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**Indira College of Pharmacy, Pune**  
"Redefining Pharmacy Education"

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	d) Swatch Vaari, Harit Vaari activity
	e) World Environment Day Promotion

*Mjel*



PRINCIPAL  
Indira College of Pharmacy  
Tathawade, Pune - 411 033.



**Indira College of Pharmacy, Pune**  
"Redefining Pharmacy Education"

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	ii. 2018-2019
	iii. 2019-2020
	iv. 2021-2022
	g) Covid Vaccination Drive
	h) Mask, Sanitizer distribution Activity
	i) Mask Disposal Awareness

*myel*



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# CERTIFICATE

## ENERFUTURE TECHNOLOGY PRIVATE LIMITED

Verified and Certified that



Shree Chanakya Education Society's  
**Indira College of Pharmacy**

"Niramay", S.No. 89/2A, New Pune Mumbai Highway,  
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has carried out  
**Green & Environment Audit**  
as per guidelines laid down in the  
Indian Standards and Codes  
in 2017-18.



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INDIRA COLLEGE OF PHARMACY, PUNE

2021-22

## GREEN & ENVIRONMENT AUDIT REPORT



SHREE CHANAKYA EDUCATION SOCIETY'S  
INDIRA COLLEGE OF PHARMACY, PUNE

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**INDIRA**


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## ACKNOWLEDGEMENT AND CONCEPT

Enerfuture Technology Private Limited thanks the management of Indira College of Pharmacy, Pune for assigning this important work of Green and Environment Audit of Indira College of Pharmacy, Pune

Green audit is defined as a formal examination of practices adopted and their effects on the environment, by an organization. It is also widely known as Environmental Audit.

The aim of the Green Audit is to review the overall environment management systems. Depending on the types of standards and the focus of the audit, there are different types of environmental audits.

Organizations now recognize the importance of environmental matters and accepts that their environment performance should be scrutinized to understand its impact and to take remedial measures to lessen it.

Environmental auditing is used to:

1. Investigate
2. Understand and
3. Identify

These are then used to help in improving existing human activities, with the aim of reducing the adverse effects of these activities on the environment.

An environment auditor studies an organization's environment effects in a systematic and documented manner and produces an environmental audit report.

Green audit for an educational institution mainly examines the following systems

1. Renewable/ green energy usage
2. Water management
3. Biodiversity
4. Health and safety management
5. Sanitation management
6. Adopted Green practices





Contribution of college's team is equally important in this venture. Team of technical experts from Enrfuture Technology Private Limited is grateful to all the following personnel of Indira College of Pharmacy, Pune for their kind cooperation, furnishing required data, analysis report and support offered during our visit.

Name	Designation
Prof. Dr. Anagha Joshi	Principal
Prof. Dr. Dayanand Kannur	Vice Principal and Coordinator/Director of IQAC
Prof Dr Suvarna Ingale	HOD Pharm D
Mrs. Pradnya Parag Kulkarni	Office Superintendent
Mr Dilip Maruti Dhamale	Junior Clerk

We are also thankful to the other staff members who were actively involved while taking measurements and conducting field study.

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2	Mr Vinay Mulay	M.Tech (Energy Studies), ISO 50001 Lead Auditor, BEE Accredited Energy Auditor
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4	Mr Prasad Kalal	B.E Electrical, BE (Electrical), Electrical Supervisor(51242), Electrical Contractor(37364)
5	Mr Prashant Shinde	B.E Mechanical, IGBC Accredited Professional, Certified Energy Auditor

#### LIST OF INSTRUMENTS USED

1. Lux meter (Meco)
2. TDS meter
3. CO2 meter
4. Air quality measure meter
5. Sound dB meter





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EXECUCITIVE SUMMARY

Sr No	Location	Area	Objective/Purpose	Recommendation/Status
1	College building	Solar Photovoltaic System- 74Wp	To generate electrical energy by renewable sources and reduce the CO2 emissions	Can be Implemented
2	College hostel building	Solar Water Heater System	To generate hot water for hostel use to save the electricity and reduce the CO2 emissions	Implemented
3	College canteen	Bio-Gas generation plant- 50kg/day	Utilised organic food generated in the hostel mess to generate bio-gas for cooking purpose. This saves conventional fuel LPG and ultimately reduce the CO2 and Greenhouse gases emissions	Can be Implemented
4	College building	Tap water reducers	To save the water	Can be Implemented
		Hands free water tap system	This saves the water and also good for personal health protection to avoid frequent hand touching to water taps.	Can be Implemented



5	College building/campus	Rain water harvesting	Save water. Increases the groundwater recharge.	Implemented
6	College buildings/campus	Air Comfort/ Quality	Air quality for human being comfort	Marginally acceptable
7	College buildings/campus	Sound Comfort/ Quality	Sound quality or comfort for human being comfort	Within permissible limits
8	College buildings/campus	Daylight Comfort/Illumination	Daylight illumination for human being comfort	Within permissible limits
9	College buildings/campus	Health and Safety Management	Health facility	Ok
			Electrical safety- electrical wiring, its loose connections etc , unwanted materials are placed in electrical panel rooms	Need to be remove
			Fire safety- number of fire extinguishers are placed in college campus	OK
			Fire safety- Maintenance validity of fire extinguishers are updated.	OK
		Unwanted material placed in college campus	OK	
10	College buildings/campus	No vehicle day	Save the conventional fuel and reduces the CO2 emissions.	Can be Implemented



INDIRA COLLEGE OF PHARMACY, PUNE

2021-22

11	College buildings/campus	Waste management- E-waste	Reduce the CO2 emissions by recycling of solid waste. Also Save environment from hazardous materials.	Regularly implemented every year
12	College buildings/campus	Waste management- Solid waste	Reduce the CO2 emissions by recycling of solid waste	Regularly implemented and maintained every month.
13	College buildings/campus	Waste management- Sewage water- Sewage Treatment Plant (STP)	Reuse the sewage water for gardening purposes to save the water	STP implemented
14	College buildings/campus/other city area	Tree plantation/ Green belt cover	To increase the forest cover. Reduce the Air, Noise pollution, reduce CO2 emissions etc	Regularly conducted by college
15	College buildings/campus/other city area	Cleanliness drive and awareness campaign or poster competitions etc	To create awareness among students as well as in society/community.	Regularly conducted by college
16	College buildings/campus	Plastic free campaign	Save environment from non-recycling and hazardous materials.	Can be Implemented





## COLLEGE INTRODUCTION

### INTRODUCTION



### SHREE CHANAKYA EDUCATION SOCIETY

The Shree Chanakya Education Society (SCES) was established in February 1994, under the visionary leadership of Dr. Tarita Shankar, with the aim of providing top quality post-graduate education in the fields of Business Management, International Business and Information Technology. By consistently providing quality education over the past few decades, institutes at Indira Group is now considered as one of the best institutes in Pune. At a time when India was struggling to put its economy back on its feet, after the nation having pawned the “family jewels” just to keep afloat, Dr. Tarita Shankar sensed that education too would have to become more broad based and more vocational in nature if India was to stand up to the world competition in quality and price for its products, The then Finance Minister had prescribed for the economy and so, in 1994, began a saga of growth and quality in education; a story that is just reaching its zenith with 14 full fledged Institutes registering a strong presence on Pune’s educational horizon. Since inception, the Institutes managed by SCES, have maintained high academic standards and have successfully provided trained manpower to the industrial and services sector of the country. These institutes are now listed amongst the top colleges not just in Pune, but also in Maharashtra and India. With a modest strength of 60 students pursuing a single course, SCES has grown steadily and today boasts of 14 Institutes, having more than 8000 students from all over India pursuing multi-disciplinary, graduate & post-graduate programs. The objective of the institute is providing ‘Management education in a corporate environment’, has been possible due to the sincere and dedicated efforts of the members of SCES, who have invaluable experience in varied areas like academics, industry, service and social-world.



### INDIRA COLLEGE OF PHARMACY

Shree Chanakya Education Society founded Indira College of Pharmacy- ICP in 2006, with the introduction of B. Pharm (Bachelor of Pharmacy) course, M. Pharm (Pharmaceutics) was added in 2010 and Pharm.D (Doctor of Pharmacy) in 2016, with a zest for spreading quality healthcare education. Another feather in our hat is the introduction of two courses from 2020 i.e. D.Pharm (Diploma in Pharmacy) and M.Pharm (Quality Assurance). We have also been approved as recognized centre for pursuing Ph.D. for aspiring bright scientists. True to our tradition, ICP with its motto of 'Redefining Pharmacy Education' has been dispensing cutting edge knowledge in this highly sophisticated field of drug development and delivery, promoting in the process, a crop of well qualified and socially conscious alumni who have already begun to make a mark in the Pharmaceutical field. The college itself has earned a number of laurels for its splendid achievement; in a short span of its existence e.g. The College was the recipient of "Best Institute in Pharmacy" at the 9th Innovative Education Awards, held in Mumbai in the year 2017. ICP Principal, Prof. Dr.(Mrs.) Anagha Joshi received the 'Best Principal Award' in Pharmacy Education at the National Education Awards 2017. The college was awarded as "Top Performing Pharmacy Institute" World Education Congress, Global awards 2016, Mumbai; which we feel is a resounding acknowledgement of our contribution to the discipline of pharmacy.

ICP has been accredited with 'B++' grade (CGPA 2.78) by "National Accreditation and Assessment Council" (NAAC)

The college is equipped with the best infrastructure and equipment, which has been instrumental in creating the awesome credibility in a very short span of its existence. We believe that having established our credentials in the field of education, we need to take our commitment forward through introducing newer and higher avenues for the budding pharmacy students. Our aim is to imbibe the good work practices as well as research culture and professional attitude amongst the student fraternity to make them able and competent to contribute to the ultimate goal of having healthy India.

### VISSION

"To be a centre of excellence by redefining Pharmacy Education and nurture Globally Competent Professional Pharmacists."





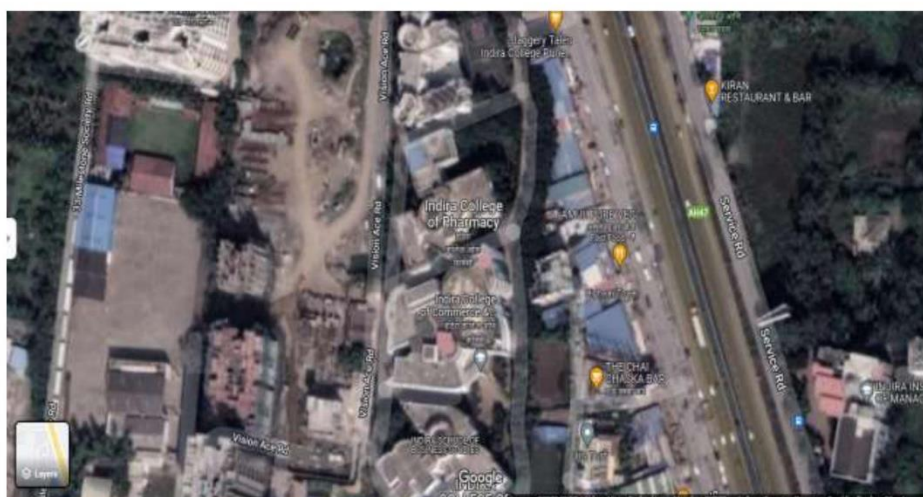
### MISSION

- To train and develop students into Professional Pharmacists so as to fulfil the Industrial and Community needs
- To responsibly work towards reducing the suffering of mankind by providing ably trained pharmacists & pharmaceutical care

### QUALITY POLICY

- Indira College of Pharmacy strives to be recognized as a centre of excellence by ensuring quality teaching-learning process and meaningful research activities.
- The quality policy assures its commitment for the value based dissemination of knowledge through technological advancements and meaningful faculty inputs.
- It ensures quality and ethics in all its activities, empowering its students to be professional pharmacists.

### LOCATION



## RENEWABLE ENERGY SYSTEMS

### 1. SOLAR PHOTOVOLTAIC SYSTEM- ELECTRICAL ENERGY GENERATION

#### INTRODUCTION



Maharashtra Government has new solar energy policy name as “Rooftop Solar with Net Meter system”. Maharashtra government encourages to install rooftop solar PV system with net meters at available roof top of consumers. This helps to reduce the burden on existing conventional fuel fired power plants in the country.

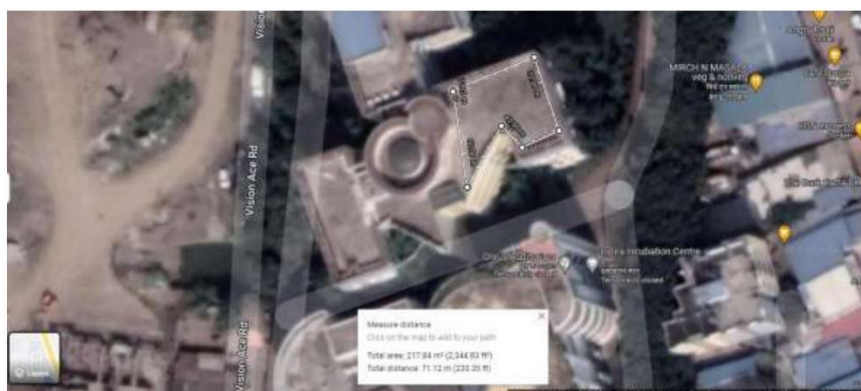
Solar Rooftop Net meter system helps consumers to reduce the electricity consumption in the electricity bill due to net meter.





**OBSERVATION**

1. It is observed that in the college Solar PV system is not installed for solar energy generation.
2. College has large rooftop space available for Solar PV system installation.









**RECOMMENDATION**

1. It is recommended that college can installed Solar Photovoltaic (PV) system on available rooftop for solar energy generation.



**SAVINGS MEASURES**

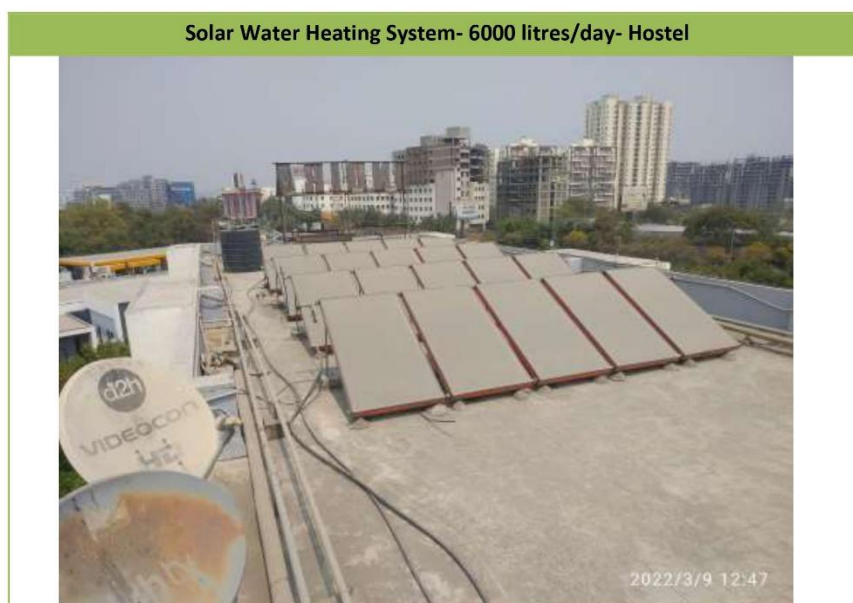
**SAVINGS DUE TO SOLAR PV SYSTEM INSTALLATION- MAIN COLLEGE BUILDING**

Savings due to Solar PV system installation		
Total Rooftop space available- approximate	8096	sqfoot
Total capacity of Solar PV system can be installed	74	kWp
Total solar unit generation	8280	kWh/month
Average electricity unit rate	14.04	INR/kWh
Total cost of Solar PV system	3312000	INR
Total saving	116251.2	INR/month
Payback period	28.49	months
Payback period	2.37	year

## 2. SOLAR WATER HEATING SYSTEM- HOT WATER GENERATION

### OBSERVATION

1. In boys and girls hostel, there is Solar Water Heating system is installed for the purpose of water heating instead of electric heaters.
2. Total capacity of Solar Water Heating system is 6000 litres/day.
3. Auxiliary heaters are used in solar water heating system in the morning.
4. Condition of some solar flat plate collector is not in good condition or damage. Due to this efficient and output of the system reduces.







Solar Water Heating System- 6000 litres/day- Hostel mage solar flat plate collectors





CO2 EMISSION REDUCTION

Particulars- Solar water heater		
Hot water temperature	60	deg C
Cold water temperature	25	deg C
Temperature difference(delta T)	35	deg C
Volume of water	6000	lit
Volumetric flow	6000	lit/day
Hot water temperature	60	deg C
Enthalpy of cold water	25.04	kcal/kg
Enthalpy of Hot water	60	kcal/kg
Enthalpy difference	34.96	kcal/kg
Amount of heat used	209760	kcal
Power used for heating	243.91	kW
Monthly kWh	7439.16	kWh/month
Saving kWh	7439.16	kWh/month
Saving kWh	89269.95	kWh/year
Saving INR	91055.35	INR/month
CO2 emission reduction/year	75.88	tonnes of CO2e

RECOMMENDATION

- It is recommended that regularly clean the solar plates for good efficiency.
- Also do the yearly maintenance of solar flat collectors for scale formation inside the tube to increase and maintain the efficiency of the system.



## WASTE MANAGEMENT SYSTEMS

### 1. BIO-GAS GENERATION

#### OBSERVATION

1. In the college canteen approximately 45kg kitchen waste is generated daily.
2. Currently there is no any bio gas plant for generation of bio gas in the college.

#### RECOMMENDATION

1. It is recommended that installed the small capacity of bio gas plant at college canteen for production of bio gas from kitchen waste generated daily.
2. Produced bio gas can be used for small purposes in the canteen instead of LPG which saves monthly approximate 217 cylinders of INR 2,16,710/-
3. Or College can also produce electricity from bio gas by installing gas generator to reduced energy consumption.



**SAVINGS MEASURES**

**SAVINGS DUE TO BIO GAS PLANT**

Saving due to Bio gas plant		
Capacity of bio gas plant can be installed	50	kg/day
Waste generated	45	kg/day
Approximate bio gas generation	2	m <sup>3</sup> /day
Approximate bio gas generation	2745	m <sup>3</sup> /month
Equivalent LPG gas saved	4117.5	kg/month
Approximate LPG cylinder saved	217	nos
Cost saved	2,16,710	INR/month



## 2. TREE PLANTATION/GREEN BELT

### OBSERVATION

1. In college premises there are number of trees are planted by college management.
2. College also developed its own horticultural garden as well as nursery.
3. There is substantial amount of waste of tree leaves, shrubs are generated in the college premises.
4. College has initiates the composting plant in the college premises.









## WATER QUALITY AND MANAGEMENT SYSTEMS

### 1. TDS LEVEL OF WATER

#### INTRODUCTION

The water we drink contains essential salts and minerals like calcium, potassium and magnesium, besides hydrogen and oxygen.

These minerals make up the acceptable levels of TDS (Total Dissolved Solids). Besides, these minerals, the source water contains heavy impurities like arsenic, antimony, lead, iron, etc. It also includes carbonates, fluorides, sulphides and other salts picked along the way. These contaminants enhance the TDS levels to unacceptable levels.

BIS (Bureau of Indian Standards) determines the TDS acceptability levels in drinking water. In India, drinking water can contain TDS up to 500 ppm. BIS has constituted the following table that could clarify the matters further.

TDS level (PPM)	Reasons for acceptability or non-acceptance	
less than 50	Unacceptable	The water with these TDS level does not contain the minerals required for healthy growth
50 - 150	Acceptable	Such TDS levels are usually due to minor industrial contamination
150 - 250	Acceptable	BIS considers water with this TDS levels as the healthiest of all because it is excellent for cardiovascular health
250 - 350	Acceptable	Many areas in India depends on groundwater or bore wells for their water requirements. This water contains essential minerals hence is in acceptance range
350 - 500	Fair	The maximum TDS levels acceptable for human consumption is 500
above 500 - 1200	Not Acceptable	BIS does not recommend any TDS level above 500 as fit for human consumption. However, water with TDS levels up to 1200 can be subjected to purification using Reverse Osmosis(RO) technology to eliminate TDS and bring it down to acceptable levels





**OBSERVATION**

1. Drinking water requirement of college fulfil by bore well water as well as PMC water
2. Domestic water requirement of college is fulfil by bore well.
3. For drinking water, in college aqua guard systems are installed to reduce the TDS level of water
4. TDS level of drinking water and domestic water as

**TDS level of water**

	
<b>Drinking water</b>	<b>Domestic water</b>
<b>v- Acceptable</b>	<b>v- Acceptable</b>

	<b>TDS</b>	<b>Acceptability</b>
	<b>ppm</b>	
<b>Drinking water</b>	52	Acceptable
<b>Domestic water</b>	298	Acceptable

**OBSERVATION**

1. TDS level of drinking water and domestic water is within permissible level or acceptable



## 2. RAIN WATER HARVESTING- COLLEGE PREMISES (SCIENCE BUILDING)

### OBSERVATION

1. College has implemented rain water harvesting in the college premises.
2. College has large rooftop space more than 10,000 sq foot where large amount of rain water is saved during rainy season.
3. College reuses rain water at underground water tank. This water tank is either used for garden purposes.





### 3. WATER TAP REDUCER

#### OBSERVATION

1. College has conventional water tap system in the area like bathrooms, toilets, laboratories etc.
2. Conventional water tap system consumes or requires more water for the purpose of washings, cleanings etc.

Conventional Tap water system	Tap water system with Reducer
	
<p>College have installed tap water system at laboratories except other places like bathrooms, kitchen etc</p>	<p>Used reducer to tap water for purpose of washing of utensils, hands etc which reduces flow of water and ultimately saves the water.</p>
<p style="text-align: center;">❌</p>	<p style="text-align: center;">✓</p>

#### RECOMMENDATION

It is recommended that increased the number of water reducers for water taping for save the water in other places like bathrooms, kitchen etc.



## AIR QUALITY

### INTRODUCTION

Indoor air is considered to be healthy when the air does not contain contamination in harmful concentrations and is acceptable when the majority of people feel satisfied. A human being breathes about 12,000 litres of air every day and is vital for our health. Exposure to hazardous airborne agents present in indoor space causes adverse effects such as respiratory and cardiovascular diseases, allergy and irritation of the respiratory tract and possibly leads to cancer.

Main source of indoor air pollutants are from outdoor air, household cooking (especially cooking with biomass or frying), tobacco smoking, polluted ambient air, cleaning agents, resuspension of dust during the cleaning activities, construction materials and paints, copy machines and printers as well as other human activities. Ambient air pollutant sources are vehicle emissions, thermal power plants, biomass burnings, construction work, unattended debris, open sewage pipes, fossil fuel based power generation and various industrial processes etc.

Threshold values for indoor air quality parameters				
Parameters	Classification			
	Class A	Class B	Class C	
Level	Aspirational	Acceptable	Marginally acceptable	
CO <sub>2</sub>	Ambient+350	Ambient+500	Ambient+700	ppm
PM <sub>2.5</sub>	<15	<25	<25	ppm
PM <sub>10</sub>	<50	<100	<100	ppm
HCHO	30			µg/m <sup>3</sup>
TVOC	<200	<400	<500	µg/m <sup>3</sup>
Occupational satisfaction	90	80	-	%



OBSERVATION

1. In college air quality is at good/ aspirational level.
2. Only the place where construction of building is going on, air quality is at not acceptable level.

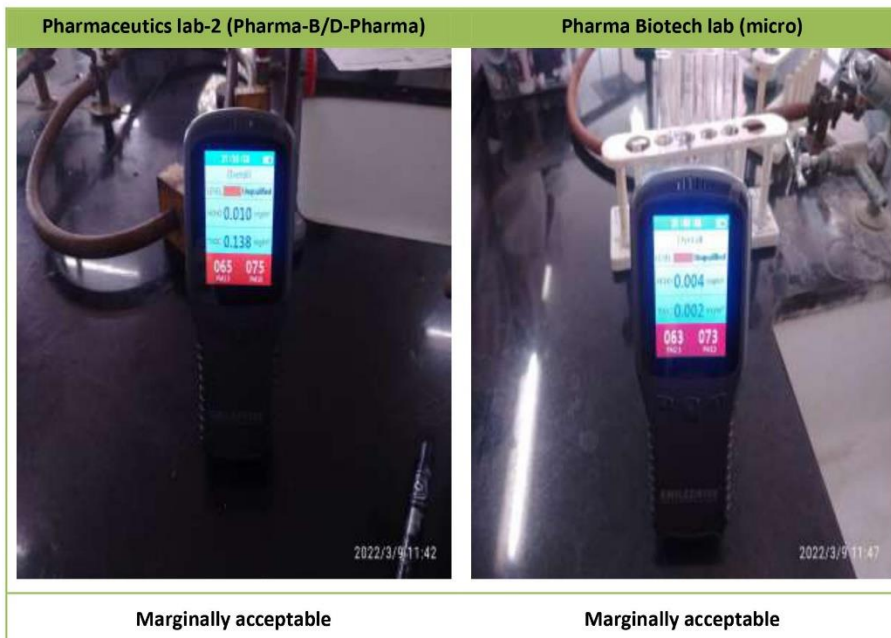








Server room	Computer lab
	
Marginally acceptable	Marginally acceptable

Class room-1	Passage
	
Marginally acceptable	Marginally acceptable







Library and reading hall	Seminar hall
	
Marginally acceptable	Marginally acceptable

Pharmacognosy lab	Faculty room-3
	
Marginally acceptable	Marginally acceptable





Faculty room-4	Pharma chemistry lab-1
 <p>2022/3/9 12:08</p>	 <p>2022/3/9 12:17</p>
Marginally acceptable	Marginally acceptable

Placement office	Admin office
 <p>2022/3/9 12:14</p>	 <p>2022/3/9 12:17</p>
Marginally acceptable	Marginally acceptable



Canteen	
	
<b>Marginally acceptable</b>	

M. Pharmaceutics lab	Class room-04 (Pharma-D)
	
<b>Aspirational</b>	<b>Aspirational</b>





Server room	Computer lab
 <p>2022/3/9 11:31</p>	 <p>2022/3/9 11:33</p>
<p><b>Marginally acceptable</b></p>	<p><b>Marginally acceptable</b></p>

Class room-1	Passage
 <p>2022/3/9 11:36</p>	 <p>2022/3/9 11:39</p>
<p><b>Marginally acceptable</b></p>	<p><b>Marginally acceptable</b></p>



Pharmaceutics lab-2 (Pharma-B/D-Pharma)	Pharma Biotech lab (micro)
	
<p>Marginally acceptable</p>	<p>Marginally acceptable</p>



Tutorial room	Board room
	
<p>Aspirational</p>	<p>Aspirational</p>



Library and reading hall	Seminar hall
 <p>A hand holds a white CO Meter (GC-2028) with a green LCD screen showing '5.13' and '20.0'. The device has several buttons and a small display at the bottom.</p>	 <p>A white CO Meter (GC-2028) is placed on a black table. The LCD screen shows '5.09' and '20.0'. A small grey device is connected to it.</p>
Aspirational	Aspirational

Pharmacognosy lab	Faculty room-3
 <p>A white CO Meter (GC-2028) is shown against a dark background. The LCD screen displays '4.53' and '20.0'.</p>	 <p>A white CO Meter (GC-2028) is shown against a light background. The LCD screen displays '4.53' and '20.0'.</p>
Aspirational	Aspirational





Faculty room-4	Pharma chemistry lab-1
 <p>2022/3/9 12:07</p>	 <p>2022/3/9 12:10</p>
Aspirational	Aspirational

Placement office	Admin office
 <p>2022/3/9 12:14</p>	 <p>2022/3/9 12:17</p>
Aspirational	Aspirational





Faculty room-4	Pharma chemistry lab-1
 <p>2022/3/9 12:07</p>	 <p>2022/3/9 12:10</p>
Aspirational	Aspirational

Placement office	Admin office
 <p>2022/3/9 12:14</p>	 <p>2022/3/9 12:17</p>
Aspirational	Aspirational





Canteen	
	
Aspirational	



Location	CO2	PM2.5	PM10	HCHO	TVOC	Level
	ppm	ppm	ppm	ppm	ppm	
M. Pharmaceuticals lab	392	70	81	0	2	Marginally acceptable
Class room-04 (Pharma-D)	490	63	73	0	9	Marginally acceptable
Server room	591	31	35	0	60	Marginally acceptable
Computer lab	537	63	73	2	0	Marginally acceptable I
Class room-1	539	64	74	9	13	Marginally acceptable
Passage	454	62	71	11	6	Marginally acceptable
Pharmaceuticals lab-2 (Pharma-B/D-Pharma)	512	65	75	10	138	Marginally acceptable
Pharma Biotech lab (micro)	505	63	73	4	2	Marginally acceptable
Tutorial room	669	58	67	27	0	Marginally acceptable
Board room	577	61	70	19	2	Marginally acceptable
Library and reading hall	613	58	67	25	3	Marginally acceptable
Seminar hall	600	57	66	23	3	Marginally acceptable
Pharmacognosy lab	459	59	68	19	0	Marginally acceptable
Faculty room-3	453	56	64	19	0	Marginally acceptable
Faculty room-4	472	56	64	19	3	Marginally acceptable
Pharma chemistry lab-1	495	55	63	15	3	Marginally acceptable
Placement office	434	55	63	18	2	Marginally acceptable
Admin office	442	56	64	24	2	Marginally acceptable
Canteen	431	55	63	16	3	Marginally acceptable



## SOUND COMFORT/QUALITY

### INTRODUCTION

Noise is unwanted sound. Ambient noise is all encompassing noise associated with any given environment and is usually a composite of sounds from many sources near and far. Any abnormal sound which irritates human being is called as noise pollution.

Noise is one of the undesirable products of technological civilization. Admits this civilization wherever we go, noise surrounds us. The roar of traffic, the passage of trains and aeroplanes, the bustle of crowds and the working of industry and the public utilities deafens our ears. Even home is invaded by noise. The noise from whatever source it comes from is undoubtedly, physiologically as well as psychologically harmful. Invading environment in dangerous proportions, it is an invisible but insidious form of pollutant Noise as a potentially harmful pollutant is being recognised as a great nuisance these days affecting the quality of the particularly, in urban areas.

The Environment (Protection) Act, 1986, under Sec. 6 has mentioned "Rules to regulate environment (Protection) Act, 1986, under Sec. 6 has mentioned "Rules to regulate environmental pollution". This section has explained the maximum allowable limits of concentrations of various environmental pollutants (including noise) for different areas.

Air quality standards in respect of Noise			
Area code	Category of Area/ Zone	Limits/Levels	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence zone	50	40



OBSERVATION

Location	Limits	Limits/Levels
	<b>dB</b>	
M. Pharmaceutics lab	24.4	within permissible limits
Class room-04 (Pharma-D)	21.7	within permissible limits
Server room	25	within permissible limits
Computer lab	23.7	within permissible limits
Class room-1	30.7	within permissible limits
Passage	28	within permissible limits
Pharmaceutics lab-2 (Pharma-B/D-Pharma)	26.9	within permissible limits
Pharma Biotech lab (micro)	28.4	within permissible limits
Tutorial room	25.4	within permissible limits
Board room	28.4	within permissible limits
Library and reading hall	21.7	within permissible limits
Seminar hall	31	within permissible limits
Pharmacognosy lab	23.7	within permissible limits
Faculty room-3	30.7	within permissible limits
Faculty room-4	26.9	within permissible limits
Pharma chemistry lab-1	28.4	within permissible limits
Placement office	25.4	within permissible limits
Admin office	24.4	within permissible limits
Canteen	30.7	within permissible limits



## DAY LIGHT ILLUMINATION/COMFORT

### INTRODUCTION

Light has significant impact on many body functions, including the nervous system, circadian rhythms, pituitary gland, endocrine system, pineal gland and alertness as these are affected by different wavelengths of light.


Variations over time in lighting conditions, in terms of intensity, illumination levels, distribution, ambient lighting and colour temperature, can stimulate alertness and well-being of people.

Threshold IL luminance level		
Building type	Type of space	IL luminance
		<b>Lux</b>
Schools	Classrooms	500
	Corridors	100
	Teachers rooms	300
	Libraries	500
	Offices	300

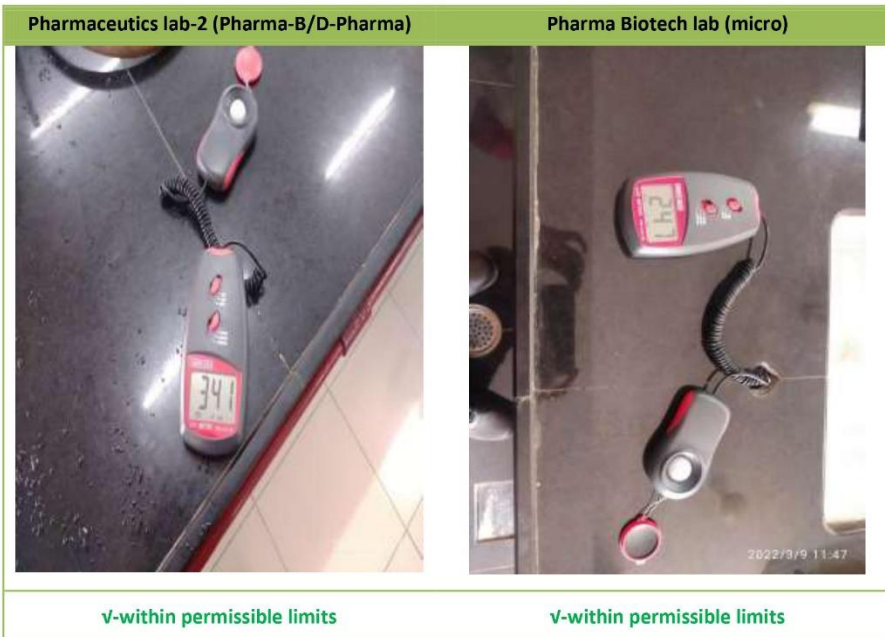




OBSERVATION

M. Pharmaceutics lab	Class room-04 (Pharma-D)
	
v-within permissible limits	v-within permissible limits

Server room	Computer lab
	
v-within permissible limits	v-within permissible limits











Placement office	Admin office
 <p>2022/3/9 12:13</p>	 <p>2022/3/9 12:21</p>
v-within permissible limits	v-within permissible limits

Canteen	
 <p>2022/3/9 12:21</p>	
v-within permissible limits	





Location	IL luminance	Limits/Levels
	Lux	
M. Pharmaceutics lab	*253	within permissible limits
Class room-04 (Pharma-D)	*245	within permissible limits
Server room	*37	within permissible limits
Computer lab	*61	within permissible limits
Class room-1	*128	within permissible limits
Passage	*461	within permissible limits
Pharmaceutics lab-2 (Pharma-B/D-Pharma)	*341	within permissible limits
Pharma Biotech lab (micro)	*247	within permissible limits
Tutorial room	*100	within permissible limits
Board room	*510	within permissible limits
Library and reading hall	*80	within permissible limits
Seminar hall	*179	within permissible limits
Pharmacognosy lab	*119	within permissible limits
Faculty room-3	*154	within permissible limits
Faculty room-4	*272	within permissible limits
Pharma chemistry lab-1	*240	within permissible limits
Placement office	*205	within permissible limits
Admin office	*224	within permissible limits
Canteen	*783	within permissible limits
* values are measured in daylight and given standard values of lux are with lightings		



## HEALTH AND SAFETY MANAGEMENT AND INFRASTRUCTURE

### 1. COLLEGE INFRASTRUCTURE

#### INTRODUCTION

College campus comprises of mainly two buildings as main college building and computer science building.

Apart from this two in college separate college canteen, gymkhana, vehicle parking area, horticultural garden etc are in the premises.

#### OBSERVATION

Sr. No.	Locations	Space
1	Main college building	Spacious
2	Seminar hall	Spacious
3	Library & Reading hall	Spacious
4	Toilet Blocks	Spacious
5	Parking Area	Spacious
6	Passage	Spacious
7	Class rooms	Spacious
8	Laboratories	Spacious
9	Canteen	Spacious
10	Gymkhana	Spacious
11	College premises	Spacious
12	Hostels	Spacious



ASSESSMENT OF COLLEGE CAMPUS BUILDING INFRASTRUCTURE

Sr No	Locations	Space	Ventilation	Natural Light	Cleanliness	Remark
1	Main college building	Spacious	Good	Good	Good	
2	Conference hall	Spacious	Good	Good	Good	
3	Library & Reading hall	Spacious	Good	Good	Good	
4	Toilet Blocks	Spacious	Good	Average	Good	
5	Parking Area	Spacious	Good	Good	Good	
6	Passage	Spacious	Good	Good	Good	
7	Class rooms	Spacious	Good	Good	Good	
8	Laboratories	Spacious	Good	Partially good	Good	
9	Canteen	Spacious	Good	Good	Good	
10	Gymkhana	Spacious	Good	Good	Good	
11	College premises	Spacious	Good	Good	Good	
12	Hostels	Spacious	Good	Good	Good	



## 2. HEALTH AND SAFETY MANAGEMENT



### OBSERVATION

1. Regular cleaning of college campus and toilets is done by the cleaning staff. This involves dusting, floor cleaning and toilets cleanings.
2. Garden and parking area is also kept clean by staffs.
3. Cleaning equipment and washing liquids are provided to the cleaning staff.
4. Medical kits are placed in offices also in various laboratories.
5. Fire extinguishers are regularly filled and maintained by college.
6. College also have water treatment plant to purify the water for drinking purpose as well as domestic purpose.
7. At various palaces in college premises, laboratories, floors, offices dust bins are placed.

### RECOMMENDATION

1. Open wiring, loose connections and not properly addressed cable wiring have been observed in college, that may lead to short circuits as well as from electrical safety it is dangerous. Also panel doors are not closed properly. So it is an urgent repair and corrected.



Electrical safety	
Electrical boards	Electrical boards
	
Electrical boards and cables are not proper condition	Electrical boards and cables are not proper condition.
⊗- Dangerous	⊗- Dangerous









Fire safety	
<p>Fire safety training</p> 	<p>Fire safety training</p> 
<p>College has taken good initiative of fire safety training for college personal</p>	<p>College has taken good initiative of fire safety training for college personal</p>
<p>v- Good</p>	<p>v- Good</p>



Fire safety	
Fire hydrant system	Fire extinguishers
	
<p>College has well maintained fire hydrant system.</p>	<p>College has placed good number of fire extinguishers at various places in the college campus with updated maintenance.</p>
<p>v- Ok</p>	<p>v- Ok</p>

c

Health safety	
Conventional water taping system	Hands free water taping system
	
College have currently conventional water taping system	College can adopts hands free water taping system. This saves the water and also good for personal health protection to avoid frequent hand touching to water taps.

Health safety	
Conventional water taping system	Hands free water taping system
	
College have currently conventional water taping system	College can adopts hands free water taping system. This saves the water and also good for personal health protection to avoid frequent hand touching to water taps.



## NO VEHICLE DAY INITIATIVE

### OBSERVATION

1. Many of the college students and staff use the private or own vehicle to come college.
2. It contributes the CO2 emission due to burning of petrol or diesel in the vehicles.

Vehicles in the college premises



### CO2 EMISSION REDUCTION DUE TO NO VEHICLE DAY

Particulars		
Number of vehicles in college premises	250	nos
Average running of vehicle	2	km/vehicle
Average fuel required	250	litres/day
Average cost of fuel	25000	INR/day
Number of days in months	4	nos
Average fuel save	1000	litres/month
Average cost save	100000	INR/month
Average CO2 emission reduction per month	0.67	tonnes of CO2e
Average CO2 emission reduction per year	8.04	tonnes of CO2e





## OTHER ENERGY EFFICIENT, GREEN, HEALTH, WASTE PRACTICES BY THE COLLEGE MANAGEMENT

### 1. LIQUID WASTE MANAGEMENT/ SLUDGE TREATMENT PLANT/ WASTE WATER TREATMENT PLANT

#### INTRODUCTION

Sewage treatment is the process of removing contaminants from municipal wastewater, containing mainly household sewage plus some industrial wastewater. Physical, chemical, and biological processes are used to remove contaminants and produce treated wastewater (or treated effluent) that is safe enough for release into the environment. A by-product of sewage treatment is a semi-solid waste or slurry, called sewage sludge. The sludge has to undergo further treatment before being suitable for disposal or application to land.

Sewage treatment may also be referred to as wastewater treatment. However, the latter is a broader term that can also refer to industrial wastewater. For most cities, the sewer system will also carry a proportion of industrial effluent to the sewage treatment plant that has usually received pre-treatment at the factories to reduce the pollutant load. If the sewer system is a combined sewer, then it will also carry urban runoff (storm water) to the sewage treatment plant. Sewage water can travel towards treatment plants via piping and in a flow aided by gravity and pumps. The first part of the filtration of sewage typically includes a bar screen to filter solids and large objects that are then collected in dumpsters and disposed of in landfills. Fat and grease are also removed before the primary treatment of sewage.

#### OBSERVATION

- College has successfully implemented and regularly operated Sludge Treatment Plant (STP)/ Waste Water Treatment Plant in the college to treat the waste water generated at College and labs or canteen.
- Treated water is used for gardening purposes.
- No groundwater or municipal water is used for gardening.



Sewage Treatment Plant (STP)



Sewage Treatment Plant (STP) water used for gardening





**2. SOLID WASTE MANAGEMENT (SCRAPS LIKE PLASTIC, PAPER ETC)/ E-WASTE MANAGEMENT**

**INTRODUCTION**

College have good policy and maintained the record for solid waste generated in the college like old newspapers, books, scrap boxes, etc.

**E-WASTE MANAGEMNT**

Electronic waste or e-waste describes discarded electrical or electronic devices. Used electronics which are destined for reuse, resale, salvage, recycling, or disposal are also considered e-waste. Informal processing of e-waste in developing countries can lead to adverse human health effects and environmental pollution.

Electronic scrap components, such as CPUs, contain potentially harmful components such as lead, cadmium, beryllium, or brominated flame retardants. Recycling and disposal of e-waste may involve significant risk to health of workers and communities in developed countries and great care must be taken to avoid unsafe exposure in recycling operations and leaking of materials such as heavy metals from landfills and incinerator ashes.

**The environmental impact of the processing of different electronic waste components**

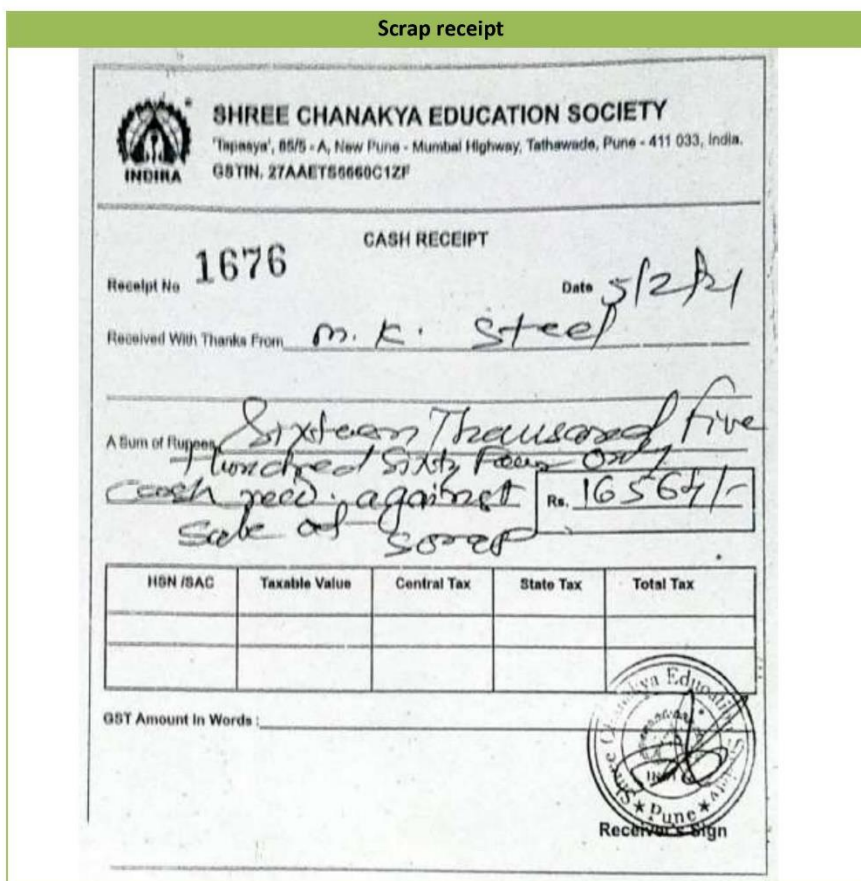
E-Waste Component	Process Used	Potential Environmental Hazard
Cathode ray tubes (used in TVs, computer monitors, ATM, video cameras, and more)	Breaking and removal of yoke, then dumping	Lead, barium and other heavy metals leaching into the ground water and release of toxic phosphor
Printed circuit board (image behind table – a thin plate on which chips and other electronic components are placed)	De-soldering and removal of computer chips; open burning and acid baths to remove metals after chips are removed.	Air emissions and discharge into rivers of glass dust, tin, lead, brominated dioxin, beryllium cadmium, and mercury
Chips and other gold plated components	Chemical stripping using nitric and hydrochloric acid and burning of chips	PAHs, heavy metals, brominated flame retardants discharged directly into rivers acidifying fish and flora. Tin and lead contamination of surface and groundwater. Air emissions of brominated dioxins, heavy metals, and PAHs
Plastics from printers, keyboards, monitors, etc.	Shredding and low temp melting to be reused	Emissions of brominated dioxins, heavy metals, and hydrocarbons
Computer wires	Open burning and stripping to remove copper	PAHs released into air, water, and soil.



**OBSERVATION**

1. College has given solid waste generated like papers, metal scrap, garden waste etc to the authorised recycle for proper channelling the solid waste.
2. This helps to reduce the CO2 emission reduction due to recycling of the solid waste.
3. Currently college also given E-waste to the authorised recycler viz Shree Recycler, Pune
4. College regularly giving scrap to the authorised dealer viz M.K.Steel, Pune
5. Other waste is managed and given to the Pune Municipal corporation

**Scrap receipt**



**SHREE CHANAKYA EDUCATION SOCIETY**  
 'Tapasya', 85/5 - A, New Pune - Mumbai Highway, Tathawade, Pune - 411 033, India.  
 GSTIN: 27AAETS5660C1ZF

**CASH RECEIPT**

Receipt No **1676** Date **5/2/21**

Received With Thanks From **M. K. Steel**

A Sum of Rupees **Sixteen Thousand Five Hundred Sixty Four Only**  
**cash recd. against sale of scrap** Rs. **16564/-**

HSN /SAC	Taxable Value	Central Tax	State Tax	Total Tax

GST Amount in Words : \_\_\_\_\_

Receiver's Sign



E-waste disposal certificate



Waste collection vehicle







### 3. TREE PLANTATION, SOIL CONSERVATION ETC

#### INTRODUCTION

Tree-planting is the process of transplanting tree seedlings, generally for forestry, land reclamation, or landscaping purpose

In silviculture the activity is known as reforestation, or afforestation, depending on whether the area being planted has or has not recently been forested. It involves planting seedlings over an area of land where the forest has been harvested or damaged by fire, disease or human activity. Tree planting is carried out in many different parts of the world, and strategies may differ widely across nations and regions and among individual reforestation companies. Tree planting is grounded in forest science, and if performed properly can result in the successful regeneration of a deforested area. Reforestation is the commercial logging industry's answer to the large-scale destruction of old growth forests, but a planted forest rarely replicates the biodiversity and complexity of a natural forest.[citation needed]

Because trees remove carbon dioxide from the air as they grow, tree planting can be used as a geoengineering technique to remove CO

2 from the atmosphere. Desert greening projects are also motivated by improved biodiversity and reclamation of natural water systems, but also improved economic and social welfare due to an increased number of jobs in farming and forestry.

Canopies in tropical and temperate forests can be important habitats for many animals and plants. A dense canopy cover will let little light reach the ground and will lower temperatures. The canopy protects the ground from the force of rainfall and makes wind force more moderate

#### OSERVATION

1. In the college premises there are number of trees which are maintained by the college.
2. College also took initiative of tree plantation with the help of students in the city area.

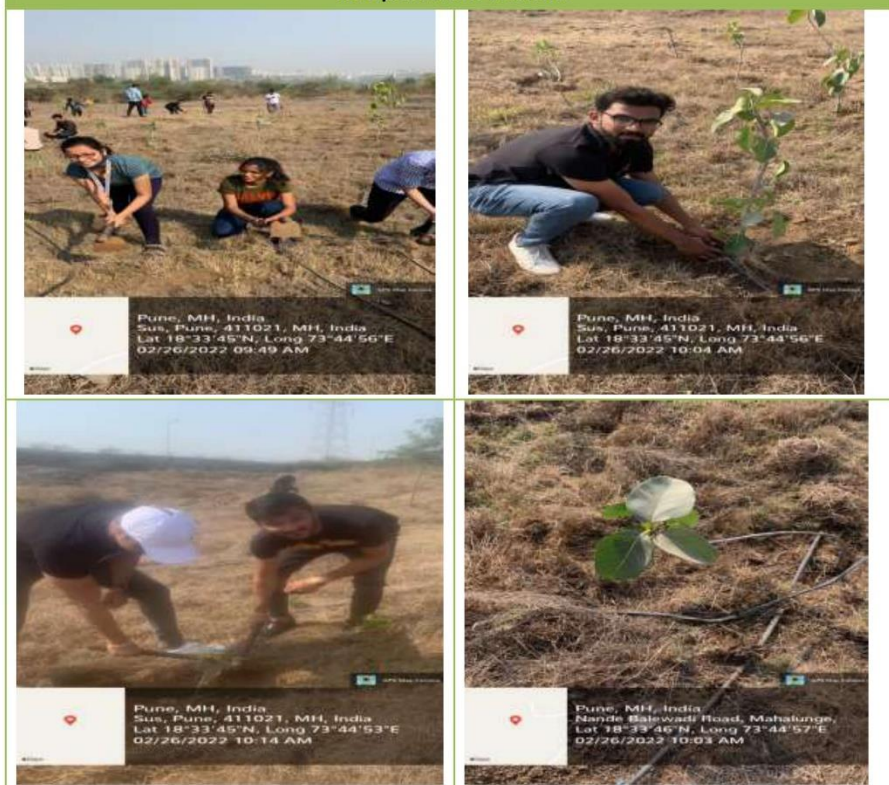


Tree plantation activities





Tree plantation activities





#### 4. ENERGY EFFICIENT EQUIPMENTS

##### INTRODUCTION

Due to climate change and CO<sub>2</sub> emission it is necessary to use energy efficient technologies. It helps to reduce the energy consumption without affecting the output. It also helps the reduced the CO<sub>2</sub> emission reductions.

##### OSERVATION

1. College has taken step by step intuitive to implement various energy efficient equipment/technologies the the college.
2. College has implemented various energy efficient equipment like lighting, Air conditioners, Fridge etc





## REFERENCES AND STANDARDS

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3. Indian Green Building Council (IGBC), India
4. National Ambient Air Quality Standards, 2009, Central Pollution Control Board (CPCB), Government of India
5. The Noise (Pollution and Control) Rules, 2000 Government of India
6. Municipal Solid Wastes (Management and Handling) Rules, 2000, Government of India
7. Solid Waste Management Rules, 2015, Government of India
8. E-waste (Management) Rules, 2015, Government of India
9. Plastic Waste (Management and Handling) Rules, 2016, Government of India
10. National Electrical Code, 2011
11. Fire Extinguisher Standards, 2190-2010, Bureau of Indian Standards (BIS)
12. IS 14489-1998, Code of Practice of Occupational and Health audit
13. Indian Society of Heating, Refrigerating and Air Conditioning Engineers (ISHRAE)





Shree Chanakya Education Society's  
**Indira College of Pharmacy, Pune**  
"Redefining Pharmacy Education"


**NAAC: B++**

Approved by PCI, AICTE, New Delhi, Affiliated to SPPU & MSBTE, Recognized by Govt. of Maharashtra

INDEX

7.1.2.4 Green campus initiatives.	
7.1.2.4	Relevant Documents
	Green campus initiatives
a)	Pedestrian-friendly pathways
b)	Entry-register
c)	Vehicle Restricted Entry
d)	Battery Powered Vehicles
e)	Plastic Free initiatives
f)	E-Vehicle Notice Displayed on Student's Notice Board
g)	Green Campus



  
**PRINCIPAL**  
Indira College of Pharmacy  
Tathawade, Pune - 411 033



Shree Chanakya Education Society's  
**Indira College of Pharmacy, Pune**  
"Redefining Pharmacy Education"


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**INSTITUTIONAL INITIATIVES:**

- A Green Campus is a place where sustainable and eco-friendly practices are combined with education to promote sustainable and eco-friendly practices on campus.
- The green campus concept allows an institution to lead the way in redefining its environmental culture and forging new paradigms by developing sustainable solutions to the world's environmental, social, and economic requirements.
- Greening the campus include eliminating unnecessary inefficiencies and relying on conventional energy sources for everyday power demands, as well as proper trash disposal, the acquisition of environmentally friendly goods, and an effective recycling program.
- Landscaping of the college is worth seeing and reflects aesthetic sense.
- The institution has a medical garden that keeps the surrounding area pollution-free and provides oxygen, maintaining health of the public.
- The institute has a canopy of trees and plants to make the environment pollution free to safeguard the health of all the inmates.
- The lawns and the trees provide shade and a beautiful ambiance.
- The institution believes in paperless communication and uses electronic means of communication as part of its green campus program.
- Mail or WhatsApp are typically used for communication, which reduces the need for paper and promotes environmental preservation.
- To promote environmental sustainability, college faculty members practice carpooling.
- The institutes believe in environmental sustainability and promote it by displaying it on college notice boards so that the values at well imbibed by the students.



  
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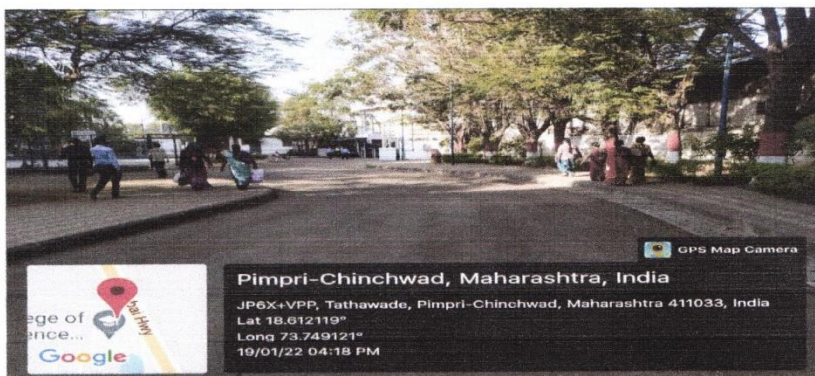


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- Green campus initiatives
- Pedestrian-friendly pathways:



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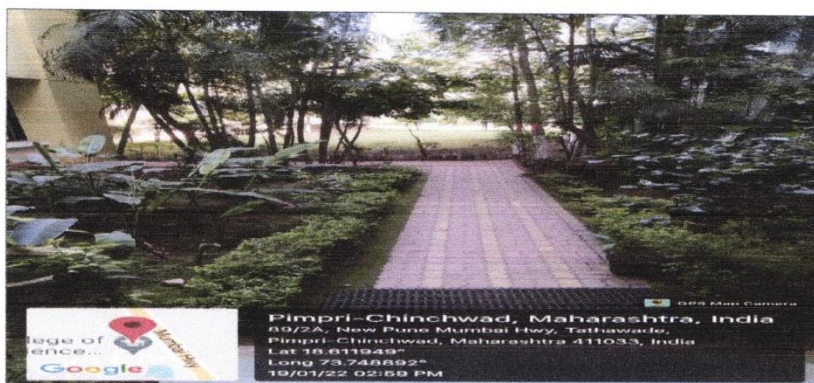




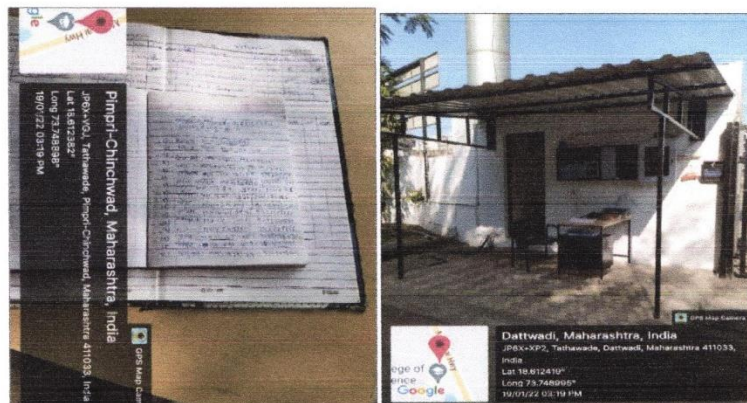
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- Entry-register:



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- Vehicle Restricted Entry:



- Battery Powered Vehicles:



  
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- Plastic Free initiative:
  - Plastic Free Drive: -



- Display on Notice board: -



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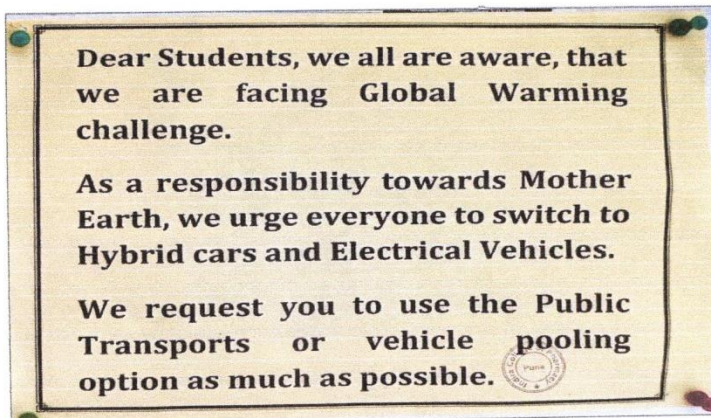


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- E-Vehicle Notice Displayed on Student's Notice Board: -



- Green Campus: -



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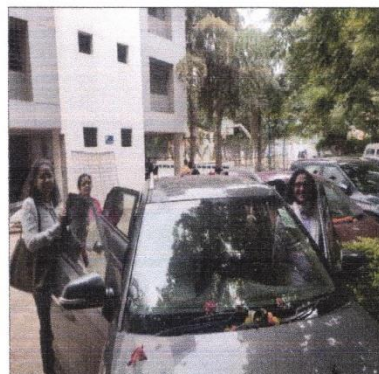
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- Environmental sustainability initiative: -

In accordance with a sustainability initiative for the environment, college faculty members use carpooling.



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*Beyond the campus environmental promotion activities*

Year	Number of initiatives to address locational advantages & disadvantages	Number of initiatives taken to engage with & contribute to local community	Date	Duration	Name of initiative	Issues addressed	Number of participating students & staff
2018	1	1	20/08/2018	1	Tree Plantation	Go green initiative	80
2019	1	1	25/05/2019	1	Tree plantation drive	Go green initiative	20
2020	1	1	23/10/2020	1	Tree plantation & nurturing drive	Go green initiative	100
2022	1	1	26/02/2022	1	Tree plantation & nurturing drive	Go green initiative	100
2018	1	1	28/08/2018	1	Cleaning drive at Historical Place	Swatch Bharat	120
2019	1	1	25/09/2019	1	Pharma rally Awareness on "Rational Use of Antibiotics"	"Rational Use of Antibiotics"	200
2021	1	1	23/06/2019	1	'Swatchh Vaari, Harit Vaari	Social inclusiveness	30
2021	1	1	05/06/2021	1	World environmental Day	Social inclusiveness	25
2017 to 2021	1	1	25 <sup>th</sup> September	1	World Pharmacist Day	Social Awareness	57
2021	1	1	04/06/2021	1	Covid Vaccination Drive	Covid Care	15
2021	1	1	15/03/2021	1	Mask & Sanitizer distribution	Covid Care	25

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**Tree Plantation activities 20/08/2018**



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25 may to 30 may 2019



23/10/2020



*M. J. K.*

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26/02/2022



- Students & Faculty participation in SPPU organized Tree Plantation Drive- MAJHI VASUNDHARA



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**Cleaning drive at Historical Place 2022**



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**Pharma rally Awareness on "Rational Use of Antibiotics"**

25/09/2019



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**Swatchh Vaari, Harit Vaari 2019**



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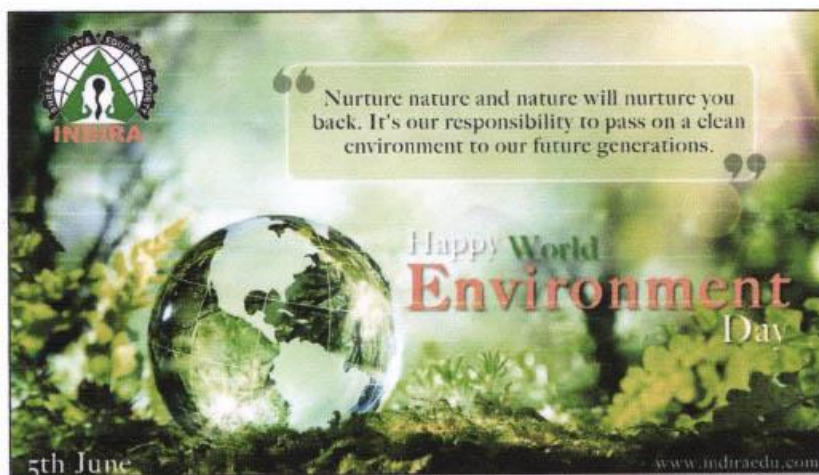


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- World environmental Day: - 05/06/2021



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**World Pharmacist Day**

25/09/2017



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25/09/2018



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25/09/2019



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2022



  
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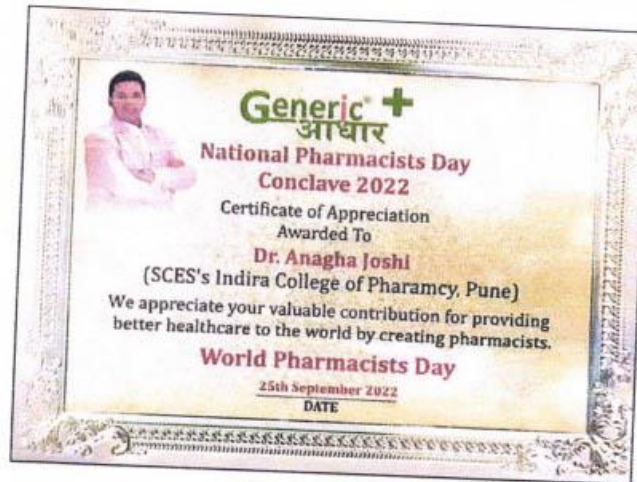




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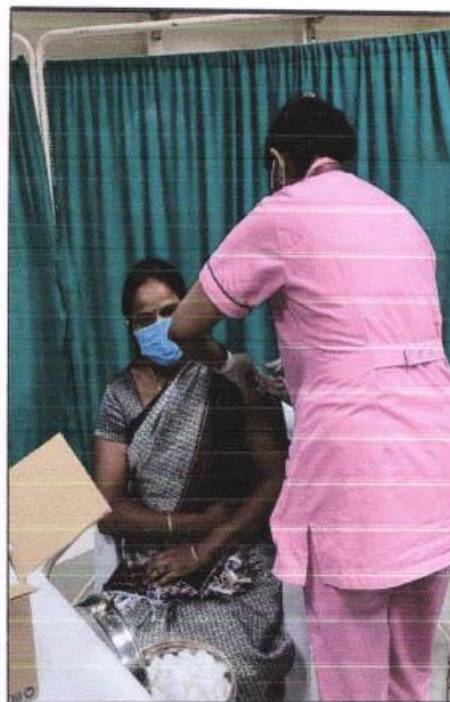
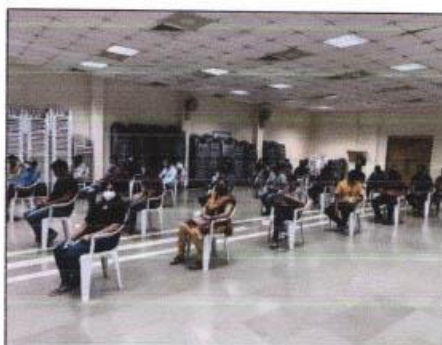


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**Covid Vaccination Drive 04/06/2021**



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**Mask, sanitizer distribution & Awareness about Mask disposal 15/03/2021**



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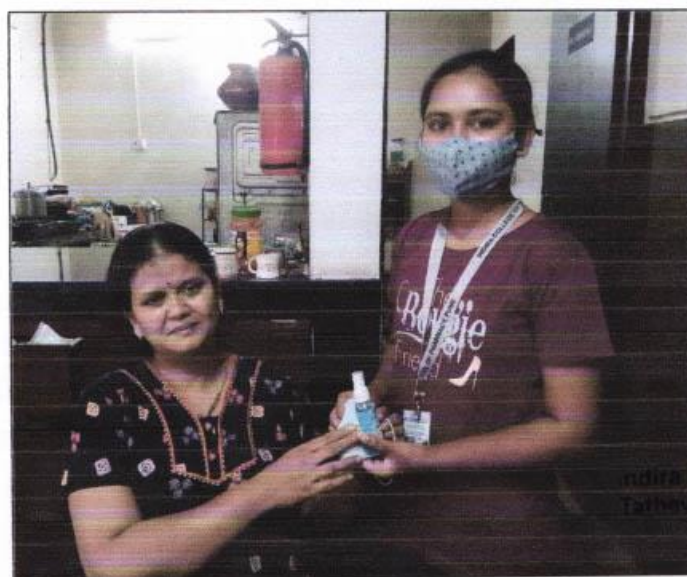




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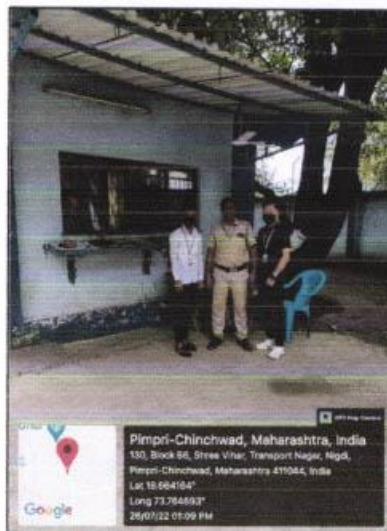




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