilled team for managing the energy requirements of the campus

The campus also has a Manual Power Factor Control (MPFC) system in place to maintain required power factor to avoid penalty charges.

The replacement policy for lighting involves replacement of conventional lighting systems with energy efficient LEDS lights has been taken by the institution and is acontinuing practice for the last 5 years.

The efficient use of energy has been the endeavor of the institution and thus havea dedicated team of professionals constantly striving to conserve energy through various initiatives.
The campus has a centre of excellence dedicated to electrical vehicles and various initiatives have been taken up in this area.

The campus has an exclusive **Energy Policy** to support energy efficiency at the institutional level which has the following guidelines and principles

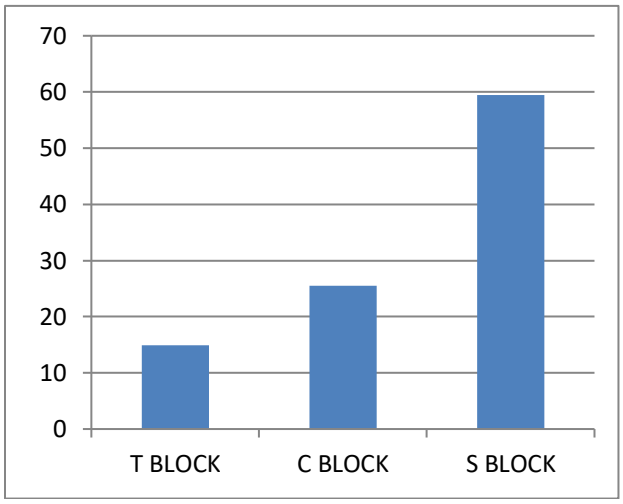
- Energy Efficiency road map
- Minimize energy use where ever possible.
- Avoid idle operation of electrical devices and equipment.
- Replacement policy of electrical equipment dictates purchase of energyefficient equipment of higher energy efficiency rating.
- Conduct a yearly internal energy audit of the facility and implement thefindings.

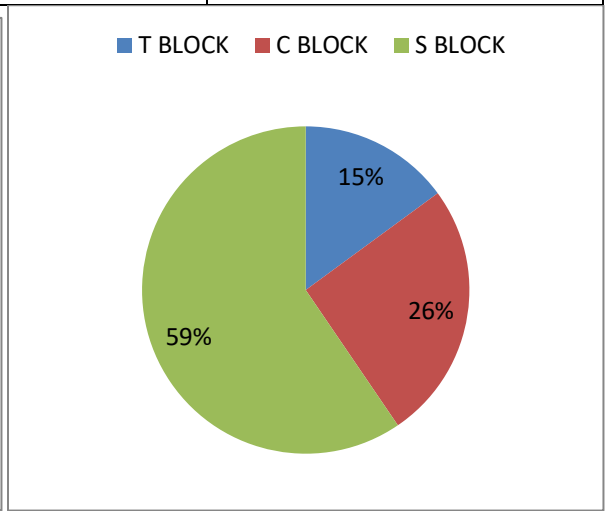
The institution is envisaging installing a biogas based system using canteen wastefor use of thermal energy in the and chemistry lab.

Energy consumption pattern

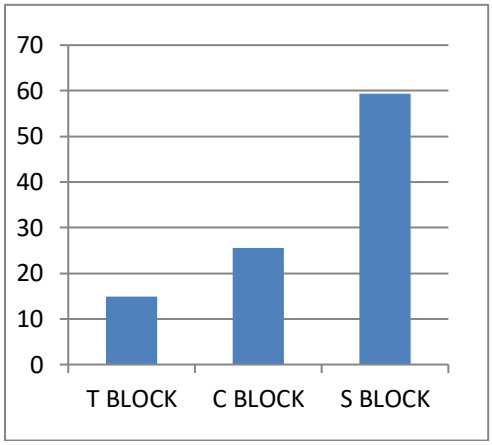
The energy consumption at the campus for the last 5 years is as follows

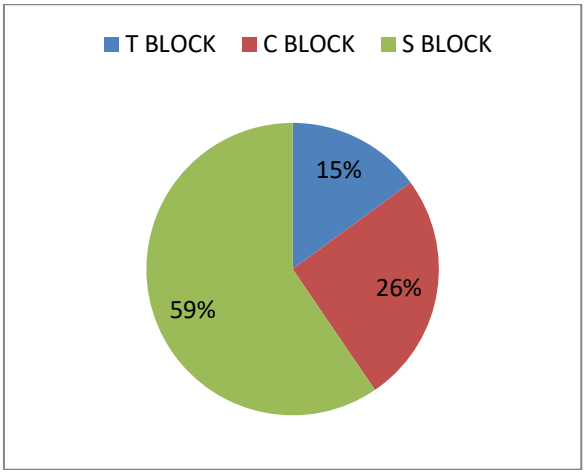
1	C - Block	**1524.98**	14.9
2	T - Block	**2600.27**	25.5
3	S - Block	**6052.00**	59.4
4	Total	**10176.25**	



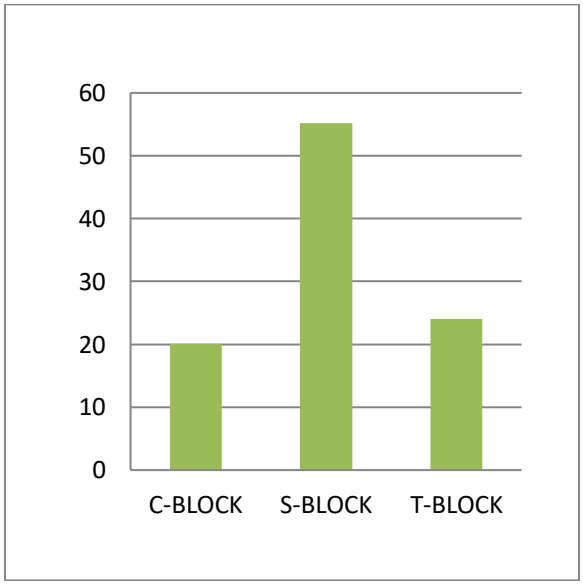


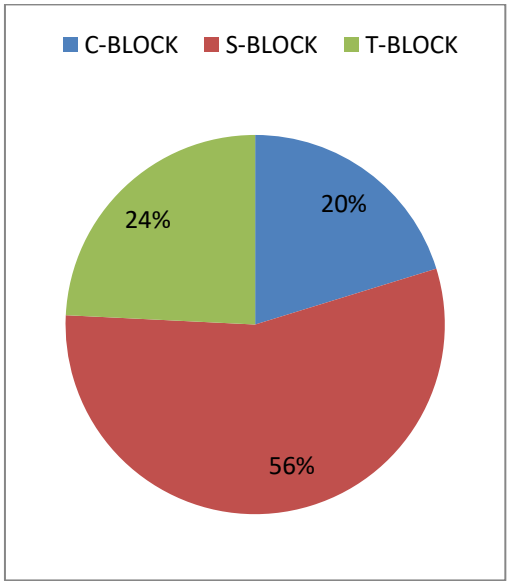
S.no	Name of the Block	Consumption in KwH 2018-19	Block wise percentage consumption 2018-2019
1	C - Block	**1593.98**	15.78
2	T - Block	**2655.27**	25.30
3	S - Block	**6051.44**	58.14
4	Total	**10302.31**	



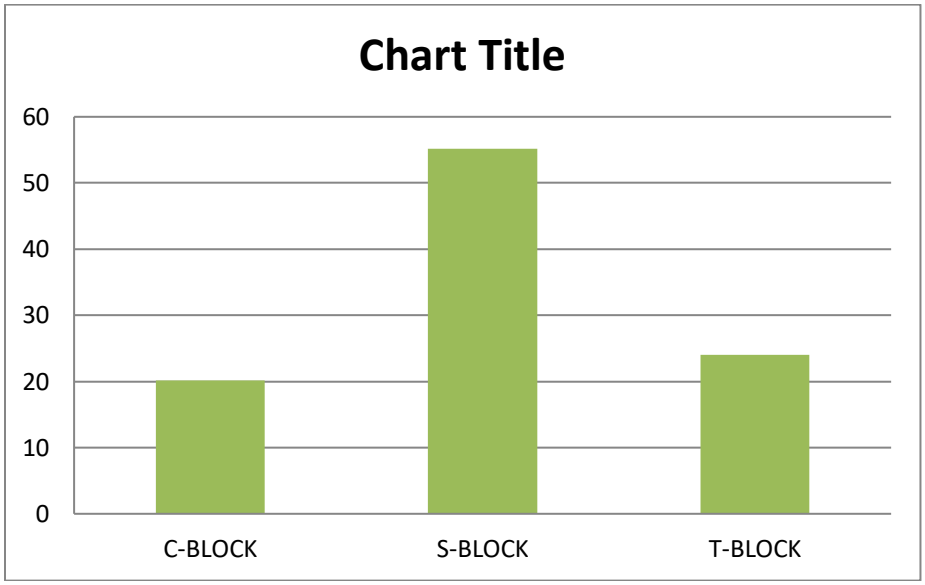


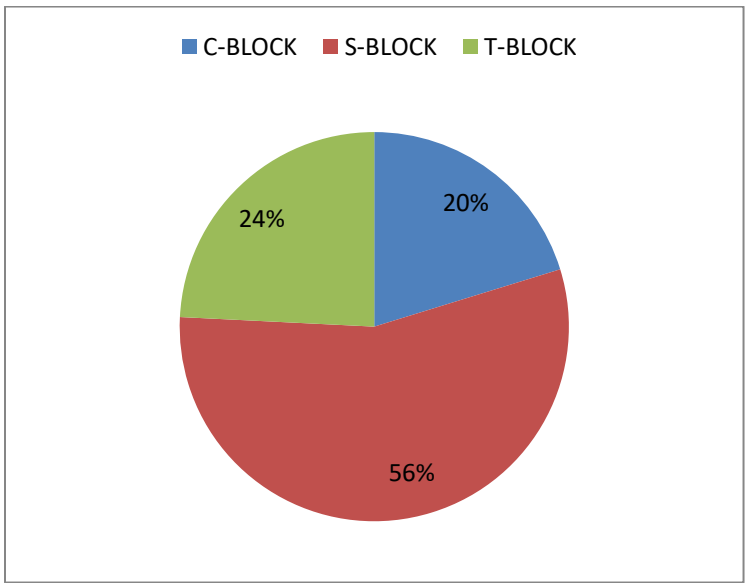
S.no	Name of the Block	Consumption in KwH 2018-19	Block wise percentage consumption 2018-19
1	C - Block	2622.45	20.11
2	S- Block	7195.71	55.19
3	T - Block	3219.81	24.06
	Total	13036.00	





S.no	Name of the Block	Consumption in KwH 2019-20	Block wise percentage consumption 2019-20
1	C - Block	2622.45	20.11
2	S - Block	7195.71	55.19
3	T - Block	3219.81	24.06
	Total	13036.00	





The electrical bills as per consumption is as follows

S.NO	Bill Month	CMD	RMD	KVAH/UNITS
1	26-Feb-19	40	36.1	5157
2	26-Jan-19	40	26.9	3024
3	26-Dec-18	40	23.3	3201
4	26-Nov-18	40	36.4	5682
5	26-Oct-18	40	7638	4512
6	26-Sep-18	40	42.4	6254
7	26-Aug-18	40	34.2	4512
8	26-Jul-18	40	27	3625
9	26-Jun-18	40	26.9	4204
10	26-May-18	40	38.9	6214
11	26-Apr-18	40	36.8	6548
12	26-Mar-18	40	43.3	6201

S.NO	Bill Month	CMD	RMD	KVAH/UNITS
1	26-Feb-20	40	68.1	5241
2	26-Jan-20	40	49.5	3314
3	26-Dec-19	40	68.9	4125
4	26-Nov-19	40	94.2	7541
5	26-Oct-19	40	100	6245
6	26-Sep-19	40	103.6	7541
7	26-Aug-19	40	92.8	7541
8	26-Jul-19	40	55.7	3750
9	26-Jun-19	40	76.8	4512
10	26-May-19	40	94.7	7858
11	26-Apr-19	40	106.8	7548
12	26-Mar-19	40	88	6854

S.NO	Bill Month	CMD	RMD	KVAH/UNITS
1	26-Feb-21	40	52.7	7548
2	26-Jan-21	40	46.6	6485
3	26-Dec-20	40	36.5	5400
4	26-Nov-20	40	52.5	8245
5	26-Oct-20	40	56.6	7654
6	26-Sep-20	40	62.9	7254
7	26-Aug-20	40	54.7	7541
8	26-Jul-20	40	36.2	5415
9	26-Jun-20	40	30.7	9741
10	26-May-20	40	68.9	7854
11	26-Apr-20	40	67.5	8541
12	26-Mar-20	40	49.3	5624

S.NO	Bill Month	CMD	RMD	KVAH/UNITS
1	26-Feb-22	40	51.54	7502
2	26-Jan-22	40	33.58	4520
3	26-Dec-21	40	36.08	5620
4	26-Nov-21	40	48.8	8400
5	26-Oct-21	40	53.76	5624
6	26-Sep-21	40	54.76	8425
7	26-Aug-21	40	54.92	8231
8	26-Jul-21	40	56.5	7421
9	26-Jun-21	40	51.8	5642
10	26-May-21	40	70.3	8421
11	26-Apr-21	40	74	10352
12	26-Mar-21	40	71.2	9562

The consumption of power increases in the months of February, March and April as there are exams and practical’s being conducted in the electrical machines lab.

Energy audit and proposals for last 5 years

Conservation of energy has been the top priority of the management and various initiatives have been taken to utilize energy in an efficient manner.

The approach to energy efficiency at the institution is as follows

Measure

The internal energy audit from the department of electrical engineering has taken exercises in ascertaining the amount of energy utilized in the campus block wise. The rationale behind this task is that, "what we can measure, we can control". The process of measurement is the first step in energy audit assessment. The campus has a dedicated sincere team which ensures periodic measurement of energy consumption and infer the consumption pattern.

Monitor and control

The team as a next step monitors the consumption pattern and builds approaches to control and minimize wastage of energy. The team has developed checks and balances to control inefficient use of energy.

The air conditioners are operated in 24^{O}c temperature setting and thus have an energy efficient approach

Adopt new technologies

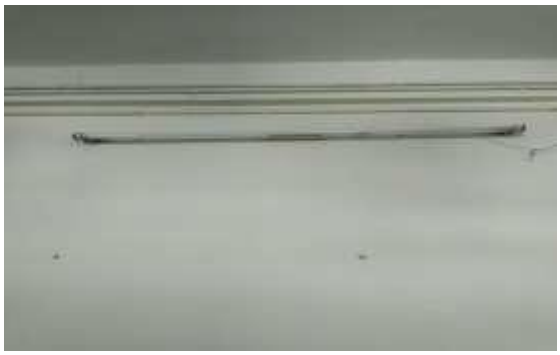
A constant search for new technologies to reduce energy consumption has been adoptedat the institution level. This translates to not only replacing old equipment with energy efficient ones, but also for all new procurement emphasis is given on highly energy efficient equipment.

This approach has been followed by the institution for conserving energy. The college has conducted internal energy audits and conserved significant energy. The energy audit has become a practice at the institution and activity was started in the year 2015.

The team has been consistently carrying out the energy audit, and notwithstanding that an external agency verifies the measures and also suggest improvement mechanism.

Some of the initiatives for conservation of energy include

- **Replacement of conventional tubes lights with energy efficient LEDs**
- **Replacement of CRT Monitors with LCD monitors**
- **Replacement of old air conditioners with energy efficient 3 star A/c**
- **Installation and operation of power factor controller for maintaining power factor**
- **Substitution of conventional energy with renewable energy by installing grid integrated solar Photo voltaic panels in progress**
- **Replacement of incoming transformer from present 80KVA t0 120 KVA to avoid penalty for exceeding contract demand**



Conventional Tube light

LED Tube light

3 Star AC

Old AC

This transformer up gradation is in progress to a 120 KVA higher rating energy efficient transformer in conjunction with the Solar PV system for roof top

The generator is used for only emergency conditions and periodic maintenance is carried out. The LSHSD procured for the Generator is blended bio fuel from the nationalized fuel delivery stations of national oil companies

The summary of the energy audit for the last 5 years is as follows

S.no	Name of the project	Energy before the implementation	Energy after implementation
1	Replacement of normal Air conditioners with 3 star energy efficient Air conditioners	1.7 KWH/ air conditioner	1.1 KWH/Air conditioner
2	Replacement of old ceiling fans with energy efficient fans	75W/fan	43W/fan
3	Retro fitting of LED tubes in the conventional tube holders as a replacement policy for fused tubes	36W/fixture	14W/fixture
4	Replacement of conventional street lighting with LED	100W/fixture	15W/fixture
5	Replacement of Old CRT monitors with LCD monitors	80W/unit	20W/unit

The above projects have been implemented on replacement policy basis thus there is a consist volume of old equipment being replaced with new energy efficient devices/equipment.

Water conservation

The conservation of water at campus has been carried out as a two pronged approach

- Minimal use of water using water efficient fixtures
- Maximum water recharging system through RWH pits with gravity design The campus uses fresh water diligent manner from two sources
    - Municipality water.
    - Ground water from bore wells.

The water obtained from the two sources is stored in the underground water tanks and then distributed to the 3 blocks

The college has a dedicated Reverse Osmosis Plant (RO) for potable water. The water from bore well is passed through the RO system about 2 KL/day water is utilized for all the blocks.

The team uses the RO reject water for landscaping there by reducing equivalent fresh water consumption. This has dual benefit of reduction in pumping cost and reduction in fresh water.

The campus has bubble taps and water efficient fixtures to minimize water use in washrooms and canteen area.

➔ Rain water recharging/harvesting pits - The landscape and water channels at the institution have been efficiently designed to facilitate gravity flow (energy efficient process) to the water recharging pits for ground water recharging thus providing water availability for majority of the time during the year. There are 2 pits of 1000 KL capacity.

Water Harvesting Pit

➔ The campus also has large open land to building ratio which ensures increased collection of fresh water.

Waste Generation and Recycling

Waste generation and management is one of the challenges the world is facing today. The institution in its capacity is trying to minimize, segregate and dispose waste in an efficient manner.

There are two types of waste which is generated in the campusWet waste – canteen

Dry waste – dry leaves, paper, plastic etc

The waste generation in the campus is on average

Wet waste	50 kg/day
Dry waste	100 kg/day

The waste is carefully segregated and disposed of through the local municipal body GHMC.

The feasibility of vermi composting at the campus was explored, and possess certain challenges in terms of space availability.

Solid waste generation and management is a burning issue. Unscientific handling of solid waste can create threats to everyone. The survey focused on volume, type and current management practice of solid waste generated in the campus. The different solid wastes collected such as paper, food, plastic, biodegradable, construction, glass, dust etc. was classified into r**ecyclable and non-recyclable further it was quantified** and some of them were recycled in-house and others have been sent to responsible recycling organizations. The E-waste is categorized separately and is the process of developing an action plan to dispose it in a responsible manner.

The waste inventory record has been for the last 5 years and steps have been taken to reduce and recycle waste.

Quantity of waste kg/annum				
year	canteen waste in kgs/day	canteen waste/annum	Dry organic waste/day	Dry organic waste/annum
2017-18	25	6000	50	219000
2018-19	21	5040	48	208100
2019-20	26	6240	60	224600
2020-21	28	6720	65	285400
2021-22	20	3600	49	214240

The total solid organic waste collected on average in the campus is 150 Kg/day whichincludes

- Waste generation from tree droppings and lawn management is a major solidwaste generated in the campus.
- The waste is segregated at source by providing separate dustbins for Bio-degradable and plastic waste.
- Segregation of chemical waste generated in chemistry and zoology laboratories isalso practiced.
- Metal waste and wooden waste is stored and given to authorized scrap agents forfurther processing.
- Few glass bottles are reused in the laboratories.
- The food waste from main canteen and mess is converted to vermin-compost and is used as organic manure for gardening purpose.
- Single sided used papers are reused for writing and printing in all departments paper waste is sent to recycling to I.T.C as per the M.O.U and recycled stationeryis being received by the college from the franchise.

E-Waste Generation

E-waste can be described as consumer and business electronic equipment that is near orat the end of its useful life. This makes up about 5% of all municipal solid waste worldwide but is much more hazardous than other waste because electronic components contain cadmium, lead, mercury, and Polychlorinated biphenyls (PCBs) that can damage human health and the environment.

Observations

- E-waste generated in the campus is very less in quantity.
- Administration conducts the awareness programmers regarding E-wasteManagement with the help of various departments.
- The E-waste and defective items from computer laboratory are being stored properly.
- The institution has decided to contact approved E-waste management and disposal facility in order to dispose E-waste in scientific manner.

Other Green initiatives

The campus has adopted measures to reduce Ecological Foot

printSome of the measures are

1. Green Transportation

- Carpooling by staff and students to reduce GHG foot print
- Smart routing of the college transport bus to maximize staff and studentmovement and reduced no of trips
- Reduced scope-3 emissions due to transportation
- Use of bicycles
- Periodic servicing of the college bus for better fuel efficiency

2. House Keeping Chemicals

- Use of Organic Herbicides and cleaners with minimal to zero hazardouschemical content

3. Training and Skill Development

The college has a dedicated committee which comprises of faculty and students who relentlessly work towards safer environment. The committee ensures systematic disposal of the garbage by classifying them into biodegradable and non-biodegradable components.

There is a dedicated Eco-club at the college which monitors the activities and tasks related to environment and sustainability at the campus.

Co-curriculum courses:

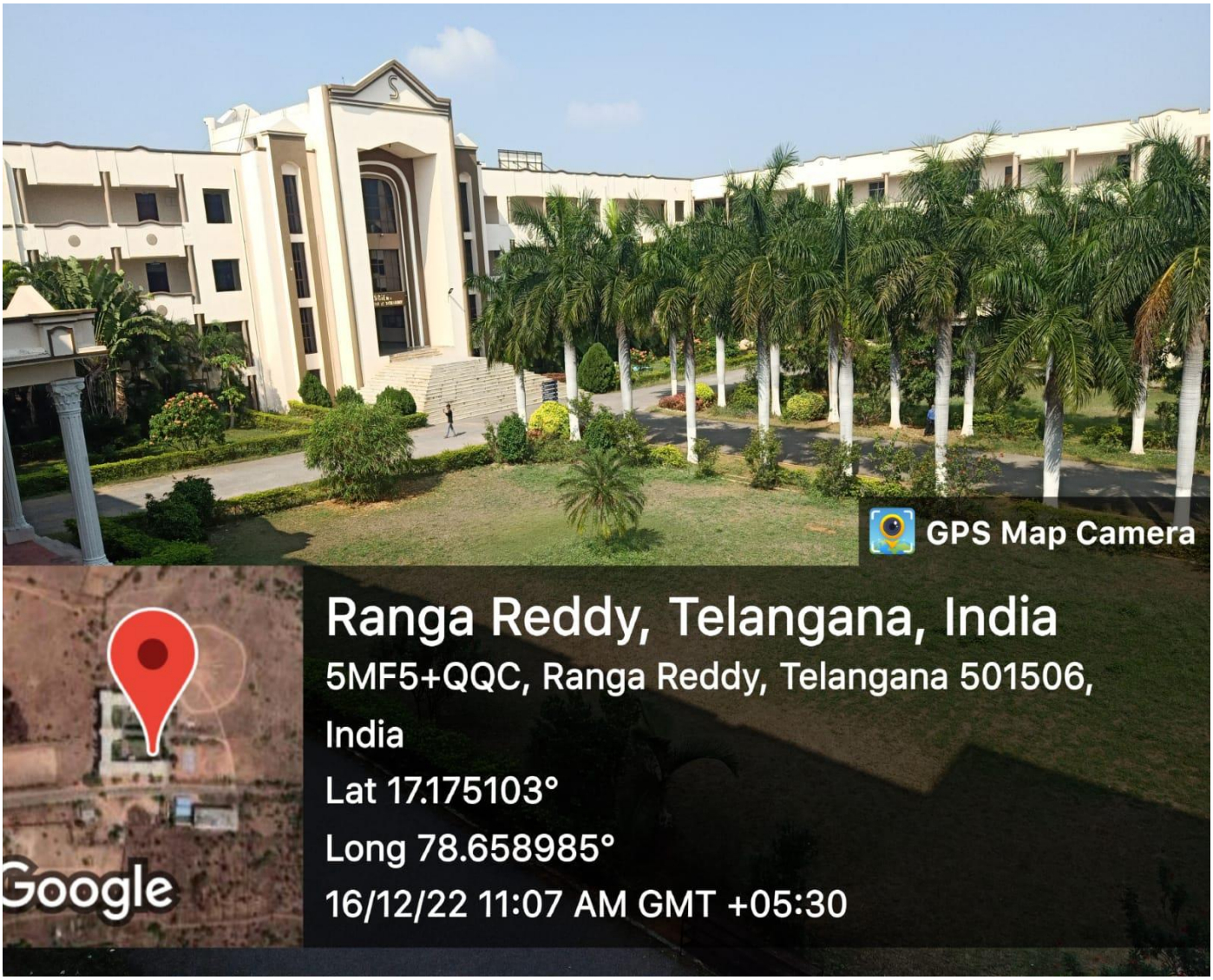
- There is a dedicated Green Audit department to look after green environment in the campus and yearly once green audit is conducted and findings are verified and necessary improvements and actions are taken by the environmental team.

- The college Eco Green-club conducts various types of awareness programmers like rallies, poster making, essay writing, elocution to create consciousness onenvironmental issues.

- In addition to this, the eco club of the college carries out tree plantation as part of Haritha harem which is an initiative by Telangana Govt.
- Conducting different types of awareness programmers with Govt and non-government organizations [NGO'] and other organizations.

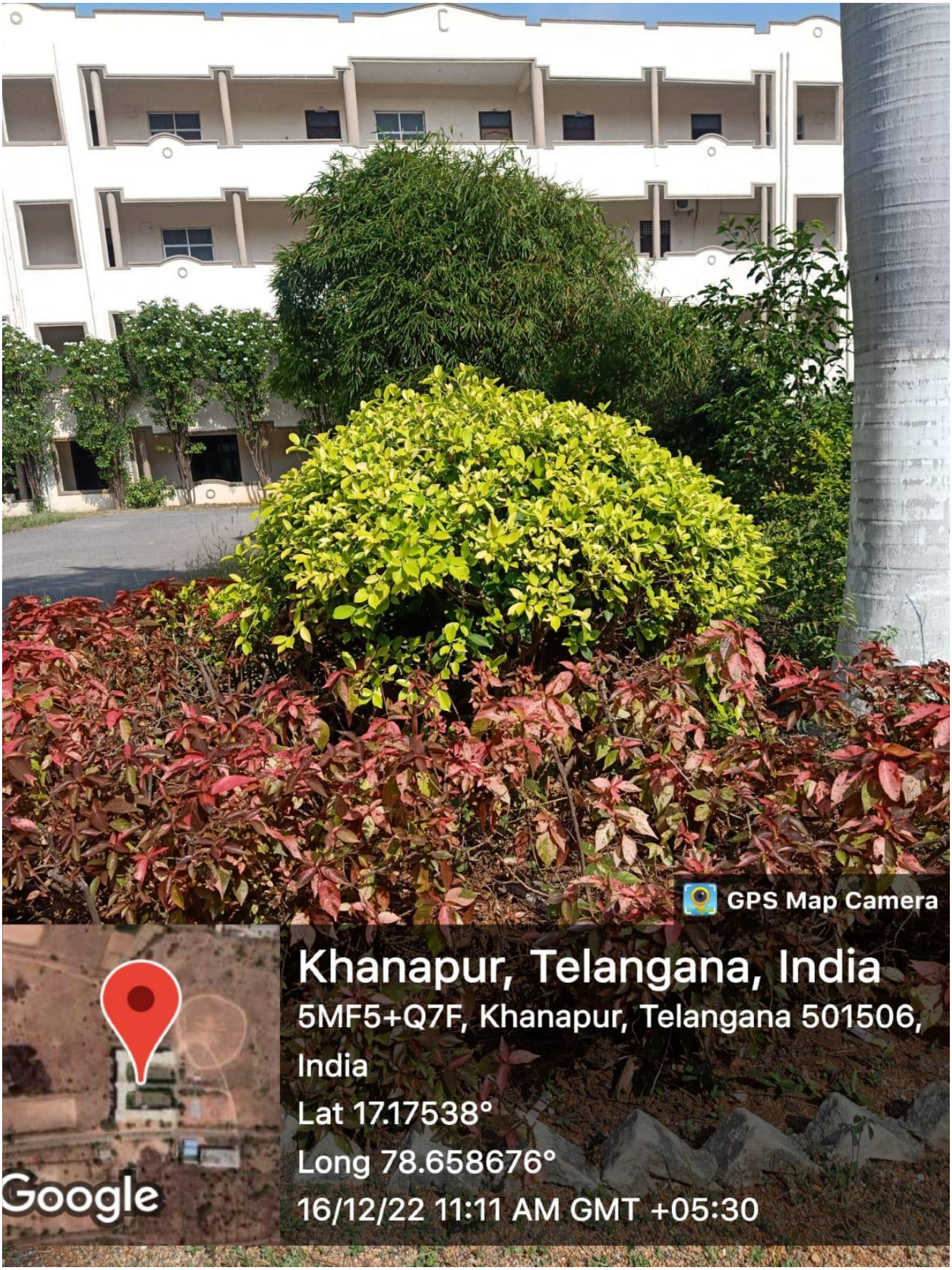
- Participation in quality standards (EMAS, 14001 or other environmentalprograms)

Greenbelt initiatives in the campus




SCIENT INSTITUTE OF TECHNOLOGY
SCIENT INSTITUTE OF TECHNOLOGY
GPS Map Camera
Ranga Reddy, Telangana, India
5MF5+QQC, Ranga Reddy, Telangana 501506, India
Lat 17.175404°
Long 78.659144°
16/12/22 11:28 AM GMT +05:30
Google


GPS Map Camera
Google
Ranga Reddy, Telangana, India
5MF5+QQC, Ranga Reddy, Telangana 501506, India
Lat 17.175434°
Long 78.659061°
16/12/22 11:29 AM GMT +05:30


GPS Map Camera
Khanapur, Telangana, India
5MF5+Q7F, Khanapur, Telangana 501506, India
Lat 17.17538°
Long 78.658676°
16/12/22 11:11 AM GMT +05:30
Google

RECOMMANDATION &SUGGESTION

3R PRINCIPAL (REDUCES, Reuse, Recycle) to be followed for all the material procurement Decisions

Utilization of chemical free waste water for landscaping use

Use of bio diesel blended diesel for DG OPERATIONS

Minimum use of plastics and promote use of recyclable material

Recycle or safety disposes of white goods, computer and electrical appliances

Awareness about cleanliness and maintenance flora and fauna suggestions for improvement

Maintain energy, water and water score cards

Always keep a tag and rectify approach to water leaks (Red for leak arrest, green for rectified)

Conclusion

The college has done a commendable job in activities pertaining to energy efficiency water conversation, waste management and other green parameters .this report has been prepared based on the data submitted and initiates taken by the college during the activities.

Energy Policy

We, at Scient Engineering College, are engaged in providing technical & management education is committed to continual improvement in energy efficiency in all areas of our operations.

To achieve this, we shall, in particular,

1. Have in place an Energy Management System.
2. Comply with applicable legal and other requirements related to energy usage.
3. Minimize wastages through efficient use of resources by adopting Reduce, Reuse &Recycle practices.
4. Imbibe best practices and technology.
5. Purchase energy-efficient products and services.
6. Ensure involvement and participation of staff & students by providing training andawareness.
7. Ensure availability of information and of all necessary resources to achieve energyobjectives and targets.
8. Evaluate effectiveness of the Energy Management System through regular audits andmanagement reviews.

Energy conservation & Renewable Energy

The efficient use and conservation of energy has been one of the focus areas of the institution, we have also taken steps towards augmenting our energy portfolio using renewable energy.

The college has a dedicated transformer of 160KVA capacity and the contract demand with the state electricity board for 80 KVA. The consumption of the campus is generally within the limits except for few months where the demand exceeds contract demand due to additional load in the laboratory section.

The college has dedicated skilled team for managing the energy requirements of the campus

The campus also has a Manual Power Factor Control (MPFC) system in place to maintain required power factor to avoid penalty charges.

The replacement policy for lighting involves replacement of conventional lighting systems with energy efficient LEDS lights has been taken by the institution and is a continuing practice for the last 5 years.

The efficient use of energy has been the endeavor of the institution and thus have a dedicated team of professionals constantly striving to conserve energy through various initiatives.

The campus has a centre of excellence dedicated to electrical vehicles and various initiatives have been taken up in this area.

The campus has an exclusive **Energy Policy** to support energy efficiency at the institutional level which has the following guidelines and principles

- Energy Efficiency road map
- Minimize energy use where ever possible.
- Avoid idle operation of electrical devices and equipment.

- Replacement policy of electrical equipment dictates purchase of energyefficient equipment of higher energy efficiency rating.

- Conduct a yearly internal energy audit of the facility and implement thefindings

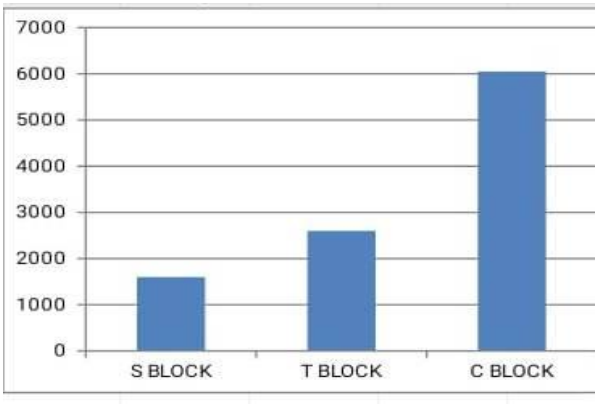
- Offset fossil fuel energy through renewable sources

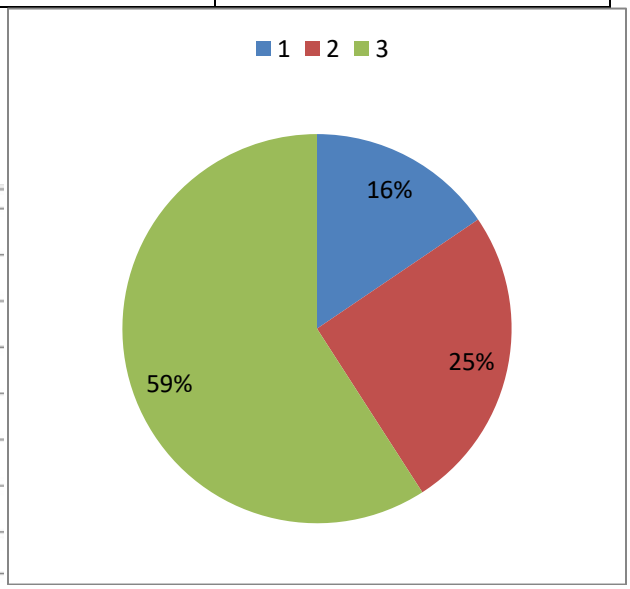
The institution is envisaging to install a biogas based system using canteen waste for use of thermal energy in the mechanical and chemical labs.

Energy consumption pattern

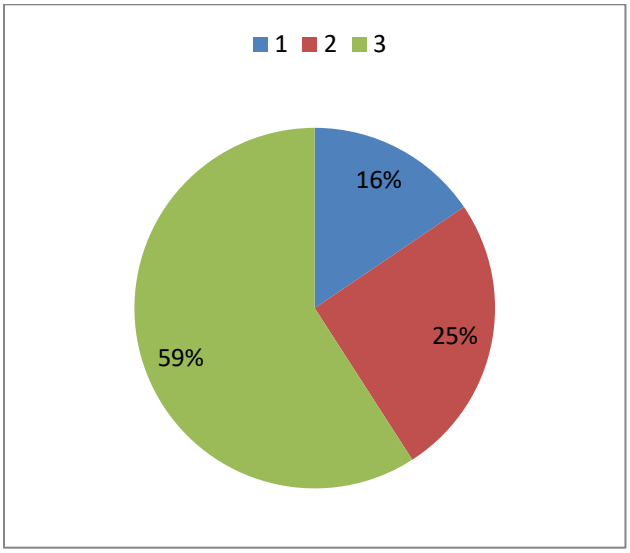
The energy consumption at the campus for the last 5 years is as follows

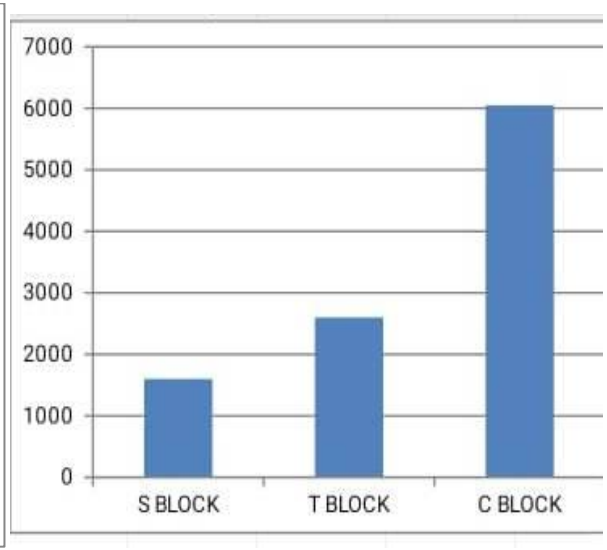
S.no	Name of the Block	Consumption in KHz	Block wise percentage consumption 2017-18
1	C- Block	**3047.98**	15.02
2	T- Block	**5200.27**	26.04
3	S- Block	**12112.00**	59.8
4	Total	**32331.25**	



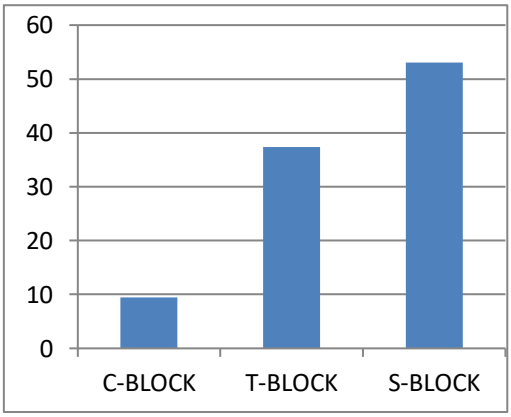


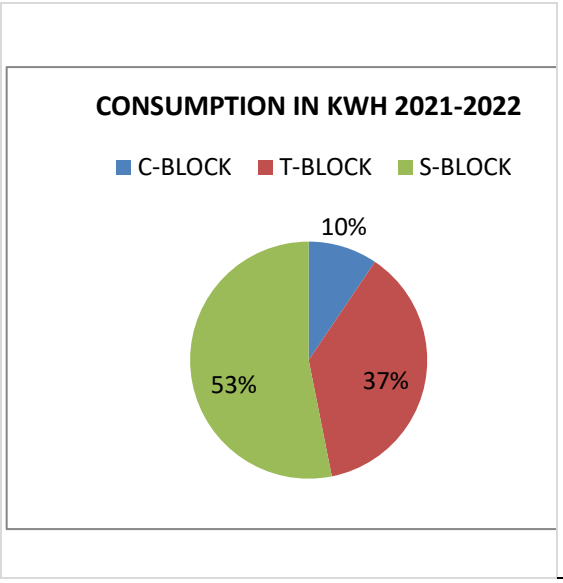
S.no	Name of the Block	Consumption in KwH	Block wise percentage consumption 2020-2021
1	C- Block	**1600.32**	15.6
2	T - Block	**2600.27**	25.3
3	S - Block	**6050.24**	59.2
4	Total	**10250.83**	


1
2
3
16%
25%
59%

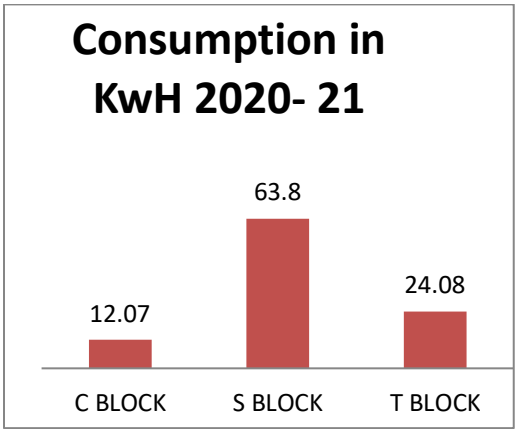

7000
6000
5000
4000
3000
2000
1000
0
S BLOCK
T BLOCK
C BLOCK

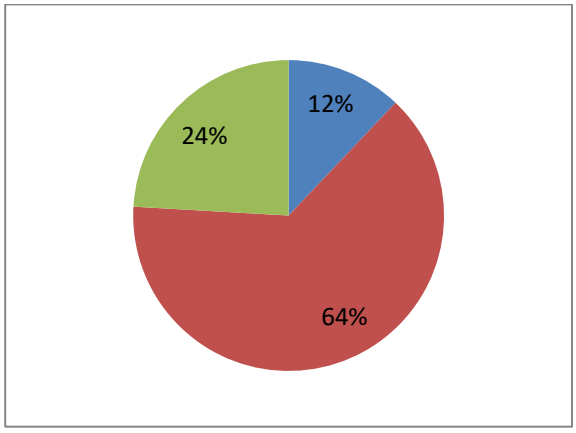
S.no	Name of the Block	Consumption in KwH 2021-2022	Block wise percentage consumption 2021-22
1	C - Block	1564.29	9.44
2	M - Block	6193.23	37.4
3	N - Block	8795.38	53.1
	Total	16552.9	



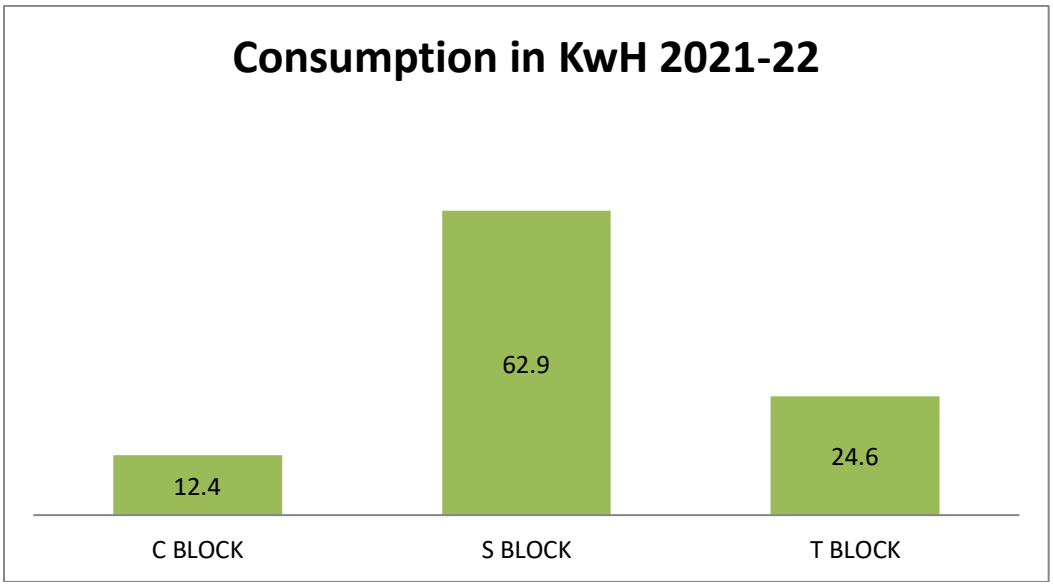


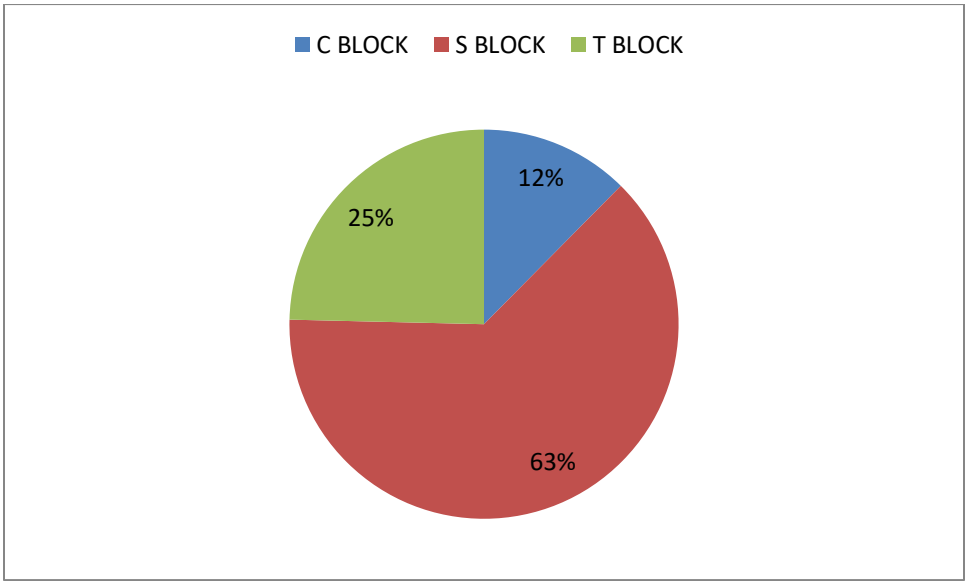
S.no	Name of the Block	Consumption in KwH 2020-21	Block wise percentage consumption 2020-21
1	C - Block	1612.04	12.07
2	S - Block	8521.2	63.80
3	T - Block	3215.08	24.08
	Total	13348.32	





S.n	Name of the Block	Consumption in KwH in 2021-22	Block wise percentage
1	C - Block	1621.01	12.4
2	S- Block	8200.01	62.9
3	T - Block	3212.1	24.6
	Total	13033.12	





The electrical bills as per consumption is as follows

S.NO	Bill Month	CMD	RMD	KVAH/UNITS
1	26-Feb-19	40	36.1	5025
2	26-Jan-19	40	26.9	3520
3	26-Dec-18	40	23.3	3050
4	26-Nov-18	40	36.4	5600
5	26-Oct-18	40	38	5200
6	26-Sep-18	40	41.9	5100
7	26-Aug-18	40	34.2	4800
8	26-Jul-18	40	27	3612
9	26-Jun-18	40	26.9	4100
10	26-May-18	40	36.9	6124
11	26-Apr-18	40	36.8	5124
12	26-Mar-18	40	44.3	6200

S.NO	Bill Month	CMD	RMD	KVAH/UNITS
1	26-Feb-20	40	34.1	5232
2	26-Jan-20	40	24.5	3314
3	26-Dec-19	40	36.9	8020
4	26-Nov-19	40	46.2	7340
5	26-Oct-19	40	50	5120
6	26-Sep-19	40	101.6	6451
7	26-Aug-19	40	46.8	6502
8	26-Jul-19	40	26.7	3203
9	26-Jun-19	40	38.8	4500
10	26-May-19	40	47.7	7500
11	26-Apr-19	40	53.8	7540
12	26-Mar-19	40	44	5100

S.NO	Bill Month	CMD	RMD	KVAH/UNITS
1	26-Feb-21	40	52.7	7120
2	26-Jan-21	40	36.6	6245
3	26-Dec-20	40	36.5	5246
4	26-Nov-20	40	53.5	8124
5	26-Oct-20	40	58.6	7124
6	26-Sep-20	40	62.9	7412
7	26-Aug-20	40	54.7	6545
8	26-Jul-20	40	36.2	5300
9	26-Jun-20	40	30.7	4600
10	26-May-20	40	82.9	7302
11	26-Apr-20	40	55.5	8311
12	26-Mar-20	40	49.3	6452

S.NO	Bill Month	CMD	RMD	KVAH/UNITS
1	26-Feb-22	40	51.54	7120
2	26-Jan-22	40	33.58	6245
3	26-Dec-21	40	36.08	5246
4	26-Nov-21	40	47.8	8124
5	26-Oct-21	40	53.76	7154
6	26-Sep-21	40	54.76	7412
7	26-Aug-21	40	54.92	6545
8	26-Jul-21	40	56.5	5512
9	26-Jun-21	40	39.8	4600
10	26-May-21	40	36.3	5846
11	26-Apr-21	40	74	8311
12	26-Mar-21	40	69.8	8954

The consumption of power increases in the months of February, March and April as there are exams and practical’s being conducted in the electrical machines lab.

Energy audit and proposals for last 5 years

Conservation of energy has been the top priority of the management and various initiativeshave been taken to utilize energy in an efficient manner.

The approach to energy efficiency at the institution is as follows

Measure

The internal energy audit from the department of electrical engineering has taken exercises in ascertaining the amount of energy utilized in the campus block wise. The rationale behind this task is that, "what we can measure, we can control". The process of measurement is the first step in energy audit assessment. The campus has a dedicated sincere team which ensures periodic measurement of energy consumption and infer the consumption pattern.

Monitor and control

The team as a next step monitors the consumption pattern and builds approaches to control and minimize wastage of energy. The team has developed checks and balances to control inefficient use of energy.
The air conditioners are operated in 24^{o}c temperature setting and thus have an energy efficient approach

Adopt new technologies

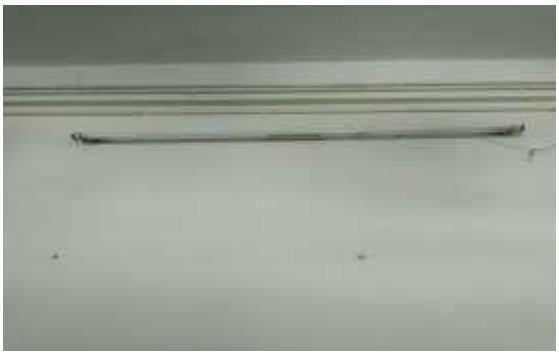
A constant search for new technologies to reduce energy consumption has been adopted atthe institution level. This translates to not only replacing old equipment with energy efficientones, but also for all new procurement emphasis is given on highly energy efficient equipment.

This approach has been followed by the institution for conserving energy. The college has conducted internal energy audits and conserved significant energy. The energy audit has become a practice at the institution and activity was started in the year 2015.

The team has been consistently carrying out the energy audit, and notwithstanding that an external agency verifies the measures and also suggest improvement mechanism.

Some of the initiatives for conservation of energy include

- **Replacement of conventional tubes lights with energy efficient LEDs**
- **Replacement of CRT Monitors with LCD monitors**
- **Replacement of old air conditioners with energy efficient 3 star A/cs**
- **Installation and operation of power factor controller for maintaining power factor**
- **Substitution of conventional energy with renewable energy by installing grid integrated solar Photo voltaic panels in progress**
- **Replacement of incoming transformer from present 80KVA t0 120 KVA to avoid penalty for exceeding contract demand**



Conventional Tube light

LED Tube light

This transformer up gradation is in progress to a 120 KVA higher rating energy efficient transformer in
conjunction with the Solar PV systemfor roof top

The generator is used for only Emergency conditions and periodic maintenance is carried out. The LSHSD procured for the Generator is blended bio fuel from the Nationalized fuel delivery stations ofnational oil companies

The summary of the energy audit for the last 5 years is as follows

S.no	Name of the project	Energy before the implementation	Energy after implementation
1	Replacement of normal Air conditioners with 3 star energy efficient Air conditioners	1.7 KWH/ air conditioner	1.1 KWH/Air conditioner
2	Replacement of old celling fans with energy efficient fans	75W/fan	43W/fan
3	Retro fitting of LED tubes in the conventional tube holders as a replacement policy for fused tubes	36W/fixture	14W/fixture
4	Replacement of conventional street lighting with LED	100W/fixture	15W/fixture
5	Replacement of Old CRT monitors with LCD monitors	80W/unit	20W/unit

The above projects have been implemented on replacement policy basis thus there is a consist volume of old equipment being replaced with new energy efficient devices/equipment.

The detailed energy audit is an activity conducted every year at the institution and proposals are verified after due diligence The year wise energy audit reports are maintained and presented to the management for necessary action.

The above information has been included in the green audit report and year detailed energy Reports are being maintained by the institution

Executive Summary

SCIENT Institute of Technology is one of the premier institutions in the technical and management education in Hyderabad. The institution has been delivering educational services for more than 2 decades and was established by SCIENT Education Society in year 2001. The college offers courses in Computer Science and Engineering, Electronics and Communication Engineering, Electrical and Electronics Engineering, MBA.

The college has a total student strength of 1200 plus students in various branches and about 600 students take admission every year. The instructional facilities are spacious, and the laboratories are continuously upgraded with state of the art equipment. There are over 100 highly qualified and dedicated faculties. The college is well-equipped with excellent instructional facilities in all branches as well as other amenities.

The institution has been forefront in sustainable practices and has taken up year energy efficiency improvement as one of their core agendas. The college management instituted a committee for developing an institutional wide policy for reduction of energy, water and improve resource efficiency.

The college is in complaint to latest practices in sustainability and has laid major emphasis on energy and green initiatives at the institution. The team from Power tech Energy Solutions carried out green audit which also comprises of environmental parameters like, waste management, indoor air quality adequacy assessment, landscaping and greenery study etc.

The comprehensive green audit also covered all the energy, water and environmental parameters practiced at the institution. The audit also concluded with suggestions and opportunities for improvement.

SCIENT Engineering College should adopt a top driven approach for pursuing the opportunities by making commitments and continuously driving efficiency improvement activities and measures within the facility.

Environmental Audit Report

Acknowledgement

Power tech Energy Solutions extends its warm thanks to SCIENT Institute of Technology for the opportunity and support rendered during the course of the Green/Environmental Audit.

We appreciate the interest, enthusiasm and commitment of the management towards pursuing energy conservation activities within the facility.

Power tech Energy Solutions would also like to specially thank the SCIENT Institute of Technology team for the relentless support and time dedicated towards this study.

We also extend our special thanks to all the personnel from various departments who have helped us in the course of this audit.

Overview

SCIENT Institute of Technology, Ibrahimpatnam, is a technical education institution providing both undergraduate and post- graduate courses in various streams of Engineering.

The campus meets its electrical energy requirements of the facility through grid electricity; captive generation through Diesel Generator is used for emergency purposes. The college use fresh water from the municipality and ground water for their water requirements. The college has also made provisions for collect of rain water and two rain water harvesting pits with gravity design has been installed.

The institution envisaged implementing sustainability activities as part of their environmental commitment and has taken step towards reducing their ecological foot print through efficient use of resources like energy, water, waste remediation etc.

SCIENT Institute of Technology, has taken up several initiatives to reduce the overall resources consumption in the facility. This is a commendable achievement and Power tech Energy Solutions appreciates the institution on this wonderful effort. Some of the important efforts and measures implemented are as below:

- Maximum utilization of natural light in class rooms
- Good green landscape to building area ratio
- Gravity run off design for maximum rain water collection
- Responsible E- waste storage and disposal
- Use of energy efficient air conditioners and lighting system

In-spite of successful past in-house efforts, SCIENT Institute of Technology, has evinced keen interest for a detailed green/environmental audit. This indicates the commitment of the Institution top management for sustainability and their open mindedness, 3BL Business Solutions LLP was entrusted with the task of carrying out the detailed Energy audit and green audit study in the facility.

The contents of the report are based on the data provided by, SCIENT Engineering College, Institutional personnel during the detailed green audit.

The Institution personnel should implement the suggestions made in the report after verifying safety aspects. It is the responsibility of the Institution personnel to observe statutory regulations, if any, as applicable norms and guidelines.

Action Plan

SCIENT Engineering College should set a target date for implementation of the projects identifiedin the facility. A cross functional team needs to be identified and entrusted with the task of implementation of the projects in a phased manner.

Environmental Initiatives at SCIENT Engineering College

Environmental management requires additional responsibility on and above the core operations. The best organizations imbibe environmental practices as part of their business plan. The onus of environmental management and its practice is even more greater for education institutions as they act as cradle for future environment thought leadership.

The college has carried various initiatives for conservation of environment. Some of the best practices include

- **Energy audit both internal and external for every year**
- **Water management through rain water harvesting**
- **Utilization of organic waste from the landscaping for producing organic fertilizer through vermin-composting**
- **Utilization of natural lighting**
- **Better window to wall ratio on class rooms for better indoor air quality**
- **Utilization of waste water reject from RO plant for landscaping and reducing the fresh water intake**
- **Use of renewable energy by installing Solar PV system**
- **Installation of energy efficient equipment**
- **E- Waste management and disposal**

The activities and the best practices mentioned are covered in detail in the comprehensive green audit report. A gist of the activities and potential is given as below

Environmental initiatives and their impact

Name of the initiative	Action taken	Benefits
Reduce Transportation emission	➢ Car pooling and intelligent route management for college buses, ➢ use of bicycles in the institution	Reduce Scope-3 Emissions fromtransportation.
E-waste management	➢ E- waste from the computer lab is collected and segregated ➢ E- waste is should to PCB authorized agencies for further disposal/ processing	The E-Waste is responsibly disposed
Indoor Air Quality	➢ The class rooms have good window to wall ratio ➢ Thus the fresh air quantity is maintained	The overall co2 content of the class rooms is less and it offers better indoor air quality
Carbon Sequestration	➢ The campus has good amount of trees with satisfactory green canopy ➢ The college is in the process of accounting the trees	The college will develop a data bank for trees and their potential to abate carbon

Note : - There are other initiatives which the institution is taking up to reduce carbon foot print.

CONCLUSION

Scient institute of technology of college establish certain guidelines for environment activities in the campus

- Make sustainable practices mandatory at the institution.
- Monitor goals environmental practices
- From a cross functional team with in the institution with a senior personal from all the individual department for new initiates related environment management.
- Introduce suggestion scheme with a reward policy for energy conversations ideas/projects
- Impart awareness and training to employees and students on a regular basis through campaigns compotation visit to other energies efficiency ,water, waste, and material conversation participation and conference and external work shops etc
- To achieve the objects a firm top management commitment to protect environment is required at the highest level of the organization. the management needs to continuously review the progress on a regular basis and assign specific responsibility for the realization of these commitments
- To start with the top priority of the management is to implement the recommended projects and reap benefits
- In turn Scient institute of technology is to strive to become the institution known best sustainable practices within the educational fraternity.