MIT | Academy of Engineering
(An Autonomous Institute Affiliated to Savitribai Phule Pune University)
Accredited by NAAC with "A" Grade

(ID No. PU/ENGG/134/1999)

7.1.6 - Quality audits on environment and energy undertaken by the institution

ENERGY AUDIT 2019-21

AUDIT REPORT

Studied for

Maharashtra Academy of Engineering and Educational Research's (MAEER)

MIT Academy of Engineering

Alandi, Pune - 412 105

Analysed by

Greenvia
Solutions

23 October 2021

Disclaimer

Green Audit Team has prepared this report for **Maharashtra Academy of Engineering and Educational Research's (MAEER), MIT Academy of Engineering, Alandi, Pune - 412 105** based on input data submitted by the College analysed by the team to the best of their abilities.

The details have been consolidated and thoroughly studied as per the various guidelines for Green Buildings available in National and International Standards; the report has been generated based on comparative analysis of the existing facilities and the prerequisites formulated by various standards. The inputs derived are a result of the inspection and research. These will further enhance and develop a Healthy and Sustainable Institution.

These can be implemented phase wise or as a whole depending on the decision taken by the Hon'ble Management and College. The warranty or undertaking, expressed or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

The audit is a thorough study based on the inspection and on-site investigation of data collected over a period of time and should not be used for any legal action. This is the property of Greenvio Solutions and should not be copied or regenerated in any form.

The Report is prepared by the Team of Greenvio Solutions under their brand and department – Sustainable Academe as Consultancy firm along with Ar. Nahida Shaikh as an Accredited Green Building Professional.

Greenvio Solutions

Developing Healthy and Sustainable Environments

We are an Environmental and Architectural Design Consultancy firm

Sustainable Academe is our department for conducting Audits

Palghar District, Maharashtra- 401208

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Acknowledgement

Green Audit Assessment Team thanks the **Maharashtra Academy of Engineering and Educational Research's (MAEER), MIT Academy of Engineering, Alandi, Pune** for assigning this important work of Green Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are due to **Rev. Prof. Dr. Vishwanath D. Karad, Founder & President,** Maharashtra Academy of Engineering and Educational Research (MAEER), Pune, India; **Hon. Shri. Rahul V. Karad, Executive President;** Maharashtra Academy of Engineering and Educational Research (MAEER), Pune, India**; Dr. Sunil Karad, Executive Director,** Treasurer & Trustee MIT Group of Institutions, Pune, India and everyone from the Management.

Our heartfelt thanks to Chairperson of the entire process **Dr. Mahesh D Goudar,** Director and **Prof. S. M. Bhagat,** Registrar, MIT Academy of Engineering for their valuable inputs.

The kind gesture for the inventory and excellent coordination of **Dr. Sandeep Shewale,** IQAC and Chief Coordonator is quite commendable.

We are also thankful to **College's Task force the faculty members** who have collected data required **Admin team -** Coordinator: **Vijay Pingale;** Non-teaching Admin: **Carmel Pilley and Vandana Khandelwal. Energy team -** Coordinator: **Satish Kabra;** Non-teaching staff: **Babaji Badhekar, Mahesh. Water team -** Coordinator: **Amol Kapse;** Non-teaching staff: **Sunil Dewalwal, Dilip Chavan. Waste team -** Coordinator: **Vinod Pakhale;** Non-teaching: **Bhaiyyasaheb Ahire, Shivaji Munde, Mayuri Munot. Ecological team -** Coordinator: **Sumit Patil;** Non-teaching staff **Venketesh Karad, Rajshree Kaktikar. AV (Audio visual) team -** Coordinator: **Milind Asmar;** Non-teaching staff: **Maruti Khandekar** and **Mr. Sunil Jadhav.**

We highly appreciate the assistance of **Sandip Nikam, Assistant – Student section** for their support while collecting the data.

Sustainable Academe

Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208

Contents

1. Introduction

1.1 About MIT Academy of Engineering (MITAOE)

It was established in 1999 under MAEER by the honorable Prof. Dr. Vishwanath D. Karad, Founder and Executive President of MIT Group. The institute offers seven UG programs (B.Tech) and three PG programs (M.Tech). Recently, the UGC has honored the institute with 'Academic Autonomy' considering the quality of pedagogical practices, research, faculty and the state-of-the-art infrastructure that meets global standards.

The Savitribai Phule Pune University (SPPU) has honored the institute with the 'Best Engineering College (Professional Courses) award. The institute has made its mark by excelling in academics and research and it continues to grow as a **'Centre of Excellence'** in engineering education and research.

The NBA Accreditation to all branches, 'A' Grade by NAAC and the 2(F) & 12(B) status from the UGC, are the testimony to their pursuit of excellence.

Learning-centered approach, personal attention to all the students and effective implementation of their valuable suggestions received through the continual feedback mechanism and 'Student Teacher Interaction pedagogy', makes the teaching & learning process more effective.

Selection and retention of the most efficient and talented staff members to enhance the quality of education and administration, is their key to success. A special emphasis is laid on their quality improvement by sponsoring the staff members for pursuing research and higher studies. Another significant feature is the **'Tutor System for Counselling'.**

The Institute endeavours to impart holistic education to its students in order to contribute to their all-round development. The students at MITAOE get an opportunity to not only enhancing their technical skills but also their communication and soft skills.

The Institute is committed for their bright future and hence facilitate them to realize their dreams.

1.2   About MITAOE as an Autonomous Institute

MITAOE is only the third institute in Pune which has been bestowed with 'academic autonomy' by the University Grants Commission (UGC). Academic autonomy is granted only to those institutes that are accredited by NAAC with 'A' grade for all programs. Besides, the institute should also have the 2(F) & 12(B) status of the UGC. This exemplifies that the 'academic autonomy' is awarded only to the best institutes. Only those institutes that persistently excel in every aspect of quality education are bestowed with autonomy. Under autonomous status an institute remains affiliated to the University but gets freedom to design the advanced & industry-oriented syllabi, decide the modes of instruction & evaluation, and conduct examination and assessment of papers. The degree though, is awarded by the University. There are many advantages of academic autonomy for all stakeholders of the institute.

- Updated and contemporary syllabi; flexibility in updating as per industry needs.

- Innovative approaches to teaching and learning; skill-based education.

- Interdisciplinary approaches in academics and research.

- A wide range of subjects to choose from.

- Opportunities for collaborations with reputed foreign & national universities and companies.

- Better placement opportunities.

- Support for higher education in India and abroad.

- Internships and scholarships for projects.

- Guest lectures and training programs by eminent experts from academia and industry.

Thus, academic autonomy opens the doors for excellence in education, research and administration. The students earning their degrees from an autonomous institute have an extra edge which guides them to achieve success in any future endeavours; be it placements in reputed national and multinational companies, entrepreneurship or higher education in renowned Indian or international institutes. MITAOE, as an autonomous institute, strives to make a huge difference by creating winning personalities and catering to the all-round development of its students.

1.3   Vision and Mission Statement of College

Our Vision – To develop MITAOE into a new-age learning center with an excellent ambiance for academics and research conjugated with a vibrant environment for honing the extra and curricular skills of all its stakeholders, to enable them to solve real-world problems and bring a positive change in the society.

Our Mission – To leave no stone unturned in our endeavour to ensure that every alumnus looks back at us and says MITAOE has not merely taught me, it has educated me.

1.4   Institution and the surrounding premises

The Premises is situated amidst the landscape serene of the **Alandi, Pune** with immense peace and calmness in the surroundings. The college is surrounded by Residential areas on all sides. There is a frontal approach which provides quite a beautiful appreciation space while approaching the premise. The location of college is feasible to the nearby essential amenities such as Public Health Center, Fire Station, Civic body-Public administrative buildings, Recreational gardens and Police Station. The details of various Institutions in the premise are as follows, there are modifications going on in the premise to expand the Infrastructure.

The aim of the college is to be a leading educational institute to create leaders, and innovators for contributing towards the industrial, economic, and social growth of the society.

It continuously enhances the teaching methods in order to provide students with an opportunity for their all-round development. **It strives for excellence in Holistic development for Students with a balanced Educational Environment.** It makes an effort to induce passion for learning along with the inspiration for decisive thinking and assessment, thereby helping them to become the best professionals in life. The institution offers the following courses as an Autonomous entity.

Name of the School	Courses provided	Name of the HOD/ Director	Approx. students
School of Chemical Engineering	B Tech (Chemical Engineering)	M Senthilkumar	250
School of Electrical Engineering	B Tech (Electronics Telecomunication Engineering)	Dr Dipti Sakhare	500

	B Tech (Electronics Engineering)		
	M Tech (VLSI and EMBEDDED)		
School of Computer Engineering and Technology	B Tech (Computer Engineering)	Mrs R R Badre	700
	B Tech (Information Technology)		
	M Tech (Computer Engineering)		
School of Mechanical & Civil Engineering	B Tech (Mechanical Engineering)	Dr P R Hatte	700
	M Tech (Mechanical Engineering)		
	B Tech (Civil Engineering)	Mr Atif Shaikh	250
First Year Engineering	First year	Mrs Prabha Kasliwal	700

Table 1: Educational Details of the courses offered by the Institution

The College aspires at training young women and men to be competent, committed and compassionate and lead in all walks of life. It has the following objectives.

1. To provide a professional and liberal education to students with guiding principle of a broad and strong foundation, a skillful training and a practical orientation towards solving real-world problems.

2. To improve research publications and its impact.

3. Develop and offer skill-based programs to cater student's requirements from career point of view.

4. Provide exposure to the students in technical, cultural, recreational and sports domain.

5. Enhance alumni involvement in curricular and co-curricular activities.

6. To encourage faculty for lifelong learning.

7. Improve the quality of students intake.

8. To encourage and support students and youngsters to opt for entrepreneurship as a career opportunity.

9. Build an e-learning infrastructure for online & on campus courses.

10. To directly work with the society and community needs.

1.5   Assessment of the College

The College is recognised as an Autonomous Institute, below mentioned are the administrative details of the Institute.

Affiliations - The institution is affiliated to <u>Savitribai Phule Pune University (SPPU), Pune</u>

Recognitions - University Grant Commission (UGC) by 2(f) 12(b)

Approval - It is approved by All India Council of Technical Education (AICTE), New Delhi

Certifications - It has received the Certificate of Quality System Assessment (ISO 9001:2015)

Accreditation - The following are details of the reaccreditation of the Institute.

Cycle	First
CGPA	3.13
Grade	A
Year	2014

Table 2: NAAC Accreditation details of the Institute

1.6   Awards of the College

Savitribai Phule Pune University (SPPU) has honoured the institute with the 'Best Engineering College (Professional Courses) award in the year 2014

राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद
विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL
An Autonomous Institution of the University Grants Commission

Certificate of Accreditation

The Executive Committee of the
National Assessment and Accreditation Council
on the recommendation of the duly appointed
Peer Team is pleased to declare the
MIT Academy of Engineering
Alandi, Pune, affiliated to University of Pune, Maharashtra as
Accredited
with CGPA of 3.13 on four point scale
at A grade
valid up to September 23, 2019

Date : September 24, 2014

Director

EC(SC)/03/A&A/54

NAAC Accreditation Certificate

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CERTIFICATE

Certificate Number: **3770177**

This is to certify that

MIT ACADEMY OF ENGINEERING
Dehu Phata, Alandi (D),
Tal. Khed, Pune,
Maharashtra - 412 105, India.

has implemented and maintains a **Quality Management System**

with

Scope : **Designing Curriculum and Imparting Education** leading to Graduation in the disciplines of Chemical Engineering, Civil Engineering, Computer Engineering, Electronics Engineering, Electronics & Telecommunication Engineering, Information Technology, and Mechanical Engineering, and Post Graduation in Computer Engineering, Electronics & Telecommunication Engineering and Mechanical Engineering being an academic autonomous institute affiliated to Savitribai Phule Pune University.

that meets the requirements of the standard:

ISO 9001:2015

Quality Management Systems – Requirements

The file that forms the basis of this certificate: 3770177

Date of Initial Certification : **September 11, 2009**
Date of Transition : **September 12, 2018**
Date of Current Revision : **October 27, 2018**
Certification Expiry Date : **October 26, 2021**

K. G. Garg

K.G. Garg
Chairman & Chief Executive
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2. Institution overview

2.1 Populace analysis for Academic year 2019-20

2.1.1 Students data macro level

The student data (shared by the College) shows there are total of **3,036** students occupying the premises out of which Boys form the majority of **2,260** in numbers.

Figure 1: Summary of the students in Academic year 2019-20

The above graph shows **boys occupied 74%** as compared to **girls 26%**

2.1.2 Department wise Student data micro level

S. No.	Department	Male	Female	Total
1	Chemical Engineering	174	76	250
2	Civil Engineering	180	61	241
3	Computer Engineering	452	150	602
4	Electronics Engineering	128	48	176
5	Electronics and Telecommunication Engineering	392	165	557
6	Information Technology	223	88	311
7	Mechanical Engineering	692	182	874
8	M.Tech - First year	3	0	3
9	M.Tech - Second Year	16	6	22

Table 3: Department wise student bifurcation 2019-20

2.1.3 Staff data macro level

| Type	Male	Female	Total
Faculty	129	42	171
Staff	137	58	195
Total	**266**	**100**	**366**

Table 4: Staff data of the Institution for 2019-20

The staff data shows the premise has a total of **366** staff members.

2.2 Populace analysis for Academic year 2020-21

2.1.1 Students data macro level

The student data (shared by the College) shows there are total of **2,862** students occupying the premises out of which Boys form the majority of **2,144** in numbers.

Figure 2: Summary of the students in Academic year 2020-21

The above graph shows **boys occupied 75%** as compared to **girls 25%**

2.1.2 Department wise Student data micro level

S. No.	Department	Male	Female	Total
1	Chemical Engineering	157	76	233
2	Civil Engineering	175	63	238
3	Computer Engineering	441	135	576
4	Electronics Engineering	109	43	152

5	Electronics and Telecommunication Engineering	371	149	520
6	Information Technology	215	74	289
7	Mechanical Engineering	678	168	846
8	M.Tech - First year	3	5	8
9	M.Tech - Second Year	0	0	0

Table 5: Department wise student bifurcation 2020-21

2.1.3 Staff data macro level

Type	Male	Female	Total
Faculty	105	46	151
Staff	164	50	214
Total	**269**	**96**	**365**

Table 6: Staff data of the Institution for 2020-21

The staff data shows the premise has a total of **365** staff members.

2.3   Total Institute Area & College Building Spread Area

The total site area is 8.33 acres and total built-up area is 2,38,915 sq. ft. for approx. 3,228 footfalls.

2.4   Institute Infrastructure

2.4.1 Establishment

The Society was formed in 1983 and today it **the MITAOE a name to reckon with in the field of Engineering Education and boasts of an infrastructure and standard of education which is one of the best in the country.** It is **an Autonomous entity.**   The Building is a Reinforced Cement Concrete (RCC) framework building. **Overall the Infrastructure of the Building is excellent in terms of the Architecture Design and Green Building Design. The Premise covers quite a few of the requirements for a Green Habitat.**

2.4.2 Spatial Organisation

The overall ambience of the College is warm and inviting. The classrooms and other spaces have ample natural ventilation in the form of clear glass windows with fresh air ventilation. The architecture of the building is quite well designed. The colour palette not just helps the building to stand out but also provides an Institutional arena. It balances with the local architecture with the natural landscapes of huge trees all around. The design emphasis on providing calmness to the built form and gradually merges with the serene landscape.

The floor to floor height is more than 10 feet. There is provision for lift in one block in the premise, there are with CCTV, Fire extinguishers, first aid box and amenities such as courtyards, libraries, serene landscape, open areas, gardens.

2.4.2.1   Building wise details

The Building wise details on the MITAOE premise are mentioned below:

S. No.	Name of the School	Building No.	Constructed in	Nos. of floor	Built-up area sq. m
1	CHEM+ETX+IT	A	1999	G+2	3620.01
2	CHEM+CIVIL	B	1999	G	719.3
3	OTHER FACILITIES	C	1999	G	76.87
4	FY+ETX+ETC	D	2006	B+G+3	3958.56
5	FY+ADMIN	D -EXT	2015	B+G+3	1477.48
6	HOSTEL	E	2004	G+3	5061.68
7	WORKSHOP	F	2008	G+M	1111.01
8	CIVIL+MECH+COMP	H	2007	B+G+3	6171.95

Table 7: Building wise detail in the premise

2.4.2.2   Room-wise details

The room-wise details are mentioned below:

S. No	Room No.	Room Name	Department	Section	Floor	Building Block
1	A-001	Dean Office	Chemistry	MITAOE	Ground floor	Block A
2	A-002	Dept. Office	Chemistry	MITAOE	Ground floor	Block A
3	A-003	Laboratory	ETC	MITAOE	Ground floor	Block A
4	A-004	Toilet	COMMON	MITAOE	Ground floor	Block A
5	A-005	Laboratory	FY	MITAOE	Ground floor	Block A
6	A-006A	Laboratory	CHEM	MITAOE	Ground floor	Block A
7	A-006B	Tutorial Room	CHEM	MITAOE	Ground floor	Block A
8	A-007	Conference Room	COMMON	MITAOE	Ground floor	Block A
9	A-008	Laboratory	CHEM	MITAOE	Ground floor	Block A

10	A-009	Classroom	CHEM	MITAOE	Ground floor	Block A
11	A-010	Classroom	CHEM	MITAOE	Ground floor	Block A
12	A-011	Toilet	COMMON	MITAOE	Ground floor	Block A
13	A-012	Laboratory	ETX	MITAOE	Ground floor	Block A
14	A-013	Laboratory	ETX	MITAOE	Ground floor	Block A
15	A-014	Dean FSA	COMMON	MITAOE	Ground floor	Block A
16	A-101	Dean Office	SEE	MITAOE	First floor	Block A
17	A-102A	Dept. Office	ETC	MITAOE	First floor	Block A
18	A-102B	Tutorial Room	ETC	MITAOE	First floor	Block A
19	A-103	Laboratory	ETC	MITAOE	First floor	Block A
20	A-104	Toilet	CPMMON	MITAOE	First floor	Block A
21	A-105	Classroom	ETC	MITAOE	First floor	Block A
22	A-106	Classroom	ETC	MITAOE	First floor	Block A
23	A-107	Laboratory	ETC	MITAOE	First floor	Block A
24	A-108	Laboratory	ETX	MITAOE	First floor	Block A
25	A-109	Laboratory	ETC	MITAOE	First floor	Block A
26	A-110	Laboratory	ETC	MITAOE	First floor	Block A
27	A-111	Toilet	common	MITAOE	First floor	Block A
28	A-112	Classroom	ETC	MITAOE	First floor	Block A
29	A-113	Classroom	ETC	MITAOE	First floor	Block A
30	A-201A	Laboratory	ETX	MITAOE	Second floor	Block A
31	A-201B	Tutorial Room	ETX	MITAOE	Second floor	Block A
32	A-202	Laboratory	ETC	MITAOE	Second floor	Block A
33	A-203	Toilet	COMMON	MITAOE	Second floor	Block A
34	A-204	Ladies Room	COMMON	COMMON	Second floor	Block A
35	A-205	Language Laboratory	COMMON	COMMON	Second floor	Block A
36	A-206A	Registrar Office	ADMIN	MITAOE	Second floor	Block A
37	A-206B	Faculty Room	IT	MITAOE	Second floor	Block A
38	A-207A	Laboratory	IT	MITAOE	Second floor	Block A
39	A-207B	Laboratory	IT	MITAOE	Second floor	Block A
40	A-207C	Laboratory	IT	MITAOE	Second floor	Block A
41	A-207D	Laboratory	IT	MITAOE	Second floor	Block A
42	A-208	Laboratory	ETX	MITAOE	Second floor	Block A
43	A-209	Laboratory	ETX	MITAOE	Second floor	Block A
44	A-210	Laboratory	ETX	MITAOE	Second floor	Block A
45	B-001	Laboratory	CIVIL	MITAOE	Ground floor	Block B
46	B-002	Laboratory	CHEM	MITAOE	Ground floor	Block B
47	B-003	Laboratory	CHEM	MITAOE	Ground floor	Block B
48	B-004	Laboratory	CHEM	MITAOE	Ground floor	Block B
49	B-005	Laboratory	CHEM	MITAOE	Ground floor	Block B
50	B-006A	Laboratory	CHEM	MITAOE	Ground floor	Block B
51	B-006B	Laboratory	CHEM	MITAOE	Ground floor	Block B
52	B-007	CANTEEN	COMMON	MITAOE	Ground floor	Block B
53	C-1	ATM	COMMON	COMMON	Ground floor	Block C
54	C-2	Store	COMMON	COMMON	Ground floor	Block C

55	C-3	Housekeeping	ADMIN	COMMON	Ground floor	Block C
56	C-4	Maintenance	ADMIN	COMMON	Ground floor	Block C
57	D-001A	Director's Office	ADMIN	COMMON	Ground floor	Block D
58	D-001B	Board Room	ADMIN	COMMON	Ground floor	Block D
59	D-002	HR Dept.	ADMIN	COMMON	Ground floor	Block D
60	D-003	Faculty Room	FY	COMMON	Ground floor	Block D
61	D-004	Ladies Toilet	COMMON	MITAOE	Ground floor	Block D
62	D-005	Gents Toilet	COMMON	MITAOE	Ground floor	Block D
63	D-006	Classroom	MECH	MITAOE	Ground floor	Block D
64	D-007	Classroom	MECH	MITAOE	Ground floor	Block D
65	D-008	Classroom	IT	MITAOE	Ground floor	Block D
66	D-009	Classroom	IT	MITAOE	Ground floor	Block D
67	D-010	Classroom	MECH	MITAOE	Ground floor	Block D
68	D-011	Seminar Hall	COMMON	DESIGN	Ground floor	Block D
69	D-013	Reception Area	ADMIN	COMMON	Ground floor	Block D
70	D-101	Computer Center	COMMON	COMMON	First floor	Block D
71	D-102	Seminar Hall	COMMON	MITAOE	First floor	Block D
72	D-103	T.P.Officer	ADMIN	COMMON	First floor	Block D
73	D-104	Laboratory	FY	MITAOE	First floor	Block D
74	D-105	Laboratory	ETC	MITAOE	First floor	Block D
75	D-106	Laboratory	ETC	MITAOE	First floor	Block D
76	D-107A	Laboratory	IT	MITAOE	First floor	Block D
77	D-107B	Laboratory	IT	MITAOE	First floor	Block D
78	D-108	Classroom	ETX	MITAOE	First floor	Block D
79	D-109	Class Rooms	FY	MITAOE	First floor	Block D
80	D-201	Library & Reading Room	COMMON	COMMON	Second floor	Block D
81	D-202	Classroom	ETX	MITAOE	Second floor	Block D
82	D-203	Class Rooms	FY	MITAOE	Second floor	Block D
83	D-301A	Tutorial Rooms - PG	ETX	MITAOE	Third floor	Block D
84	D-301B	Laboratory	ETX	MITAOE	Third floor	Block D
85	D-302	Research Laboratory	ETX COMP	MITAOE	Third floor	Block D
86	D-303	Gents Toilet	COMMON	MITAOE	Third floor	Block D
87	D-304	Ladies Toilet	COMMON	MITAOE	Third floor	Block D
88	D-305	Classroom	ETC	MITAOE	Third floor	Block D
89	D-306	Laboratory	ETX	MITAOE	Third floor	Block D
90	D-307	Classroom	ETC	MITAOE	Third floor	Block D
91	D-308	Classroom	ETX	MITAOE	Third floor	Block D
92	D-309	Classroom	CHEM	MITAOE	Third floor	Block D
93	D-310	Class Rooms	FY	MITAOE	Third floor	Block D
94	DBM-01	Central Store	ADMIN	COMMON	Basement	Block D
95	DBM-02	Office All Inclusive	ADMIN	COMMON	Basement	Block D
96	DBM-03	Student Section	ADMIN	COMMON	Basement	Block D

97	DBM-04	Exam Dept.	ADMIN	COMMON	Basement	Block D
98	DBM-05	COE Office	ADMIN	COMMON	Basement	Block D
99	F-001	Workshop	CIVIL/CHEM	MITAOE	Ground floor	Block F
100	F-002	Workshop	FY	MITAOE	Ground floor	Block F
101	F-003	Drawing Hall	MECH	MITAOE	Ground floor	Block F
102	F-004	Workshop	MECH	MITAOE	Ground floor	Block F
103	F-005	Workshop	MECH	MITAOE	Ground floor	Block F
104	F-007	Tutorial Room	DESIGN	DESIGN	Ground floor	Block F
105	F-008	Tutorial Room	DESIGN	DESIGN	Ground floor	Block F
106	F-009	Tutorial Room	DESIGN	DESIGN	Ground floor	Block F
107	F-010	Tutorial Room	DESIGN	DESIGN	Ground floor	Block F
108	F-101A	Tutorial Room	MECH	MITAOE	Ground floor	Block F
109	F-101B	Tutorial Room	MECH	MITAOE	Ground floor	Block F
110	H-001A	Laboratory	MECH	MITAOE	Ground floor	Block H
111	H-001B	Tutorial Room	MECH	MITAOE	Ground floor	Block H
112	H-002	Laboratory	MECH	MITAOE	Ground floor	Block H
113	H-003	Toilet	COMMON	MITAOE	Ground floor	Block H
114	H-004	Toilet	COMMON	MITAOE	Ground floor	Block H
115	H-005A	Laboratory	MECH	MITAOE	Ground floor	Block H
116	H-005B	Laboratory	MECH	MITAOE	Ground floor	Block H
117	H-006	Dean Office	SMCE	MITAOE	Ground floor	Block H
118	H-007	Laboratory	MECH	MITAOE	Ground floor	Block H
119	H-008	Laboratory	MECH	MITAOE	Ground floor	Block H
120	H-009	Laboratory	MECH	MITAOE	Ground floor	Block H
121	H-010	Classroom	MECH	MITAOE	Ground floor	Block H
122	H-011	Classroom	MECH	MITAOE	Ground floor	Block H
123	H-012	Laboratory	MECH	MITAOE	Ground floor	Block H
124	H-101	Classroom	MECH	MITAOE	First floor	Block H
125	H-102	Laboratory	MECH	MITAOE	First floor	Block H
126	H-103	Laboratory	MECH	MITAOE	First floor	Block H
127	H-104	Drawing Hall	MECH	MITAOE	First floor	Block H
128	H-105	Classroom	MECH	MITAOE	First floor	Block H
129	H-106	Laboratory	MECH	MITAOE	First floor	Block H
130	H-107	Laboratory	MECH	MITAOE	First floor	Block H
131	H-108	Classroom	MECH	MITAOE	First floor	Block H
132	H-109	Toilet	COMMON	MITAOE	First floor	Block H
133	H-110	Toilet	COMMON	MITAOE	First floor	Block H
134	H-111	Ed Cell	COMMON	MITAOE	First floor	Block H
135	H-112	Faculty Room	MECH	MITAOE	First floor	Block H
136	H-201A	Tutorial Room	COMP	MITAOE	Second floor	Block H
137	H-201B	Tutorial Room	COMP	MITAOE	Second floor	Block H
138	H-202	Classroom	COMP	MITAOE	Second floor	Block H
139	H-203	Classroom	COMP	MITAOE	Second floor	Block H
140	H-204A	Laboratory	COMP	MITAOE	Second floor	Block H
141	H-204B	Laboratory	COMP	MITAOE	Second floor	Block H

142	H-205	Laboratory	COMP	MITAOE	Second floor	Block H
143	H-206	Faculty Room	COMP	MITAOE	Second floor	Block H
144	H-207A	Laboratory	COMP	MITAOE	Second floor	Block H
145	H-207B	Laboratory	COMP	MITAOE	Second floor	Block H
146	H-208	Toilet	COMMON	MITAOE	Second floor	Block H
147	H-209	Toilet	COMMON	MITAOE	Second floor	Block H
148	H-210	Faculty Room	COMP	MITAOE	Second floor	Block H
149	H-211	Dean Office	SCET	MITAOE	Second floor	Block H
150	H-301	Classroom	COMP	MITAOE	Third floor	Block H
151	H-302	Classroom	COMP	MITAOE	Third floor	Block H
152	H-303	Classroom	IT	MITAOE	Third floor	Block H
153	H-304A	Laboratory	COMP	MITAOE	Third floor	Block H
154	H-304B	Laboratory	COMP	MITAOE	Third floor	Block H
155	H-305	Classroom	COMP	MITAOE	Third floor	Block H
156	H-306A	Laboratory	COMP	MITAOE	Third floor	Block H
157	H-306B	Laboratory	COMP	MITAOE	Third floor	Block H
158	H-306C	Laboratory	COMP	MITAOE	Third floor	Block H
159	H-306D	Laboratory	COMP	MITAOE	Third floor	Block H
160	H-307	Toilet	COMMON	MITAOE	Third floor	Block H
161	H-308	Toilet	COMMON	MITAOE	Third floor	Block H
162	H-309	Classroom	COMP	MITAOE	Third floor	Block H
163	H-310	Classroom	COMP	MITAOE	Third floor	Block H
164	H-311	Tutorial Rooms - PG	COMP	MITAOE	Third floor	Block H
165	HBM-01	Faculty Room	CIVIL	MITAOE	Basement	Block H
166	HBM-02	Laboratory	CIVIL	MITAOE	Basement	Block H
167	HBM-03	Laboratory	CIVIL	MITAOE	Basement	Block H
168	HBM-04	Laboratory	CIVIL	MITAOE	Basement	Block H
169	HBM-05	Laboratory	CIVIL	MITAOE	Basement	Block H
170	HBM-06	Laboratory	CIVIL	MITAOE	Basement	Block H
171	HBM-07	Laboratory	CIVIL	MITAOE	Basement	Block H
172	HBM-08	Tutorial Room	CIVIL	MITAOE	Basement	Block H
173	HBM-09	Faculty Room	CIVIL	MITAOE	Basement	Block H
174	HBM-10	Classroom	CIVIL	MITAOE	Basement	Block H
175	HBM-11	Classroom	CIVIL	MITAOE	Basement	Block H
176	HBM-12	Drawing Hall	CIVIL	MITAOE	Basement	Block H
177	HBM-13	Laboratory	CIVIL	MITAOE	Basement	Block H
178	HBM-14	UPS Room	COMMON	MITAOE	Basement	Block H

Table 8: Room-wise space details

2.4.3 Operation and Maintenance of the premises

The interview session with the staff regarding the operation and working hours is summarized in the table. The Institutions are open Monday to Saturday for full day.

Sunday is an off for all. Below mentioned in the table are the average working hours. The detail wise timing for each is mentioned below the table.

S. No.	Section	Spaces	Hours/ day	Days in a year
1	Main Institutional College	Student areas and Teaching faculty	8.5	200
2	General areas	Admin areas and library, Passage, staircase, toilet, Lift	8.5	240

Table 9: Schedule of the timings of the premises

Block A of the premise

Block B of the premise

Block C of the premise

Block D of the premise

Block E of the premise

Block F of the premise

3. Green Building Study Audit

3.1 About the Green Building Study Audit

It is a systematic study of the aspects which make the Institution a sustainable and healthy premise for its inhabitants.

3.2 Analysis for the Green Building Study Audit

The procedure included detailed verification for the following:

Energy Audit
- Analysis of the Lights, Fans, AC, Equipment
- Renewable energy
- Scope for reducing the current energy bills if any
- Improvement in the thermal comfort of the campus

Green Audit
- Green initiatives
- Hygiene audit
- Water Audit - Analysis of the current water consumption of campus; Scope to include Rain water harvesting and Waste water treatment in campus
- Waste Audit - Current waste produced, its segregation and usage; Strategies to be adopted for waste management and awareness

Environmental Audit
- Analysis of the current landscape + hardscape of campus
- Analysis of the flora and fauna of campus
- Strategies adopted at present to enhance vegetation
- Measures that can be adopted for ecological improvement of campus

3.3 Strategy adopted for Green Building Study Audit

The strategies included data collection from admin department, actual inventory, investigation to check the operation and maintenance, analysis of the data collected and preparation of the Report.

3.4 Timeline of the activities for Green Building Study Audit
- 8 September 2021 – Discussion with the College
- 14 September 2021 – Survey of the Student and staff submitted
- 15 September 2021 – Physical site visit of College
- 16 September 2021 – Data submitted by College
- 20 September 2021 – Submission of draft Report
- 23 October 2021 – Submission of Main Report

4. Energy Audit

The premise uses following sources of energy consumption.

4.1   Primary sources of Energy consumption

1. **Electrical (Metered)** – Light, Fans, AC, Equipments, Pumps are connected to the same.

2. **Solar** – The Plant has a Capacity of 435 kWp, it was installed in 2018. There are 1380 Modules of 315 Watts, it is of Waree make and the Inverter is made of Fronius Eco, load 27kWp each.

4.2   Secondary sources of Energy consumption

S. No.	Particulars	Nos.	Quantity	Amount spent per month/ annually
1	Gas Cylinder	No		
2	Diesel generator	2	100+ 320 kVA	5,50,000 annually
3	UPS	60 kVA	1	68 No., 100Ah battery
		60 kVA	1	34, 100Ah battery
		30 kVA	1	20, 100Ah battery
		80 kVA	1	34, 100Ah battery
		20kVA	3	26, 42Ah Battery
		7.5 kVA	1	16, 26Ah Battery
		6kVA	1	12, 26Ah Battery
		3kVA	2	6, 26Ah Battery
4	Invertor	NA		
5	Batteries	As per Inverter rating	as above	

Table 10: Details of secondary sources of Energy consumption

4.2   Site investigation analysis

The Site investigation observations and interviews with the Maintenance staff, Electrical department in charge are summarised below:
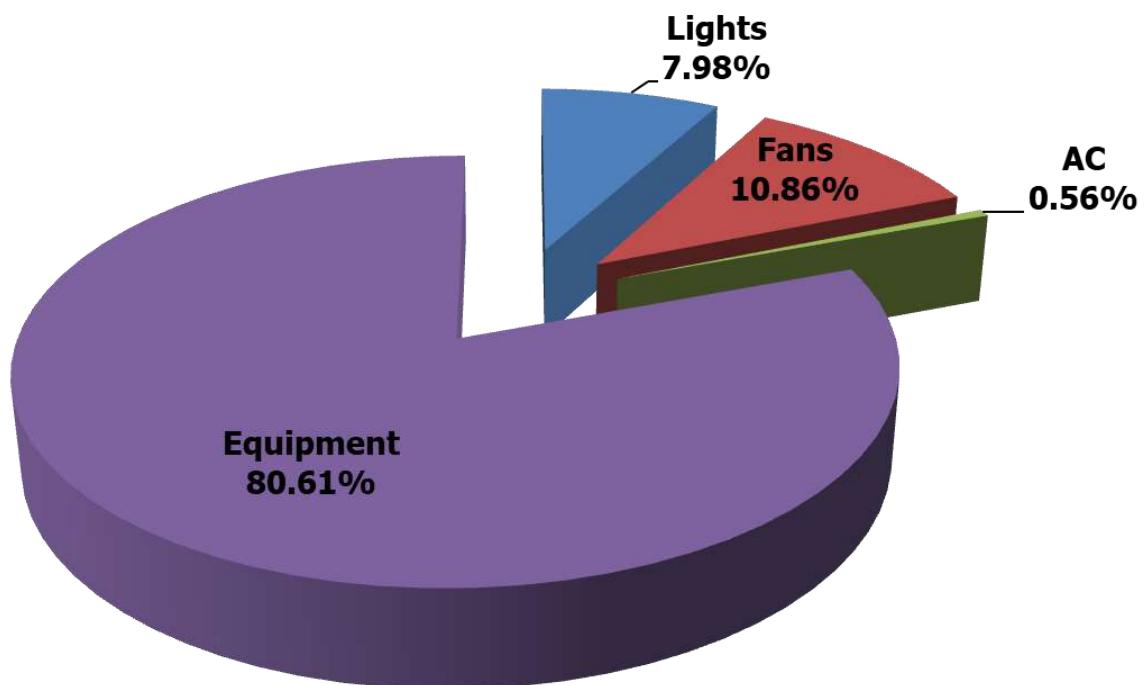
- The **switch-off drills are practised at present,**

- The **inbuilt power saving mode** in every Computer is functioning.

- There are **no Ultra-violet lights and any other harmful lights used** in the premise.

- All class rooms and office are **ventilated using natural light.**

4.4 Calculated Electrical Consumption as per inventory

The electricity bills provide actual consumption data. The following is the calculated consumption. It is done to understand the percentage of energy usage in the premises by various applications. It is based on the inventory collected and interviews with the staff. The additional data such as wattage is taken from market research. In terms of electrical consumption, the main sources are lights, fans, ac, equipment. The inventory and data collection for sources of energy consumed in the premise in summarised in the following sections.

Note: The following analysis is combined for entire premise taking into considerations the duration before pandemic to understand the consumption pattern as post pandemic the premise is used only for a few hours.
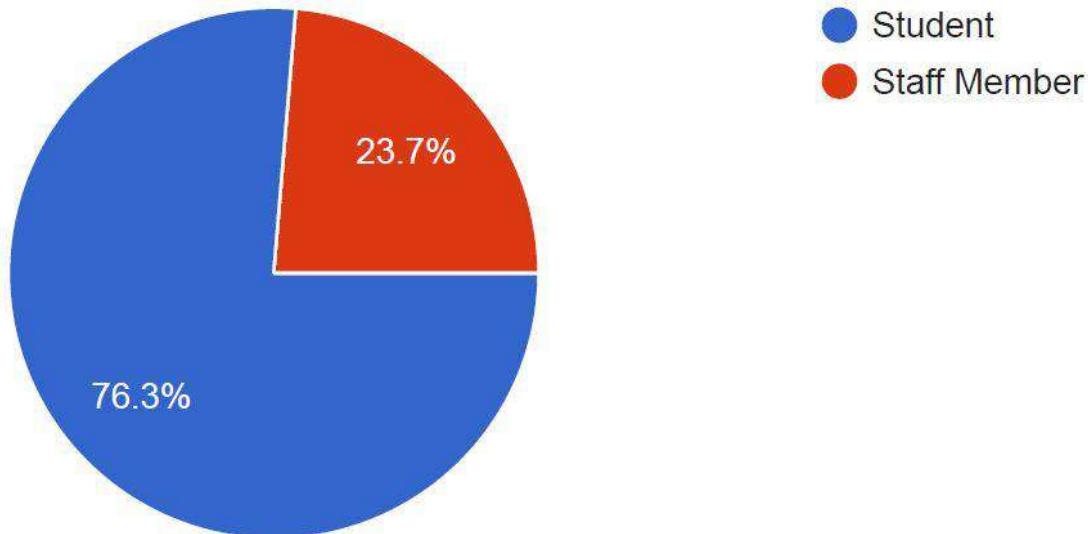
Figure 3: Summary of the Calculated Electrical Consumption as per inventory

The above graph shows that Equipment consumes 80.61% followed by Fans at 10.86% the Lights at 7.98% and AC at 0.56% of the total calculated electrical energy.

4.5   Survey Results

An online survey was conducted to analyse the student and staff views about the premise, following are some of the reviews.
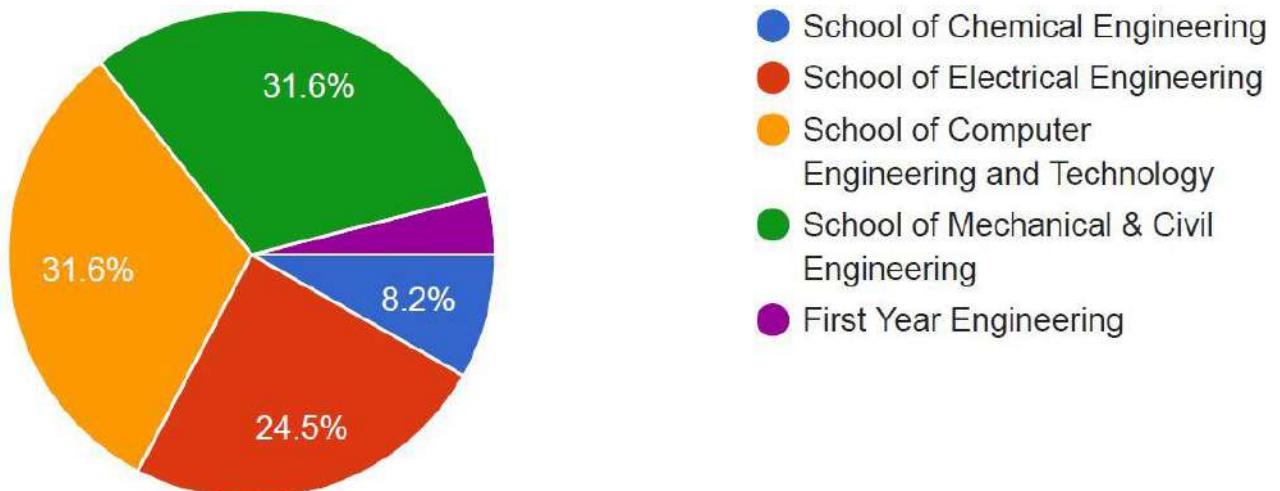
4.5.1 Participation

Figure 4: Participation analysis in the survey

A total of **376 responses** were received out of which 76% were students.

4.5.2 Schools

Figure 5: Participation analysis in the survey

The highest **responses were 32% equal for** responses received from **School of Computer Engineering and Technology** and the **School of Mechanical and Civil Engineering.**

4.6   Lights

4.6.1 Types of lights

There are a total of **2,137 lights in the premises;** the following table shows the various types of lights in the premises.

S. No.	Type	Nos.
1	LED	1767
2	PL Tube	16
3	PL-3	269
4	CFL	79
5	Incascent bulb	6
Total		**2,137**

Table 11: Summary of the types of Lights in premise
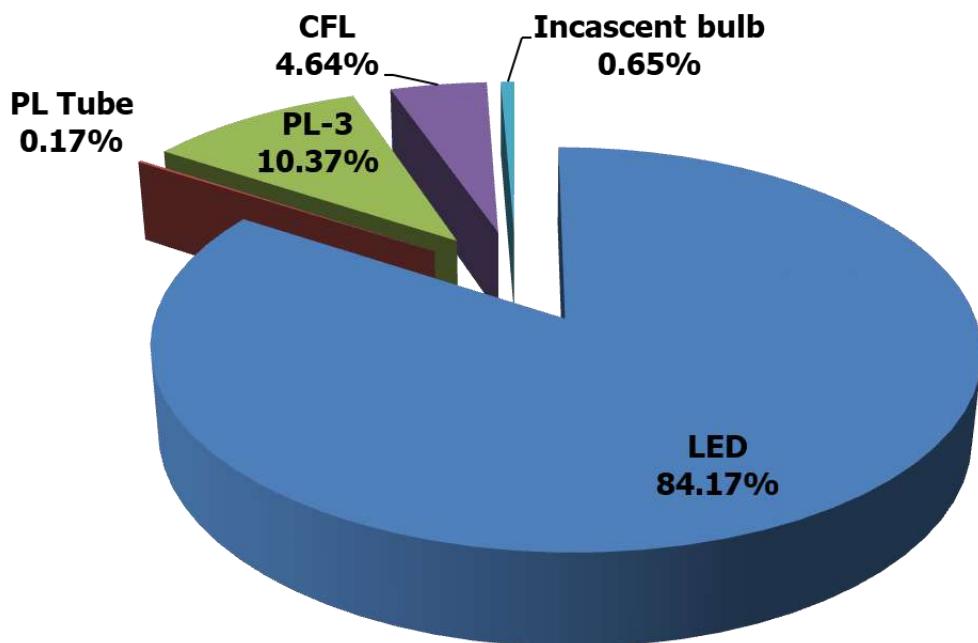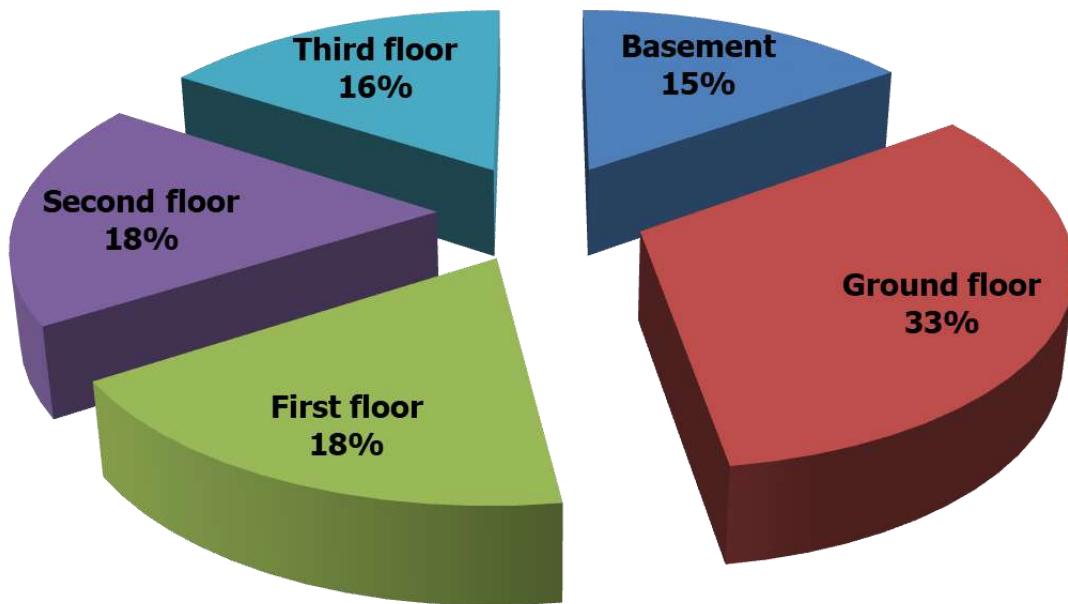
Figure 6: Types of Lights in the premise

The analysis of the types of lights in premises shows **LED Lights consume 78,412 kWh at 84.17% followed by PL-3 consuming 9,666 kWh at 10.37%, the CFL consumes 4,320 kWh at 4.64% whereas the Incandescen bulb consumes 605 kWh at 0.65% and the PL Tube consumes 161 kWh at 0.17%**

4.6.2 Floor-wise consumption analysis

The energy consumption of Lights is **93,163 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.


Figure 7: Energy consumed floor wise

The above analysis shows the Lights in the **Ground floor consumes 30,287 kWh at 33%, the First and Second floor have a neglible difference by consuming 18% at 16,981 kWh and 17,033 kWh respectively, the Third floor consumes 14,715 kWh at 16% and the Basement consumes 14,147 kWh at 15%**

4.6.3 Requirement of NAAC

4.6.3.1 Alternative Energy Initiative
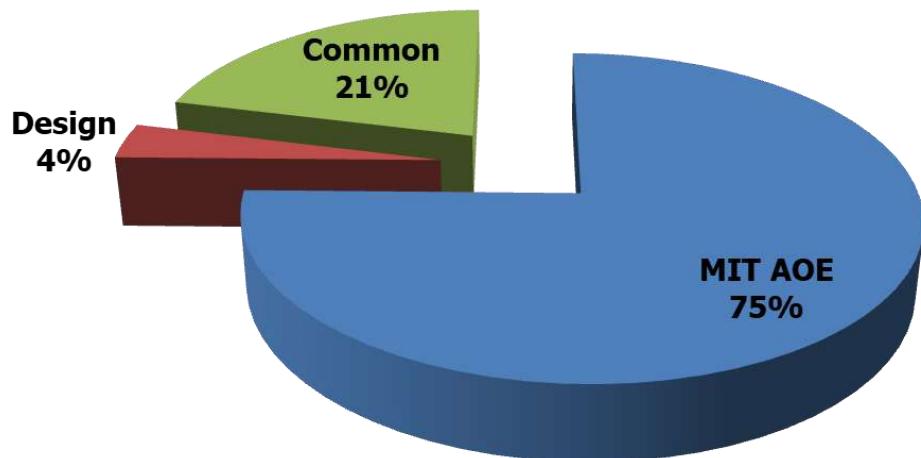
Percentage of power requirement met by renewable energy sources – There are solar panels available in premise at present. The entire energy generated is divided such that 100% of energy requirement by College is met through these and n addition energy is given back to the grid as well.

4.6.3.2 Percentage of lighting power requirement met through LED bulbs

The LED lights constitute 84% of the total lighting in the premise.

4.6.4 Section-wise consumption analysis

The energy consumption of Lights is **93,163 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.
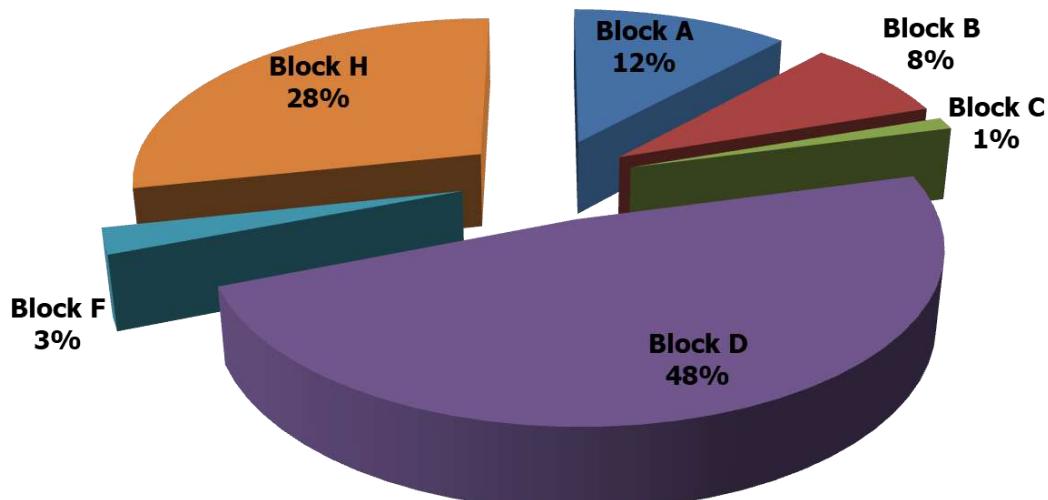
Figure 8: Energy consumed section wise

The above analysis shows the Lights in the **MIT AOE section consume 70,148 kWh at 75% whereas the ones in Common sections consume 19,666 kWh at 21% and the ones in Design section consume 3,349 kWh at 4%**

4.6.5 Block-wise consumption analysis

The energy consumption of Lights is **93,163 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.

Figure 9: Energy consumed block wise

The above analysis shows the Lights in the **Block D consume 44,919 kWh at 48%, the Block H consumes 26,467 kWh at 28%, the Block A consumes 10,952 kWh at 12%, the Block B consumes 7,441 kWh at 8%, the Block F consumes 2,312 kWh at 3% and Block C consumes 1,072 kWh at 1%**

4.6.6 Site investigation observations

Some of the points noticed are as follows:

1. All lights are in working conditions

2. Daily monitoring and check is done by the maintenance staff.

3. There was no fuse defect observed.

4.7 Fans

4.7.1 Types of fans

There are a total of **870 fans** in the premise. The following table shows the various types of fans in the premises.

S. No.	Type	Nos.
1	Induction	869
2	BLDC	1
Total		**870**

Table 12: Summary of the types of fans in premise
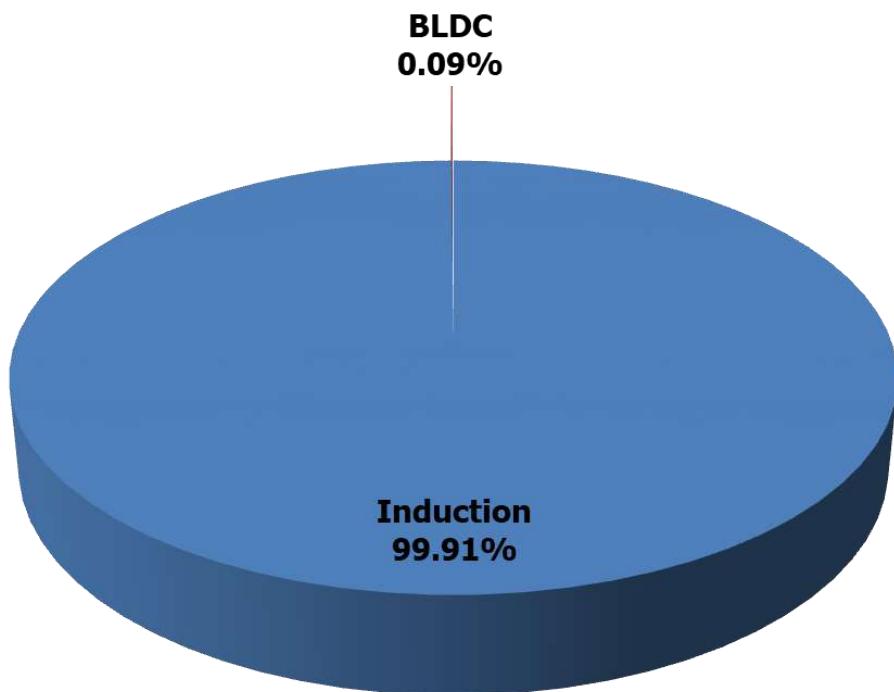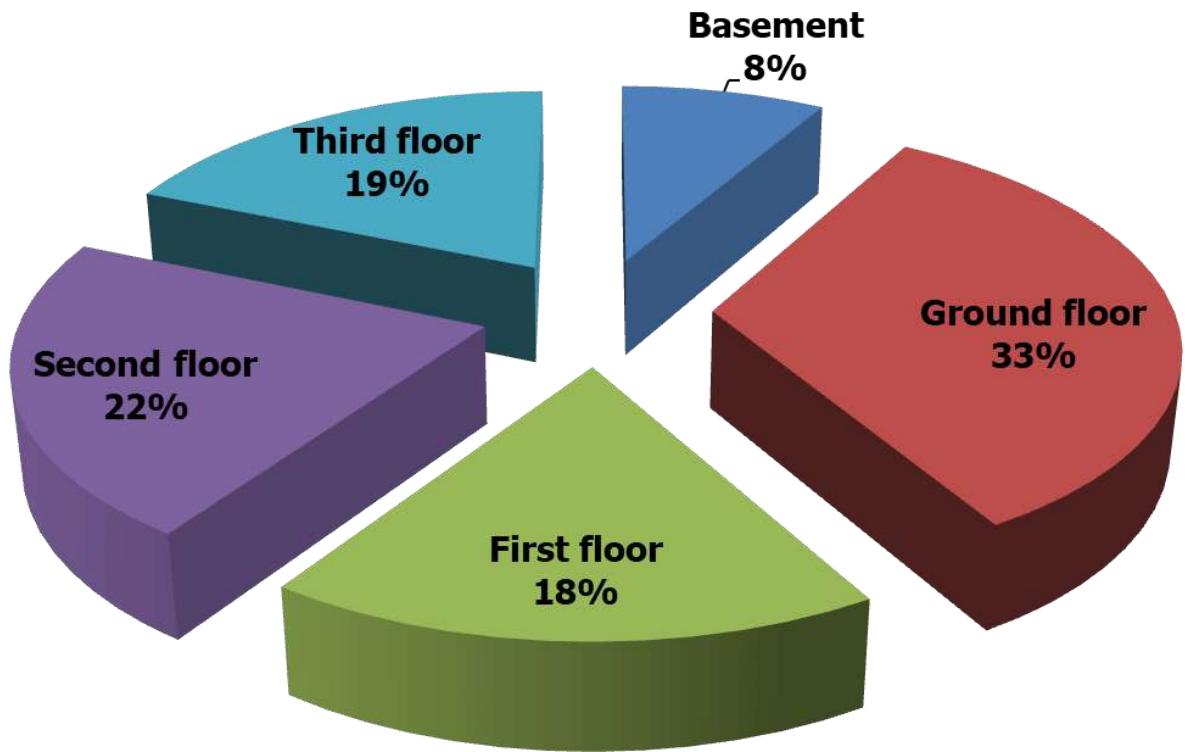
Figure 10: Types of Fans in the premise

The analysis of the types of Fans in premises shows **Induction Fans consumes 1,26,666 kWh at 99.91% whereas the BLDC consumes 112 kWh at 0.09%**

4.7.2 Floor-wise consumption analysis

The energy consumption of Fans is **1,26,777 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.

Figure 11: Energy consumed floor wise

The above analysis shows the Fans in the **Ground floor consumes 42,141 kWh at 33%, the Second floor consumes 27,600 kWh at 22%, the Third floor consumes 23,702 kWh at 19%, the First floor consumes 22,685 kWh at 18% and the Basement consumes 10,650 kWh at 8%**
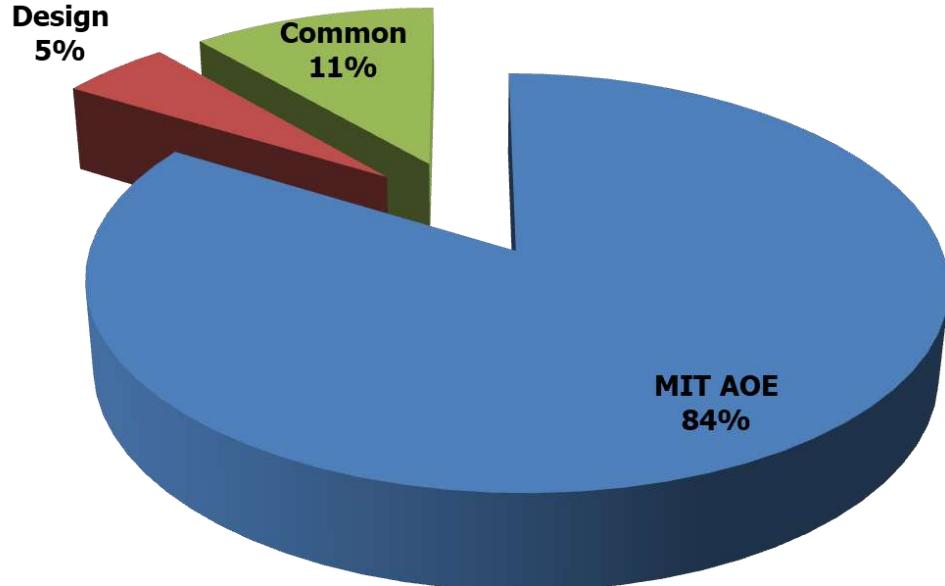
### 4.7.3 Site investigation observations

Some of the points noticed are as follows:

1. All fans are in working conditions

2. Daily monitoring and check is done by the maintenance staff and admin staff in an excellent manner.

4.7.4 Section-wise consumption analysis

The energy consumption of Fans is **1,26,777 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.
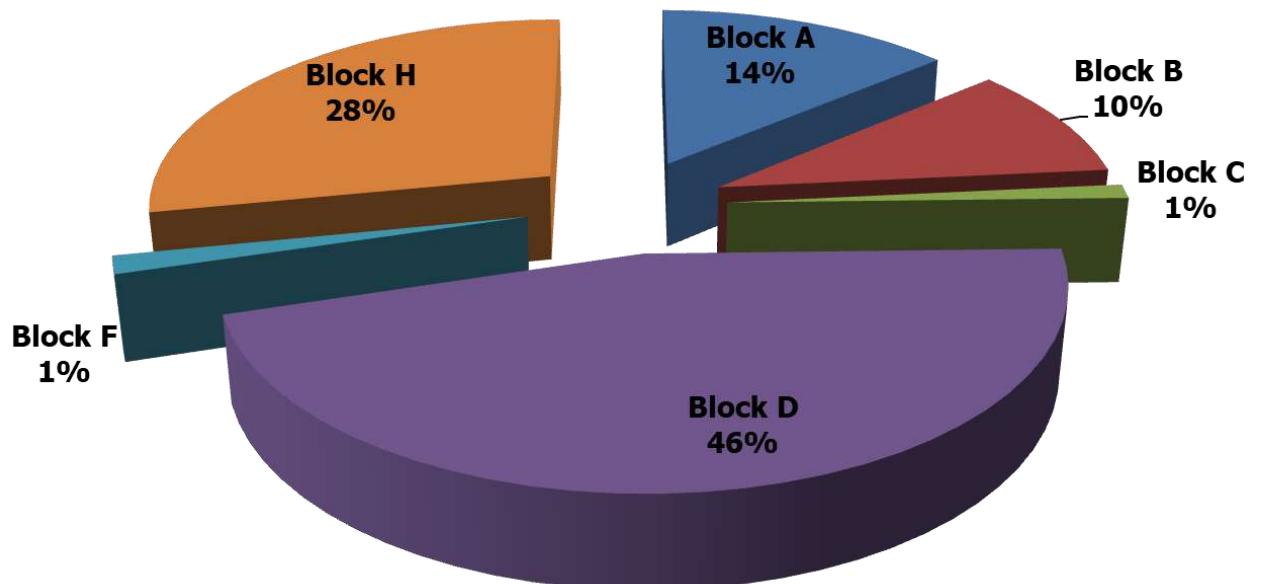
Figure 12: Energy consumed section wise

The above analysis shows the Fans in the **MIT AOE section consume 1,06,163 kWh at 84% whereas the ones in Common sections consume 14,230 kWh at 11% and the ones in Design section consume 6,384 kWh at 5%**

4.7.5 Block-wise consumption analysis

The energy consumption of Fans is **1,26,777 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.

Figure 13: Energy consumed block wise

The above analysis shows the Fans in the **Block D consume 58,003 kWh at 46%, the Block H consumes 35,667 kWh at 28%, the Block A consumes 17,549 kWh at 14%, the Block B consumes 12,173 kWh at 10%, the Block F consumes 1,907 kWh at 1% and Block C consumes 1,478 kWh at 1% (Meagre difference with Block F, C)**

4.8 AC

4.8.1 Types of AC

There is **40 Air conditioner in the premise as follows.**

| S. No	Room No.	Room Name	College	Floor	Building Block	AC Nos.	AC Tonnage
1	A001	Dean Office	MIT AOE	Ground floor	Block A	1	1.5 Ton
6	A006	Laboratory	MIT AOE	Ground floor	Block A	1	1.5 Ton
7	A007	Conference Room	MIT AOE	Ground floor	Block A	2	2 Ton
8	A008	Laboratory	MIT AOE	Ground floor	Block A	2	2 Ton
46	C-1	ATM	MIT AOE	Ground floor	Block C	1	1.5 Ton
50	Cabin	SAFAR	MIT AOE	Ground floor	Block C	1	1 Ton
52	D001	Director's Office	Common	Ground floor	Block D	1	5.5 Ton
		Board Room	Common	Ground floor	Block D	2	1.5 Ton
53	D002	HR Dept	Common	Ground floor	Block D	1	1.5 Ton
65	D-101	Internet Center	Common	First floor	Block D	1	5.5 Ton
			Common	First floor	Block D	1	4Ton
			Common	First floor	Block D	1	1 Ton
66	D-102	Seminar Hall	MIT AOE	First floor	Block D	1	5.5 Ton
			MIT AOE	First floor	Block D	1	8.5Ton
74	D-201	Library & Reading Room	Common	Second floor	Block D	1	1.5 Ton
91	DBM-04	Exam Dept	Common	Basement	Block D	3	1 Ton
			Common	Basement	Block D	4	1.5 Ton
92	DBM-05	COE Office	Common	Basement	Block D	2	2 Ton
115	HBM-14	UPS ROOM	MIT AOE	Basement	Block H	3	2 Ton
121	H-006	Dean Office	MIT AOE	Ground floor	Block H	1	1.5 Ton
122	H-007	Laboratory	MIT AOE	Ground floor	Block H	4	1.5 Ton
123	H-008	Laboratory	MIT AOE	Ground floor	Block H	3	1.5 Ton
143	H-204A	Laboratory	MIT AOE	Second floor	Block H	2	2 Ton
Total						**40**	

Table 13: Details of the AC
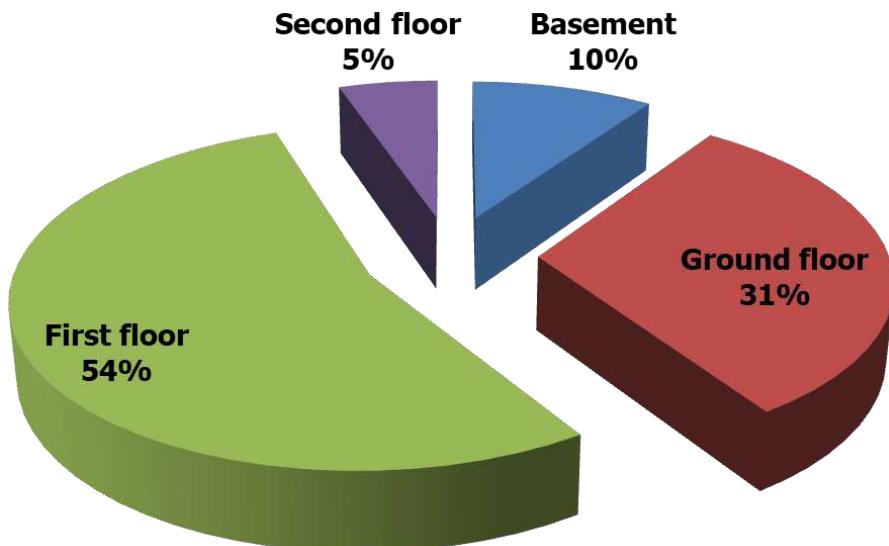
4.8.2 Site investigation observations

Some of the points noticed are as follows:

1. The AC need not be replaced.

2. Daily monitoring and check is done by the maintenance staff and admin staff in an excellent manner.

3. The Outdoor Unit is properly cleaned and maintained well.

4. The Outdoor Unit does not have any dust collection problem.

4.8.3 Floor-wise consumption analysis

The energy consumption of AC is **6,548 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.
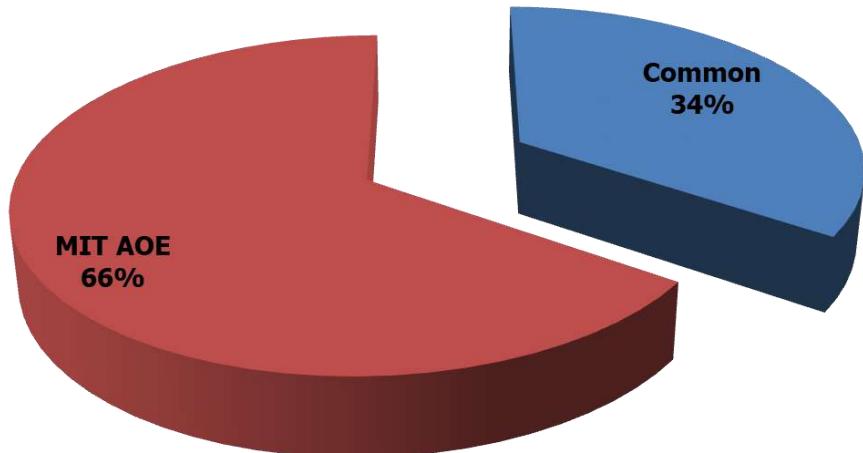

Figure 14: Energy consumed floor wise

The above analysis shows the AC in the **First floor consumes 3,534 kWh at 54%, the Ground floor consumes 2,034 kWh at 31%, the Basement consumes 635 kWh at 10% and the Second floor consumes 346 kWh at 5%**

4.8.4 Section-wise consumption analysis

The energy consumption of AC is **6,548 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.
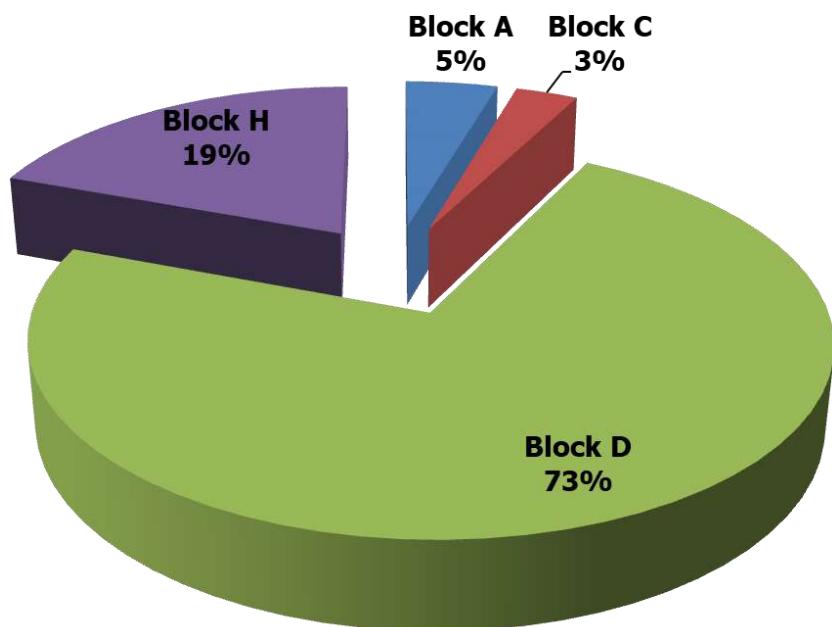
Figure 15: Energy consumed section wise

The above analysis shows the AC in the **MIT AOE section consume 4,291 kWh at 66% whereas the ones in Common sections consume 2,257 kWh at 34%**

4.8.5 Block-wise consumption analysis

The energy consumption of AC is **6,548 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.

Figure 16: Energy consumed block wise

The above analysis shows the AC in the **Block D consume 4,782 kWh at 73%, the Block H consumes 1,267 kWh at 19%, the Block A consumes 298 kWh at 5% and the Block C consumes 202 kWh at 3%**
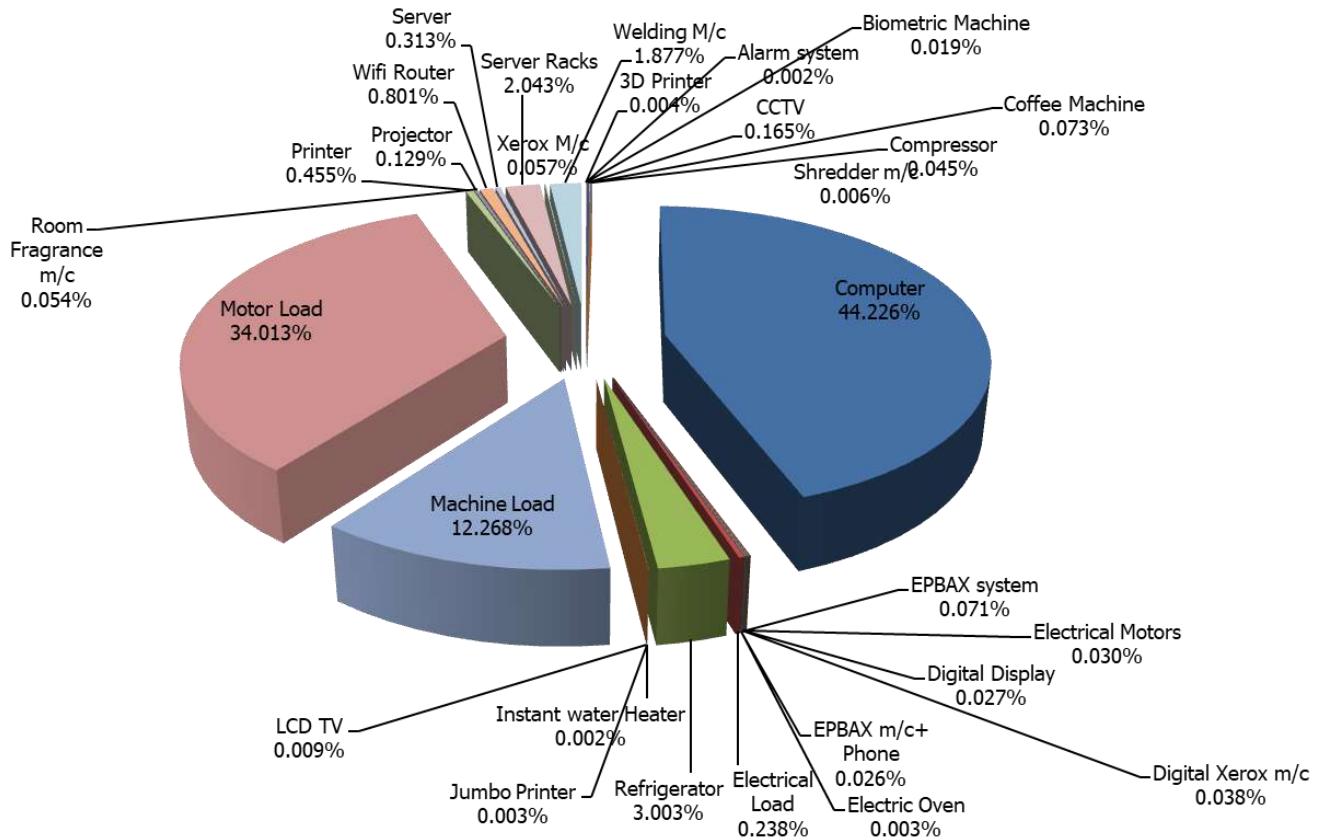
4.9 Equipment

4.9.1 Types of Equipment

There are a total of **29 types of equipment totalling to 79 in number** in the premise. The various types are mentioned in the table below.

| S. No.	Name	Nos.
1	3D Printer	1
2	Alarm system	1
3	Biometric Machine	2
4	CCTV	2
5	Coffee Machine	2
6	Compressor	6
7	Computer	1,001
8	EPBAX system	1
9	Electrical Motors	1
10	Digital Display	1
11	Digital Xerox m/c	1
12	EPBAX m/c+ Phone	2
13	Electric Oven	1
14	Electrical Load	2
15	Refrigerator	5
16	Instant water Heater	1
17	Jumbo Printer	1
18	LCD TV	2
19	Machine Load	13
20	Motor Load	23
21	Printer	79
22	Projector	18
23	Room Fragrance m/c	2
24	Wifi Router	23
25	Server	11
26	Server Racks	5
27	Xerox M/c	3
28	Shredder m/c	1
29	Welding M/c	3
Total		**1,214**

Table 14: Types of equipment in the premise
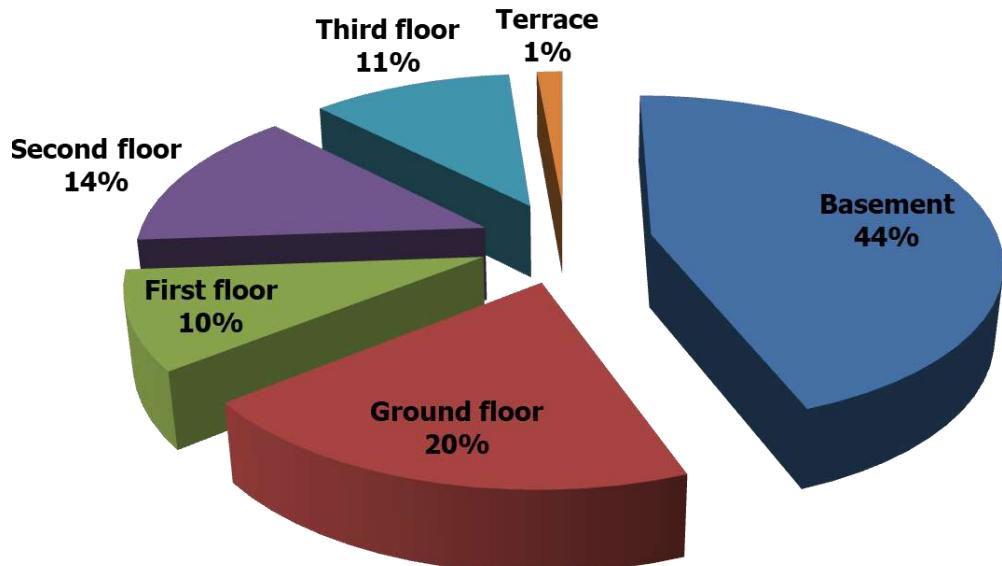
Figure 17: Summary of Energy consumed by Equipment

The above summary shows that **Computer consumes more energy at 44.22%** while **Motor load at 34.01%** the **Machine load consumes 12.26%** and the **Refrigerator consumes 3.00%** these are maximum consumers as compared to other equipment. UPS and Inverter (when used for electrical consumption else it is a battery backup and does not require electricity as an equipment) are also one of the equipment but are excluded in this calculation.

4.9.2 Floor-wise consumption analysis

The energy consumption of Equipment is **9,41,316 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.
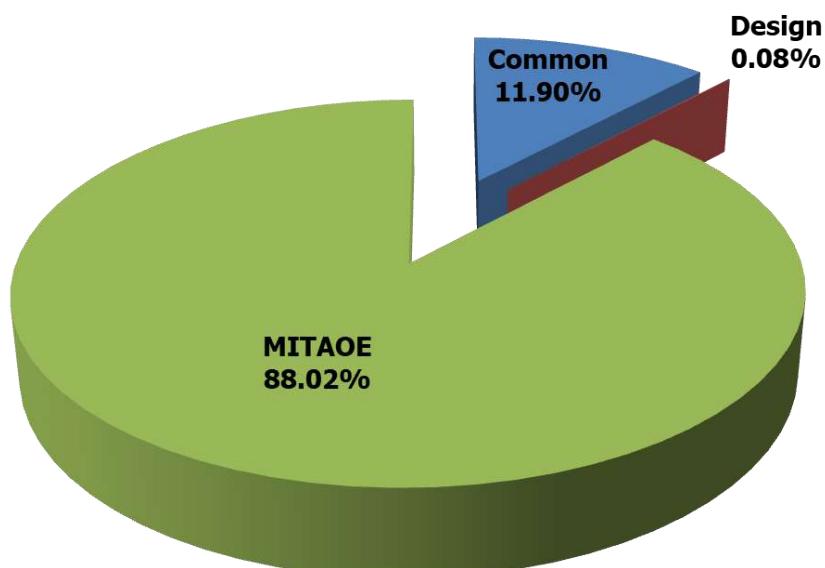
Figure 18: Energy consumed by Equipment floor wise

The above analysis shows the Equipment in the **Basement consumes the highest amount of energy of 4,16,642 kWh at 44%** while the **Ground floor consumes 1,88,788 kWh at 20%** and the **Second floor consumes 1,30,086 kWh at 14% the Third floor consumes 1,03,161 kWh at 11% the First floor consumes 89,409 kWh at 10% and the Terrace consumes 13,230 kWh at 1%**

4.9.3 Section-wise consumption analysis

The energy consumption of Equipment is **9,41,316 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.
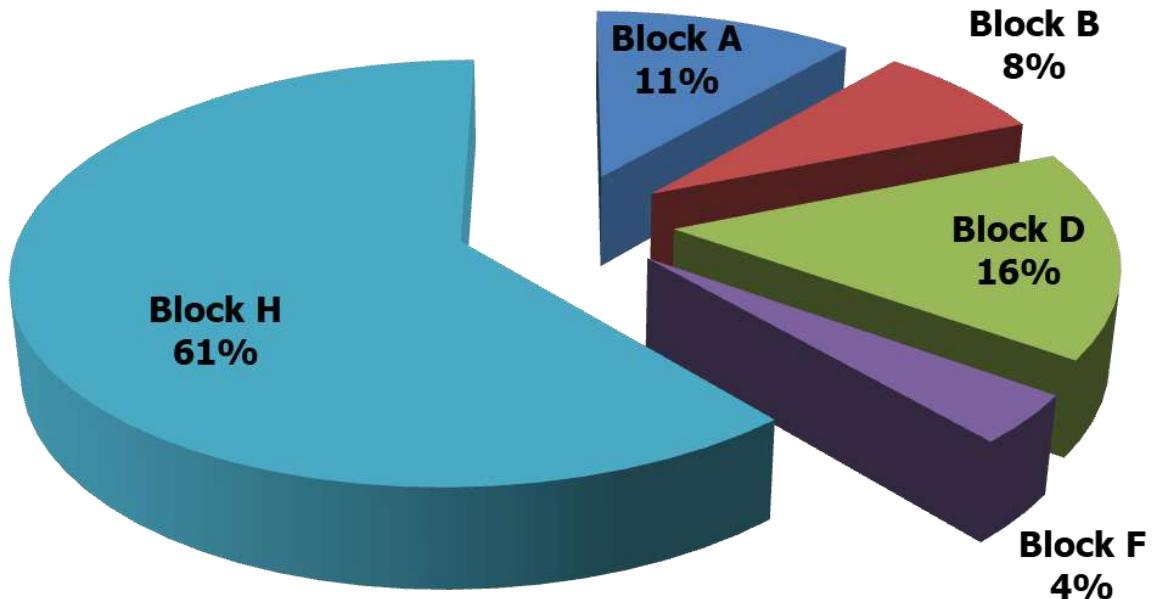
Figure 19: Energy consumed section wise

The above analysis shows the Equipment in the **MITAOE section consume 8,28,520 kWh at 88.02% whereas the ones in Common sections consume 1,12,028 kWh at 11.90% and the Design sections consume 768 kWh at 0.08%**

4.9.4 Block-wise consumption analysis

The energy consumption of Equipment is **9,41,316 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.


Figure 20: Energy consumed block wise

The above analysis shows the Equipment in the **Block H consume 5,77,384 kWh at 61%, the Block D consumes 1,51,478 kWh at 16%, the Block A consumes 1,06,439 kWh at 11% the Block B consumes 70,808 kWh at 8% and the Block F consumes 35,207 kWh at 4%**
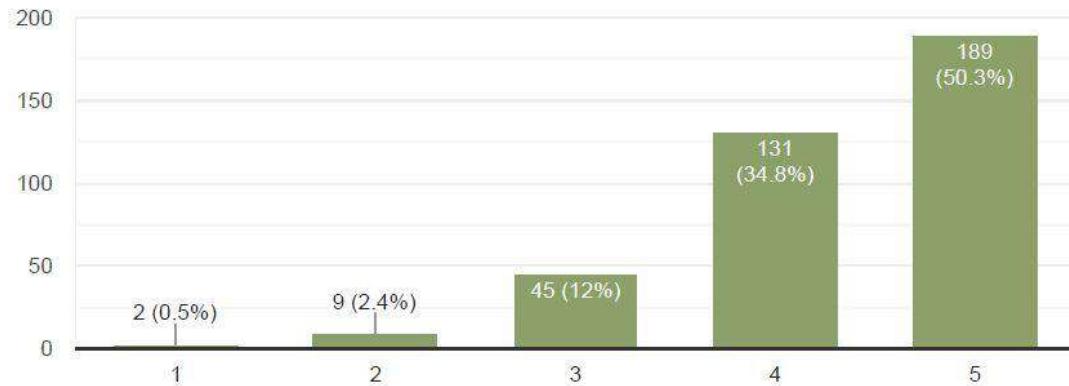
### 4.9.5 Site investigation observations

Some of the points noticed are as follows:

1. All Equipments are in working conditions.

2. Daily monitoring and check is done by the maintenance staff and admin staff in an excellent manner.

3. No defect was found in any equipment.

4.10   Survey Ratings

Rate - Usage of energy saving practices adopted in Institute premises

Figure 21: Water management practices in College

There were mixed responses received the highest was for **rating 5 (Excellent) at 50%** followed by **35% for rating 4 (Very Good).**

4.11   Survey review

According to your observation what are the simple steps adopted by the Institute towards energy preservation?

Some of the key responses are noted below as a result of Online survey.

- Rules, slogans, instructions are given to staff and students

- Solar roof tops, LED bulbs, stress on natural light and ventilation, energy saving awareness programs

- The college highly relies on solar energy as there are solar panels on the terrace of every building in the college. The campus is for the most part using clean energy.

- They have their own electricity transformer

- Energy efficient applications are used

- The institution facilities always ask the students to put off the electric appliances that are not in use also the complete premises is thoroughly checked after working hours to ensure there is no electric appliances left on to prevent energy wastage.

- Energy management in our institute is done by the solar plates which are fixed on a big farm so rather to used the generator we are using the solar energy

Greenvio

4.12   Recommendations for a Sustainable Habitat

Over the time energy efficient appliances have been a boon not only to the energy saving parameters they adhere to but also the eco-friendly habits it helps to inculcate. The Institution such as Schools and Colleges are the best way to implement these initiatives. It creates awareness among the students at a young age. The Institutions also act as a symbol and representative of being an energy efficient premise.

Following the analysis we found are some of the suggestions which can be implemented for an energy efficient Institution. This would help in reduction of the current electrical consumption by a major percentage.

In the case of MITAOE the positive observations were as follows:

- Energy efficient appliances.

- Energy efficient Lighting in the entire premise.

- Experimenting with E-vehicles as part of Academics.

- Energy efficient air-conditioning system

- Renewable Energy system.

Post the study there are recommendations in two areas which would result in a net-energy positive premise. The European Commission defines a netpositive energy building as one that **"on average over the year produces more energy from renewable energy sources than it imports from external sources. This is achieved using a combination of small power generators and low-energy building techniques, such as passive solar building design, insulation and careful site selection and placement."** (European Commission, 2012.)

The fundamental components of NZ/NPE design are relatively simple and include 3 elements:

1. Substantial envelope improvements and energy conservation to reduce loads.

2. High efficiency mechanical systems including energy recovery ventilation and air source heat pumps (VRF's) and/or ground source heat pumps to provide comfort.

3. Install renewable energy systems, which are most frequently solar electricity from Photovoltaics (PV), to supply power.
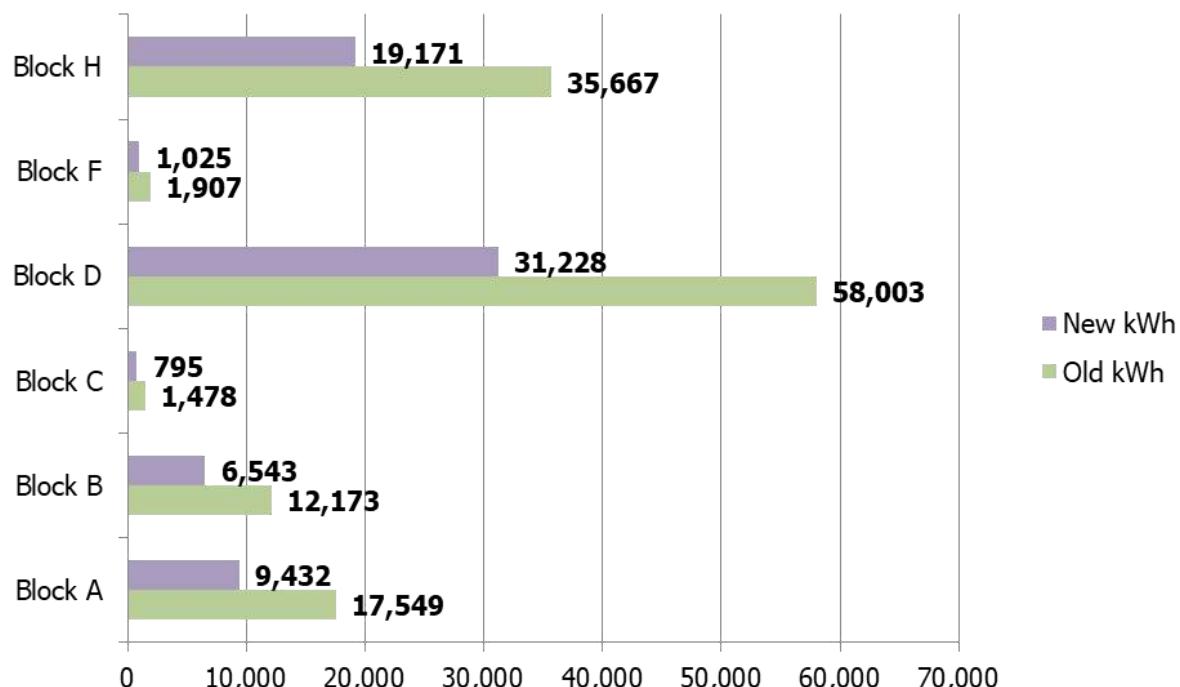
Source: maclayarchitects

Given the space and working of the Institutionn, from a future perspective the Electric-vehicle charging stations can be taken into consideration. Some of the lights which are Non-LED can be converted into LED because though their power consumption is less but from net-positive nergy building perspective it is a better solution. It will be suggested to either replace these now if College can have certain plans else the replacement can be done when fans get damaged or are not in working condition.

4.12.1Fans

The current Fans are in proper working conditions and maintained well. The ceiling fans are in more quantity and consume at least 60W when in use. These should be replaced with energy efficient fans consuming 32W when in use.

The following graph shows a comparison of the current consumption and consumption of all **89 ceiling fans on all floors** if replaced with star rated appliance.

Figure 22: Analysis of current and new fans
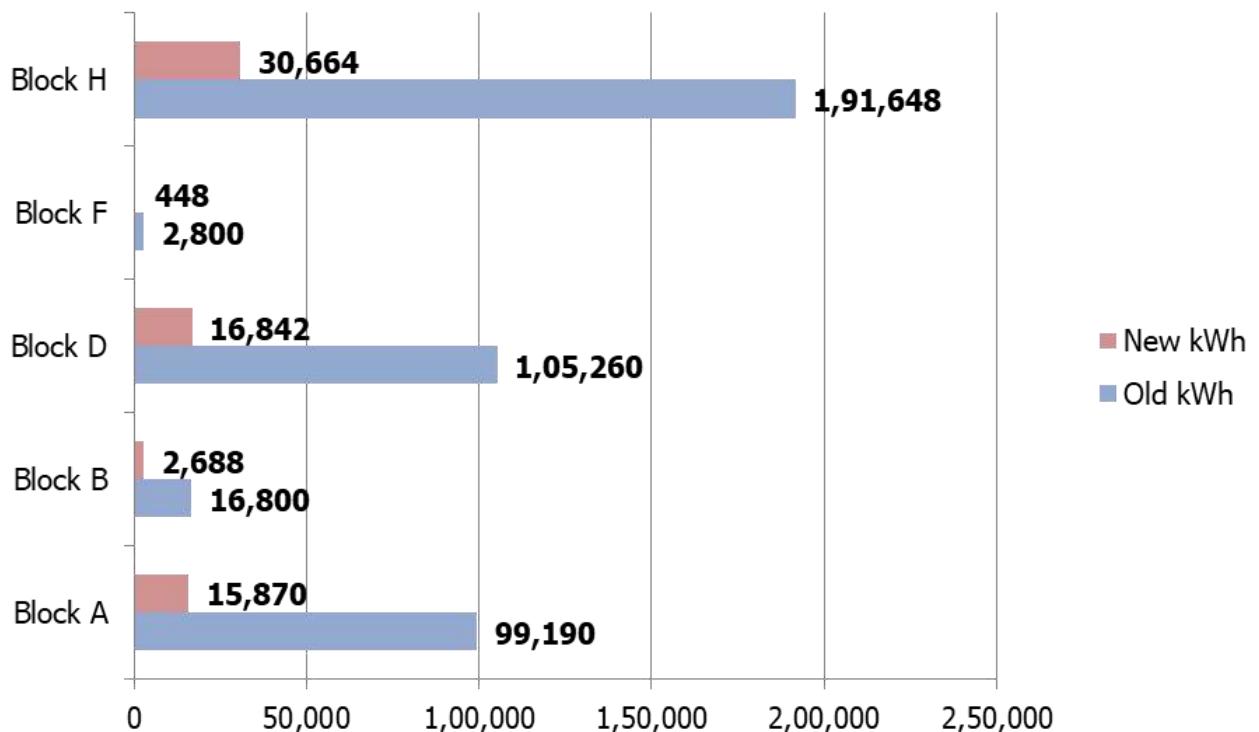
The above analysis shows reduction of average of **46% reduction** in energy consumption if replaced with energy efficient appliance.

It will be suggested to either replace these now if College can have certain plans else the replacement can be done when fans get damaged or are not in working condition.

4.12.2 Equipment

Among all equipment it suggested to replace the desktop computers with laptops as this would be energy efficient. A normal desktop computer consumes on an average 250W and it is to be connected all time when it has to be used. On the contrary a laptop consumes 40W and has a battery backup which lasts up to 4 hours.

The following table shows a comparison of the current consumption and consumption of the **32 desktop computers** if replaced with laptops.

*Figure 23: Analysis of current computers and new laptops*

The above analysis shows reduction of average of **84% reduction** in energy consumption if replaced with energy efficient appliance.

It will be suggested to either replace these now if College can have certain plans else the replacement can be done when the devices get damaged or are not in working condition.

5. Towards a Healthy & Sustainable Institution

5.1 Inputs by Greenvio Solutions

Based on the analysis of the study of premises in addition to the recommendations provided in each section of Ecological, Water, Waste and Energy Audit the College can adopt the following strategies towards a Healthy and Sustainable Institution practices.

a) **Kitchen garden and diet canteen -** There can be provision of kitchen garden practices in a designated area of the open space this would enhance the biodiversity and be useful in training students and staff about the healthy practices and vegetables grown which would be used in Canteen. It helps in capacity building. The smaller steps taken have huge impacts when each student would adopt these practices in their homes or societies and grow kitchen garden, terrace garden there will be a long term benefit for the environment as a whole. The College can be one of the first Institutes in the country to have a healthy & nutritious Canteen following which a Research paper can be written by the Green Building Consultant. This would create awareness and encourage other Institutes to adopt similar practice.

b) **Cutlery in the Canteen –** The regular plastic and steel plates, spoons used in Canteen can be replaced with eco-friendly and organic leaves, paper straw, disposable plates, edible spoons and tables made out of sugarcane waste or bamboo. This will be first of its kind initiative to be adopted and practiced thus also inculcating the healthy practices in students.

c) **Waste vio –** Stepping up a little further an initiative can be undertaken wherein College can tie up with an organisation and students can be encouraged to collect dry waste and electronic waste such as newspapers, old computers and others and hand over to organisation on a weekly or monthly basis thereby making a waste reduction approach in the community. This has benefits such as awareness, eco-friendly habits in becoming a responsible citizen.

d) **Signages –** In addition to the signages being in regular language there can be additional signages in braille language for the specially abled students.

5.2 Survey Recommendations

An online survey was conducted to analyse the student and staff views about what changes according to you can be undertaken for Green audit improvement in College premise and activity, some of the key responses are listed below. Whereas many responses **stated there were no changes requires because the present practices are excellent.**

Some of the positive responses are listed as follows:

- No additional suggestions

- Well maintenance of plants and solar energy systems are the main key expect in others institute is good

- None, our institute is perfect

- Everything is very nice in terms of environmental factors

- Everything has been fine in institute. A silent nature perfect for learning and good habitat of students. Changes which should be done in walking and vehicle ways.

- Nothing because our institute is doing their best.

Some of the suggestions by the Students and staff are listed below:

- Water management

- Rain harvesting

- Voluntarily participation in Prakruti Club and awareness about club

- Webinar by experts, Qualified & hardworking gardening staff. Awareness through culture program

- Smart bulbs can be implemented

- Try to minimise the water wastage from toilets and use the same waste water for gardening or as flush water

- Free PUC check-up for all the vehicles coming to college premises

- Small plants can be planted in pot and hang near the edge of premises

- Quizzes about the environment

- Need to have a plant for waste water utilisation.

- Student innovative projects on waste management

- Vehicle free campus

- Natural Resources Management

- Plant more trees and Make one Flower garden

- Built more advanced classroom

- The students can be encouraged to focus on the environment through their projects and assignments. Organisation of awareness programmes and internship programmes can be adopted.

- Tree plantation camping in Alandi

- Better drinking water facilities. Lifts in each building.

- Regular remainder in form of social media post may increases the awareness

- Lights can be kept on sensors which detect movement and auto switch off

- More space can be utilised for plantation purpose, classrooms and open spaces may be more equipped with dustbins preferably for separation of wet and dry waste, students and staff may be voluntarily roped in to assist for regular plantation and cleanliness activities by making a space in their scheduled activities on the premises.

However, it should be noted that the College has taken up multiple initiatives and because of Pandemic the students have not practically visited the campus so many of these points are not mandatory at the moment.

6. References

1. Uniform Plumbing Code – India, 2008

2. IGBC Green Existing Buildings – Operation & Maintenance (O&M) Rating system, Pilot version, Abridged Reference Guide, April 2013

3. IGBC Green Landscape Rating system, March 2013

4. BOMA Canada Waste Auditing Guide, Best Environmental Standards, BOMA BEST - Canada

5. Climate data https://en.climate-data.org/asia/india/maharashtra/pune-31/

6. Used only for understanding Universal design - Universal accessibility Guidelines for Pedestrian, Non-motorizes vehicle and Public Transport Infrastructure – Report guidelines by Samarthyam (National centre for Accessible Environments) – an initiative supported by Shakti Sustainable Energy Foundation.

7. Annexure

The following analysis was shared by Electrical Dept. of MITAOE

Details for the Academic year 2019-20

	Detail Campus wide Bill Analysis	Apr '19	May '19	June '19	July '19	Aug '19	Sept'19	Oct' 19	Nov' 19	Dec' 19	Jan' 2020	Feb' 2020	March' 2020
MSEDCL Bill	Billed Units (kWh) (less by Exported)	7324	6388	4284	4208	6330	9450	6122	6978	6050	6298	6418	4620
	Max Demand (KVA)	143	92	99	77	102	8	122	137	100	82	91	51
	pf	0.997	0.998	0.993	0.984	0.986	0.945	0.985	0.987	0.989	0.988	0.987	0.983
	Billed Amount Paid to MSEDCL	-91140.00	-25660.00	124330.00	150070.00	175280.00	217460.00	178050.00	194460.00	181000.00	185510.00	188650.00	161518.00
Solar Data	Gross Solar Billed Amount	372775.00	400388.00	209019.00	243156.00	213638.00	218006.00	260331.00	256688.00	226788.00	283066.00	281216.00	346856.00
	Gross Solar Units Generated	59188	61685	33443	38905	34182	32852	39859	41118	34791	44002	44448	54850
	Solar Units Exported to Grid	22624	30706	17276	14046	10456	9348	18946	16412	16206	22348	21824	36986
	Solar Units Consumed by College	36564	30979	16167	24859	23726	23504	20913	24706	18585	21654	22624	17864
	Sol.Units Adjusted in MSEDCL Bill (U2U)	15630	12670	11696	11518	17562	18552	16146	16342	15678	14596	14750	11120
Total Units/ Bill	Total Energy Consumption of Campus (100%)	43888	37367	20451	29067	30056	32954	27035	31684	24635	27952	29042	22484
	Total Billed Amount (MSEDCL + Solar)	2,81,635	3,74,728	3,33,349	3,93,226	3,88,918	4,35,466	4,38,381	4,51,148	4,07,788	4,68,576	4,69,866	5,08,374
	Expected bill with MSEDCL only	7,75,057	6,81,859	4,33,928	5,83,186	5,45,974	5,75,190	5,19,133	6,06,085	4,96,364	5,54,471	5,77,987	4,68,186
% Energy	% MSEDCL Consumption	16.69	17.10	20.95	14.48	21.06	28.68	22.64	22.02	24.56	22.53	22.10	20.55
	% Solar Consumption	83.31	82.90	79.05	85.52	78.94	71.32	77.36	77.98	75.44	77.47	77.90	79.45
	Expected bill with MSEDCL only	775056.89	681858.97	433927.58	583185.80	545973.83	575189.94	519132.81	606085.04	496363.86	554471.37	577986.67	468186.24
Savings	Saving in Rs.	493421.89	307130.97	100578.58	189959.80	157055.83	139723.94	80751.81	154937.04	88575.86	85895.37	108120.67	-40187.76
	% Savings due to Solar Plant	63.66	45.04	23.18	32.57	28.77	24.29	15.56	25.56	17.84	15.49	18.71	-8.58
Unit Rate	Rs/Unit (Overall MSEB Bill only)	-12.44	-4.02	29.02	35.66	27.69	23.01	29.08	27.87	29.92	29.46	29.39	34.96
	Rs/Unit (Overall Campus, All Energy)	6.42	10.03	16.30	13.53	12.94	13.21	16.22	14.24	16.55	16.76	16.18	22.61

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Details for the Academic year 2020-21

	Detail Campus wide Bill Analysis	April' 20	May '20	June '20	July '20	Aug '20	Sept'20	Oct' 20	Nov' 20	Dec' 20	Jan' 2021	Feb' 2021	March' 21	April' 21
MSEDCL Bill	**Billed Units (kWh) (less by Exported)**	2817	2646	2547	2961	3210	3134	3267	3066	2930	3219	2806	3047	2929
	Max Demand (KVA)		55	55	55	39	56	50	43	56	43	45	63	48
	pf	0.999	0.988	0.973	0.984	0.987	0.984	0.982	0.981	0.976	0.976	0.976	0.978	0.986
	Billed Amount Paid to MSEDCL	161518.00	161518.00	142760.00	142760.00	147350.00	146310.00	148130.00	145380.00	144830.00	147580.00	141940.00	147040.00	157732.00
Solar Data	**Gross Solar Billed Amount**	311963.00	313219.00	203931.25	210750.00	164637.50	233806.25	210612.50	241300.00	261556.00	267288.00	290269.00	289088.00	310244.00
	Gross Solar Units Generated	49914	50115	32629	33720	26342	37409	33698	38608	39425	41974	45194	46254	49639
	Solar Units Exported to Grid	40820	40070	24390	23878	16046	26802	22970	29018	27878	26606	30718	29870	37172
	Solar Units Consumed by College	9094	10045	8239	9842	10296	10607	10728	9590	11547	15368	14476	16384	12467
	Sol.Units Adjusted in MSEDCL Bill (U2U)	6960	7114	6272	7496	8190	7292	8122	7256	7778	8576	6976	7738	7262
Total Units/ Bill	**Total Energy Consumption of Campus (100%)**	11911	12691	10786	12803	13506	13741	13995	12656	14477	18587	17282	19431	15396
	Total Billed Amount (MSEDCL + Solar)	4,73,481	4,74,737	3,46,691	3,53,510	3,11,988	3,80,116	3,58,743	3,86,680	4,06,386	4,14,868	4,32,209	4,36,128	4,67,976
	Expected bill with MSEDCL only	3,34,145	3,55,637	3,18,833	3,36,359	3,42,933	3,49,588	3,49,923	3,30,342	3,74,305	4,39,922			
% Energy	**% MSEDCL Consumption**	23.65	20.85	23.61	23.13	23.77	22.81	23.34	24.23	20.24	17.32	16.24	15.68	19.02
	% Solar Consumption	76.35	79.15	76.39	76.87	76.23	77.19	76.66	75.77	79.76	82.68	83.76	84.32	80.98
	Expected bill with MSEDCL only	334145.47	355637.46	318832.59	336359.25	342933.38	349588.23	349923.03	330341.64	374304.64	439921.87	429035.50	463732.02	409823.99
Savings	**Saving in Rs.**	-139335.53	-119099.54	-27858.66	-17150.75	30945.88	-30528.02	-8819.47	-56338.36	-32081.36	25053.87	-3173.50	27604.02	-58152.01
	% Savings due to Solar Plant	-41.70	-33.49	-8.74	-5.10	9.02	-8.73	-2.52	-17.05	-8.57	5.70	-0.74	5.95	-14.19
Unit Rate	Rs/Unit (Overall MSEB Bill only)	57.34	61.04	#REF!	48.21	45.90	46.68	45.34	47.42	49.43	45.85	50.58	48.26	53.85
	Rs/Unit (Overall Campus, All Energy)	39.75	37.41	32.14	27.61	23.10	27.66	25.63	30.55	28.07	22.32	25.01	22.44	30.40

ENVIRONMENT AUDIT 2019-21

AUDIT REPORT

Studied for

Maharashtra Academy of Engineering and Educational Research's (MAEER)

MIT Academy of Engineering

Alandi, Pune - 412 105

Analysed by

Greenvia
Solutions

23 October 2021

Disclaimer

Green Audit Team has prepared this report for **Maharashtra Academy of Engineering and Educational Research's (MAEER), MIT Academy of Engineering, Alandi, Pune - 412 105** based on input data submitted by the College analysed by the team to the best of their abilities.

The details have been consolidated and thoroughly studied as per the various guidelines for Green Buildings available in National and International Standards; the report has been generated based on comparative analysis of the existing facilities and the prerequisites formulated by various standards. The inputs derived are a result of the inspection and research. These will further enhance and develop a Healthy and Sustainable Institution.

These can be implemented phase wise or as a whole depending on the decision taken by the Hon'ble Management and College. The warranty or undertaking, expressed or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

The audit is a thorough study based on the inspection and on-site investigation of data collected over a period of time and should not be used for any legal action. This is the property of Greenvio Solutions and should not be copied or regenerated in any form.

The Report is prepared by the Team of Greenvio Solutions under their brand and department – Sustainable Academe as Consultancy firm along with Ar. Nahida Shaikh as an Accredited Green Building Professional.

Greenvio Solutions

Developing Healthy and Sustainable Environments
We are an Environmental and Architectural Design Consultancy firm
Sustainable Academe is our department for conducting Audits
Palghar District, Maharashtra- 401208
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Acknowledgement

Green Audit Assessment Team thanks the **Maharashtra Academy of Engineering and Educational Research's (MAEER), MIT Academy of Engineering, Alandi, Pune** for assigning this important work of Green Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are due to **Rev. Prof. Dr. Vishwanath D. Karad, Founder & President,** Maharashtra Academy of Engineering and Educational Research (MAEER), Pune, India; **Hon. Shri. Rahul V. Karad, Executive President;** Maharashtra Academy of Engineering and Educational Research (MAEER), Pune, India**; Dr. Sunil Karad, Executive Director,** Treasurer & Trustee MIT Group of Institutions, Pune, India and everyone from the Management.

Our heartfelt thanks to Chairperson of the entire process **Dr. Mahesh D Goudar,** Director and **Prof. S. M. Bhagat,** Registrar, MIT Academy of Engineering for their valuable inputs.

The kind gesture for the inventory and excellent coordination of **Dr. Sandeep Shewale,** IQAC and Chief Coordonator is quite commendable.

We are also thankful to **College's Task force the faculty members** who have collected data required **Admin team -** Coordinator: **Vijay Pingale;** Non-teaching Admin: **Carmel Pilley and Vandana Khandelwal. Energy team -** Coordinator: **Satish Kabra;** Non-teaching staff: **Babaji Badhekar, Mahesh. Water team -** Coordinator: **Amol Kapse;** Non-teaching staff: **Sunil Dewalwal, Dilip Chavan. Waste team -** Coordinator: **Vinod Pakhale;** Non-teaching: **Bhaiyyasaheb Ahire, Shivaji Munde, Mayuri Munot. Ecological team -** Coordinator: **Sumit Patil;** Non-teaching staff **Venketesh Karad, Rajshree Kaktikar. AV (Audio visual) team -** Coordinator: **Milind Asmar;** Non-teaching staff: **Maruti Khandekar** and **Mr. Sunil Jadhav.**

We highly appreciate the assistance of **Sandip Nikam, Assistant – Student section** for their support while collecting the data.

Sustainable Academe
Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208

Contents

1. Introduction

1.1   About MIT Academy of Engineering (MITAOE)

It was established in 1999 under MAEER by the honorable Prof. Dr. Vishwanath D. Karad, Founder and Executive President of MIT Group. The institute offers seven UG programs (B.Tech) and three PG programs (M.Tech). Recently, the UGC has honored the institute with 'Academic Autonomy' considering the quality of pedagogical practices, research, faculty and the state-of-the-art infrastructure that meets global standards.

The Savitribai Phule Pune University (SPPU) has honored the institute with the 'Best Engineering College (Professional Courses) award. The institute has made its mark by excelling in academics and research and it continues to grow as a **'Centre of Excellence'** in engineering education and research.

The NBA Accreditation to all branches, 'A' Grade by NAAC and the 2(F) & 12(B) status from the UGC, are the testimony to their pursuit of excellence.

Learning-centered approach, personal attention to all the students and effective implementation of their valuable suggestions received through the continual feedback mechanism and 'Student Teacher Interaction pedagogy', makes the teaching & learning process more effective.

Selection and retention of the most efficient and talented staff members to enhance the quality of education and administration, is their key to success. A special emphasis is laid on their quality improvement by sponsoring the staff members for pursuing research and higher studies. Another significant feature is the **'Tutor System for Counselling'.**

The Institute endeavours to impart holistic education to its students in order to contribute to their all-round development. The students at MITAOE get an opportunity to not only enhancing their technical skills but also their communication and soft skills.

The Institute is committed for their bright future and hence facilitate them to realize their dreams.

1.2   About MITAOE as an Autonomous Institute

MITAOE is only the third institute in Pune which has been bestowed with 'academic autonomy' by the University Grants Commission (UGC). Academic autonomy is granted only to those institutes that are accredited by NAAC with 'A' grade for all programs. Besides, the institute should also have the 2(F) & 12(B) status of the UGC. This exemplifies that the 'academic autonomy' is awarded only to the best institutes. Only those institutes that persistently excel in every aspect of quality education are bestowed with autonomy. Under autonomous status an institute remains affiliated to the University but gets freedom to design the advanced & industry-oriented syllabi, decide the modes of instruction & evaluation, and conduct examination and assessment of papers. The degree though, is awarded by the University. There are many advantages of academic autonomy for all stakeholders of the institute.

- Updated and contemporary syllabi; flexibility in updating as per industry needs.

- Innovative approaches to teaching and learning; skill-based education.

- Interdisciplinary approaches in academics and research.

- A wide range of subjects to choose from.

- Opportunities for collaborations with reputed foreign & national universities and companies.

- Better placement opportunities.

- Support for higher education in India and abroad.

- Internships and scholarships for projects.

- Guest lectures and training programs by eminent experts from academia and industry.

Thus, academic autonomy opens the doors for excellence in education, research and administration. The students earning their degrees from an autonomous institute have an extra edge which guides them to achieve success in any future endeavours; be it placements in reputed national and multinational companies, entrepreneurship or higher education in renowned Indian or international institutes. MITAOE, as an autonomous institute, strives to make a huge difference by creating winning personalities and catering to the all-round development of its students.

1.3   Vision and Mission Statement of College

Our Vision – To develop MITAOE into a new-age learning center with an excellent ambiance for academics and research conjugated with a vibrant environment for honing the extra and curricular skills of all its stakeholders, to enable them to solve real-world problems and bring a positive change in the society.

Our Mission – To leave no stone unturned in our endeavour to ensure that every alumnus looks back at us and says MITAOE has not merely taught me, it has educated me.

1.4   Institution and the surrounding premises

The Premises is situated amidst the landscape serene of the **Alandi, Pune** with immense peace and calmness in the surroundings. The college is surrounded by Residential areas on all sides. There is a frontal approach which provides quite a beautiful appreciation space while approaching the premise. The location of college is feasible to the nearby essential amenities such as Public Health Center, Fire Station, Civic body-Public administrative buildings, Recreational gardens and Police Station. The details of various Institutions in the premise are as follows, there are modifications going on in the premise to expand the Infrastructure.

The aim of the college is to be a leading educational institute to create leaders, and innovators for contributing towards the industrial, economic, and social growth of the society.

It continuously enhances the teaching methods in order to provide students with an opportunity for their all-round development. **It strives for excellence in Holistic development for Students with a balanced Educational Environment.** It makes an effort to induce passion for learning along with the inspiration for decisive thinking and assessment, thereby helping them to become the best professionals in life. The institution offers the following courses as an Autonomous entity.

Name of the School	Courses provided	Name of the HOD/ Director	Approx. students
School of Chemical Engineering	B Tech (Chemical Engineering)	M Senthilkumar	250
School of Electrical Engineering	B Tech (Electronics Telecomunication Engineering)	Dr Dipti Sakhare	500

	B Tech (Electronics Engineering)		
	M Tech (VLSI and EMBEDDED)		
School of Computer Engineering and Technology	B Tech (Computer Engineering)	Mrs R R Badre	700
	B Tech (Information Technology)		
	M Tech (Computer Engineering)		
School of Mechanical & Civil Engineering	B Tech (Mechanical Engineering)	Dr P R Hatte	700
	M Tech (Mechanical Engineering)		
	B Tech (Civil Engineering)	Mr Atif Shaikh	250
First Year Engineering	First year	Mrs Prabha Kasliwal	700

Table 1: Educational Details of the courses offered by the Institution

The College aspires at training young women and men to be competent, committed and compassionate and lead in all walks of life. It has the following objectives.

1. To provide a professional and liberal education to students with guiding principle of a broad and strong foundation, a skillful training and a practical orientation towards solving real-world problems.

2. To improve research publications and its impact.

3. Develop and offer skill-based programs to cater student's requirements from career point of view.

4. Provide exposure to the students in technical, cultural, recreational and sports domain.

5. Enhance alumni involvement in curricular and co-curricular activities.

6. To encourage faculty for lifelong learning.

7. Improve the quality of students intake.

8. To encourage and support students and youngsters to opt for entrepreneurship as a career opportunity.

9. Build an e-learning infrastructure for online & on campus courses.

10. To directly work with the society and community needs.

1.5   Assessment of the College

The College is recognised as an Autonomous Institute, below mentioned are the administrative details of the Institute.

Affiliations - The institution is affiliated to <u>Savitribai Phule Pune University (SPPU), Pune</u>

Recognitions - University Grant Commission (UGC) by 2(f) 12(b)

Approval - It is approved by All India Council of Technical Education (AICTE), New Delhi

Certifications - It has received the Certificate of Quality System Assessment (ISO 9001:2015)

Accreditation - The following are details of the reaccreditation of the Institute.

Cycle	First
CGPA	3.13
Grade	A
Year	2014

Table 2: NAAC Accreditation details of the Institute

1.6   Awards of the College

Savitribai Phule Pune University (SPPU) has honoured the institute with the 'Best Engineering College (Professional Courses) award in the year 2014

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद

विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

An Autonomous Institution of the University Grants Commission

Certificate of Accreditation

The Executive Committee of the
National Assessment and Accreditation Council
on the recommendation of the duly appointed
Peer Team is pleased to declare the
MIT Academy of Engineering
Alandi, Pune, affiliated to University of Pune, Maharashtra as
Accredited
with CGPA of 3.13 on four point scale
at A grade
valid up to September 23, 2019

Date : September 24, 2014

Director

EC(SC)/03/A&A/54

NAAC Accreditation Certificate

Greenvio
Solutions

CERTIFICATE

Certificate Number: **3770177**

This is to certify that

MIT ACADEMY OF ENGINEERING
Dehu Phata, Alandi (D),
Tal. Khed, Pune,
Maharashtra - 412 105, India.

has implemented and maintains a **Quality Management System**

with

Scope : **Designing Curriculum and Imparting Education** leading to Graduation in the disciplines of Chemical Engineering, Civil Engineering, Computer Engineering, Electronics Engineering, Electronics & Telecommunication Engineering, Information Technology, and Mechanical Engineering, and Post Graduation in Computer Engineering, Electronics & Telecommunication Engineering and Mechanical Engineering being an academic autonomous institute affiliated to Savitribai Phule Pune University.

that meets the requirements of the standard:

ISO 9001:2015

Quality Management Systems – Requirements

The file that forms the basis of this certificate: 3770177

Date of Initial Certification	: **September 11, 2009**
Date of Transition	: **September 12, 2018**
Date of Current Revision	: **October 27, 2018**
Certification Expiry Date	: **October 26, 2021**

K. G. Garg

K.G. Garg
Chairman & Chief Executive
NVT QUALITY CERTIFICATION PVT. LTD.
CAP-1, EPIP, Near ITPL,
Whitefield, Bangalore - 560 066
India
website: www.nvtquality.com

ANAB IS A MEMBER OF INTERNATIONAL ACCREDITATION FORUM (IAF).

Note: Please verify current validity of certificate from NVT Quality Certification Pvt. Ltd.,

Greenvio
Solutions

2. Institution overview

2.1 Populace analysis for Academic year 2019-20

2.1.1 Students data macro level

The student data (shared by the College) shows there are total of **3,036** students occupying the premises out of which Boys form the majority of **2,260** in numbers.

Figure 1: Summary of the students in Academic year 2019-20

The above graph shows **boys occupied 74%** as compared to **girls 26%**

2.1.2 Department wise Student data micro level

S. No.	Department	Male	Female	Total
1	Chemical Engineering	174	76	250
2	Civil Engineering	180	61	241
3	Computer Engineering	452	150	602
4	Electronics Engineering	128	48	176
5	Electronics and Telecommunication Engineering	392	165	557
6	Information Technology	223	88	311
7	Mechanical Engineering	692	182	874
8	M.Tech - First year	3	0	3
9	M.Tech - Second Year	16	6	22

Table 3: Department wise student bifurcation 2019-20

2.1.3 Staff data macro level

| Type	Male	Female	Total
Faculty	129	42	171
Staff	137	58	195
Total	**266**	**100**	**366**

Table 4: Staff data of the Institution for 2019-20

The staff data shows the premise has a total of **366** staff members.

2.2 Populace analysis for Academic year 2020-21

2.1.1 Students data macro level

The student data (shared by the College) shows there are total of **2,862** students occupying the premises out of which Boys form the majority of **2,144** in numbers.

Figure 2: Summary of the students in Academic year 2020-21

The above graph shows **boys occupied 75%** as compared to **girls 25%**

2.1.2 Department wise Student data micro level

S. No.	Department	Male	Female	Total
1	Chemical Engineering	157	76	233
2	Civil Engineering	175	63	238
3	Computer Engineering	441	135	576

4	Electronics Engineering	109	43	152
5	Electronics and Telecommunication Engineering	371	149	520
6	Information Technology	215	74	289
7	Mechanical Engineering	678	168	846
8	M.Tech - First year	3	5	8
9	M.Tech - Second Year	0	0	0

Table 5: Department wise student bifurcation 2020-21

2.1.3 Staff data macro level

Type	Male	Female	Total
Faculty	105	46	151
Staff	164	50	214
Total	**269**	**96**	**365**

Table 6: Staff data of the Institution for 2020-21

The staff data shows the premise has a total of **365** staff members.

2.3   Total Institute Area & College Building Spread Area

The total site area is 8.33 acres and total built-up area is 2,38,915 sq. ft. for approx. 3,228 footfalls.

2.4   Institute Infrastructure

2.4.1 Establishment

The Society was formed in 1983 and today it **the MITAOE a name to reckon with in the field of Engineering Education and boasts of an infrastructure and standard of education which is one of the best in the country.** It is **an Autonomous entity.**   The Building is a Reinforced Cement Concrete (RCC) framework building. **Overall the Infrastructure of the Building is excellent in terms of the Architecture Design and Green Building Design. The Premise covers quite a few of the requirements for a Green Habitat.**

2.4.2 Spatial Organisation

The overall ambience of the College is warm and inviting. The classrooms and other spaces have ample natural ventilation in the form of clear glass windows with fresh air ventilation. The architecture of the building is quite well designed. The colour palette not just helps the building to stand out but also provides an Institutional arena. It balances with the local architecture with the natural landscapes of huge trees all around. The design emphasis on providing calmness to the built form and gradually merges with the serene landscape.

The floor to floor height is more than 10 feet. There is provision for lift in one block in the premise, there are with CCTV, Fire extinguishers, first aid box and amenities such as courtyards, libraries, serene landscape, open areas, gardens.

2.4.2.1   Building wise details

The Building wise details on the MITAOE premise are mentioned below:

S. No.	Name of the School	Building No.	Constructed in	Nos. of floor	Built-up area sq. m
1	CHEM+ETX+IT	A	1999	G+2	3620.01
2	CHEM+CIVIL	B	1999	G	719.3
3	OTHER FACILITIES	C	1999	G	76.87
4	FY+ETX+ETC	D	2006	B+G+3	3958.56
5	FY+ADMIN	D -EXT	2015	B+G+3	1477.48
6	HOSTEL	E	2004	G+3	5061.68
7	WORKSHOP	F	2008	G+M	1111.01
8	CIVIL+MECH+COMP	H	2007	B+G+3	6171.95

Table 7: Building wise detail in the premise

2.4.2.2   Room-wise details

The room-wise details are mentioned below:

S. No	Room No.	Room Name	Department	Section	Floor	Building Block
1	A-001	Dean Office	Chemistry	MITAOE	Ground floor	Block A
2	A-002	Dept. Office	Chemistry	MITAOE	Ground floor	Block A
3	A-003	Laboratory	ETC	MITAOE	Ground floor	Block A
4	A-004	Toilet	COMMON	MITAOE	Ground floor	Block A
5	A-005	Laboratory	FY	MITAOE	Ground floor	Block A
6	A-006A	Laboratory	CHEM	MITAOE	Ground floor	Block A
7	A-006B	Tutorial Room	CHEM	MITAOE	Ground floor	Block A
8	A-007	Conference Room	COMMON	MITAOE	Ground floor	Block A
9	A-008	Laboratory	CHEM	MITAOE	Ground floor	Block A

10	A-009	Classroom	CHEM	MITAOE	Ground floor	Block A
11	A-010	Classroom	CHEM	MITAOE	Ground floor	Block A
12	A-011	Toilet	COMMON	MITAOE	Ground floor	Block A
13	A-012	Laboratory	ETX	MITAOE	Ground floor	Block A
14	A-013	Laboratory	ETX	MITAOE	Ground floor	Block A
15	A-014	Dean FSA	COMMON	MITAOE	Ground floor	Block A
16	A-101	Dean Office	SEE	MITAOE	First floor	Block A
17	A-102A	Dept. Office	ETC	MITAOE	First floor	Block A
18	A-102B	Tutorial Room	ETC	MITAOE	First floor	Block A
19	A-103	Laboratory	ETC	MITAOE	First floor	Block A
20	A-104	Toilet	CPMMON	MITAOE	First floor	Block A
21	A-105	Classroom	ETC	MITAOE	First floor	Block A
22	A-106	Classroom	ETC	MITAOE	First floor	Block A
23	A-107	Laboratory	ETC	MITAOE	First floor	Block A
24	A-108	Laboratory	ETX	MITAOE	First floor	Block A
25	A-109	Laboratory	ETC	MITAOE	First floor	Block A
26	A-110	Laboratory	ETC	MITAOE	First floor	Block A
27	A-111	Toilet	common	MITAOE	First floor	Block A
28	A-112	Classroom	ETC	MITAOE	First floor	Block A
29	A-113	Classroom	ETC	MITAOE	First floor	Block A
30	A-201A	Laboratory	ETX	MITAOE	Second floor	Block A
31	A-201B	Tutorial Room	ETX	MITAOE	Second floor	Block A
32	A-202	Laboratory	ETC	MITAOE	Second floor	Block A
33	A-203	Toilet	COMMON	MITAOE	Second floor	Block A
34	A-204	Ladies Room	COMMON	COMMON	Second floor	Block A
35	A-205	Language Laboratory	COMMON	COMMON	Second floor	Block A
36	A-206A	Registrar Office	ADMIN	MITAOE	Second floor	Block A
37	A-206B	Faculty Room	IT	MITAOE	Second floor	Block A
38	A-207A	Laboratory	IT	MITAOE	Second floor	Block A
39	A-207B	Laboratory	IT	MITAOE	Second floor	Block A
40	A-207C	Laboratory	IT	MITAOE	Second floor	Block A
41	A-207D	Laboratory	IT	MITAOE	Second floor	Block A
42	A-208	Laboratory	ETX	MITAOE	Second floor	Block A
43	A-209	Laboratory	ETX	MITAOE	Second floor	Block A
44	A-210	Laboratory	ETX	MITAOE	Second floor	Block A
45	B-001	Laboratory	CIVIL	MITAOE	Ground floor	Block B
46	B-002	Laboratory	CHEM	MITAOE	Ground floor	Block B
47	B-003	Laboratory	CHEM	MITAOE	Ground floor	Block B
48	B-004	Laboratory	CHEM	MITAOE	Ground floor	Block B
49	B-005	Laboratory	CHEM	MITAOE	Ground floor	Block B
50	B-006A	Laboratory	CHEM	MITAOE	Ground floor	Block B
51	B-006B	Laboratory	CHEM	MITAOE	Ground floor	Block B
52	B-007	CANTEEN	COMMON	MITAOE	Ground floor	Block B
53	C-1	ATM	COMMON	COMMON	Ground floor	Block C

54	C-2	Store	COMMON	COMMON	Ground floor	Block C
55	C-3	Housekeeping	ADMIN	COMMON	Ground floor	Block C
56	C-4	Maintenance	ADMIN	COMMON	Ground floor	Block C
57	D-001A	Director's Office	ADMIN	COMMON	Ground floor	Block D
58	D-001B	Board Room	ADMIN	COMMON	Ground floor	Block D
59	D-002	HR Dept.	ADMIN	COMMON	Ground floor	Block D
60	D-003	Faculty Room	FY	COMMON	Ground floor	Block D
61	D-004	Ladies Toilet	COMMON	MITAOE	Ground floor	Block D
62	D-005	Gents Toilet	COMMON	MITAOE	Ground floor	Block D
63	D-006	Classroom	MECH	MITAOE	Ground floor	Block D
64	D-007	Classroom	MECH	MITAOE	Ground floor	Block D
65	D-008	Classroom	IT	MITAOE	Ground floor	Block D
66	D-009	Classroom	IT	MITAOE	Ground floor	Block D
67	D-010	Classroom	MECH	MITAOE	Ground floor	Block D
68	D-011	Seminar Hall	COMMON	DESIGN	Ground floor	Block D
69	D-013	Reception Area	ADMIN	COMMON	Ground floor	Block D
70	D-101	Computer Center	COMMON	COMMON	First floor	Block D
71	D-102	Seminar Hall	COMMON	MITAOE	First floor	Block D
72	D-103	T.P.Officer	ADMIN	COMMON	First floor	Block D
73	D-104	Laboratory	FY	MITAOE	First floor	Block D
74	D-105	Laboratory	ETC	MITAOE	First floor	Block D
75	D-106	Laboratory	ETC	MITAOE	First floor	Block D
76	D-107A	Laboratory	IT	MITAOE	First floor	Block D
77	D-107B	Laboratory	IT	MITAOE	First floor	Block D
78	D-108	Classroom	ETX	MITAOE	First floor	Block D
79	D-109	Class Rooms	FY	MITAOE	First floor	Block D
80	D-201	Library & Reading Room	COMMON	COMMON	Second floor	Block D
81	D-202	Classroom	ETX	MITAOE	Second floor	Block D
82	D-203	Class Rooms	FY	MITAOE	Second floor	Block D
83	D-301A	Tutorial Rooms - PG	ETX	MITAOE	Third floor	Block D
84	D-301B	Laboratory	ETX	MITAOE	Third floor	Block D
85	D-302	Research Laboratory	ETX COMP	MITAOE	Third floor	Block D
86	D-303	Gents Toilet	COMMON	MITAOE	Third floor	Block D
87	D-304	Ladies Toilet	COMMON	MITAOE	Third floor	Block D
88	D-305	Classroom	ETC	MITAOE	Third floor	Block D
89	D-306	Laboratory	ETX	MITAOE	Third floor	Block D
90	D-307	Classroom	ETC	MITAOE	Third floor	Block D
91	D-308	Classroom	ETX	MITAOE	Third floor	Block D
92	D-309	Classroom	CHEM	MITAOE	Third floor	Block D
93	D-310	Class Rooms	FY	MITAOE	Third floor	Block D
94	DBM-01	Central Store	ADMIN	COMMON	Basement	Block D
95	DBM-02	Office All	ADMIN	COMMON	Basement	Block D

		Inclusive				
96	DBM-03	Student Section	ADMIN	COMMON	Basement	Block D
97	DBM-04	Exam Dept.	ADMIN	COMMON	Basement	Block D
98	DBM-05	COE Office	ADMIN	COMMON	Basement	Block D
99	F-001	Workshop	CIVIL/CHEM	MITAOE	Ground floor	Block F
100	F-002	Workshop	FY	MITAOE	Ground floor	Block F
101	F-003	Drawing Hall	MECH	MITAOE	Ground floor	Block F
102	F-004	Workshop	MECH	MITAOE	Ground floor	Block F
103	F-005	Workshop	MECH	MITAOE	Ground floor	Block F
104	F-007	Tutorial Room	DESIGN	DESIGN	Ground floor	Block F
105	F-008	Tutorial Room	DESIGN	DESIGN	Ground floor	Block F
106	F-009	Tutorial Room	DESIGN	DESIGN	Ground floor	Block F
107	F-010	Tutorial Room	DESIGN	DESIGN	Ground floor	Block F
108	F-101A	Tutorial Room	MECH	MITAOE	Ground floor	Block F
109	F-101B	Tutorial Room	MECH	MITAOE	Ground floor	Block F
110	H-001A	Laboratory	MECH	MITAOE	Ground floor	Block H
111	H-001B	Tutorial Room	MECH	MITAOE	Ground floor	Block H
112	H-002	Laboratory	MECH	MITAOE	Ground floor	Block H
113	H-003	Toilet	COMMON	MITAOE	Ground floor	Block H
114	H-004	Toilet	COMMON	MITAOE	Ground floor	Block H
115	H-005A	Laboratory	MECH	MITAOE	Ground floor	Block H
116	H-005B	Laboratory	MECH	MITAOE	Ground floor	Block H
117	H-006	Dean Office	SMCE	MITAOE	Ground floor	Block H
118	H-007	Laboratory	MECH	MITAOE	Ground floor	Block H
119	H-008	Laboratory	MECH	MITAOE	Ground floor	Block H
120	H-009	Laboratory	MECH	MITAOE	Ground floor	Block H
121	H-010	Classroom	MECH	MITAOE	Ground floor	Block H
122	H-011	Classroom	MECH	MITAOE	Ground floor	Block H
123	H-012	Laboratory	MECH	MITAOE	Ground floor	Block H
124	H-101	Classroom	MECH	MITAOE	First floor	Block H
125	H-102	Laboratory	MECH	MITAOE	First floor	Block H
126	H-103	Laboratory	MECH	MITAOE	First floor	Block H
127	H-104	Drawing Hall	MECH	MITAOE	First floor	Block H
128	H-105	Classroom	MECH	MITAOE	First floor	Block H
129	H-106	Laboratory	MECH	MITAOE	First floor	Block H
130	H-107	Laboratory	MECH	MITAOE	First floor	Block H
131	H-108	Classroom	MECH	MITAOE	First floor	Block H
132	H-109	Toilet	COMMON	MITAOE	First floor	Block H
133	H-110	Toilet	COMMON	MITAOE	First floor	Block H
134	H-111	Ed Cell	COMMON	MITAOE	First floor	Block H
135	H-112	Faculty Room	MECH	MITAOE	First floor	Block H
136	H-201A	Tutorial Room	COMP	MITAOE	Second floor	Block H
137	H-201B	Tutorial Room	COMP	MITAOE	Second floor	Block H
138	H-202	Classroom	COMP	MITAOE	Second floor	Block H
139	H-203	Classroom	COMP	MITAOE	Second floor	Block H

140	H-204A	Laboratory	COMP	MITAOE	Second floor	Block H
141	H-204B	Laboratory	COMP	MITAOE	Second floor	Block H
142	H-205	Laboratory	COMP	MITAOE	Second floor	Block H
143	H-206	Faculty Room	COMP	MITAOE	Second floor	Block H
144	H-207A	Laboratory	COMP	MITAOE	Second floor	Block H
145	H-207B	Laboratory	COMP	MITAOE	Second floor	Block H
146	H-208	Toilet	COMMON	MITAOE	Second floor	Block H
147	H-209	Toilet	COMMON	MITAOE	Second floor	Block H
148	H-210	Faculty Room	COMP	MITAOE	Second floor	Block H
149	H-211	Dean Office	SCET	MITAOE	Second floor	Block H
150	H-301	Classroom	COMP	MITAOE	Third floor	Block H
151	H-302	Classroom	COMP	MITAOE	Third floor	Block H
152	H-303	Classroom	IT	MITAOE	Third floor	Block H
153	H-304A	Laboratory	COMP	MITAOE	Third floor	Block H
154	H-304B	Laboratory	COMP	MITAOE	Third floor	Block H
155	H-305	Classroom	COMP	MITAOE	Third floor	Block H
156	H-306A	Laboratory	COMP	MITAOE	Third floor	Block H
157	H-306B	Laboratory	COMP	MITAOE	Third floor	Block H
158	H-306C	Laboratory	COMP	MITAOE	Third floor	Block H
159	H-306D	Laboratory	COMP	MITAOE	Third floor	Block H
160	H-307	Toilet	COMMON	MITAOE	Third floor	Block H
161	H-308	Toilet	COMMON	MITAOE	Third floor	Block H
162	H-309	Classroom	COMP	MITAOE	Third floor	Block H
163	H-310	Classroom	COMP	MITAOE	Third floor	Block H
164	H-311	Tutorial Rooms - PG	COMP	MITAOE	Third floor	Block H
165	HBM-01	Faculty Room	CIVIL	MITAOE	Basement	Block H
166	HBM-02	Laboratory	CIVIL	MITAOE	Basement	Block H
167	HBM-03	Laboratory	CIVIL	MITAOE	Basement	Block H
168	HBM-04	Laboratory	CIVIL	MITAOE	Basement	Block H
169	HBM-05	Laboratory	CIVIL	MITAOE	Basement	Block H
170	HBM-06	Laboratory	CIVIL	MITAOE	Basement	Block H
171	HBM-07	Laboratory	CIVIL	MITAOE	Basement	Block H
172	HBM-08	Tutorial Room	CIVIL	MITAOE	Basement	Block H
173	HBM-09	Faculty Room	CIVIL	MITAOE	Basement	Block H
174	HBM-10	Classroom	CIVIL	MITAOE	Basement	Block H
175	HBM-11	Classroom	CIVIL	MITAOE	Basement	Block H
176	HBM-12	Drawing Hall	CIVIL	MITAOE	Basement	Block H
177	HBM-13	Laboratory	CIVIL	MITAOE	Basement	Block H
178	HBM-14	UPS Room	COMMON	MITAOE	Basement	Block H

Table 8: Room-wise space details

2.4.3 Operation and Maintenance of the premises

The interview session with the staff regarding the operation and working hours is summarized in the table. The Institutions are open Monday to Saturday for full day. Sunday is an off for all. Below mentioned in the table are the average working hours. The detail wise timing for each is mentioned below the table.

S. No.	Section	Spaces	Hours/ day	Days in a year
1	Main Institutional College	Student areas and Teaching faculty	8.5	200
2	General areas	Admin areas and library, Passage, staircase, toilet, Lift	8.5	240

Table 9: Schedule of the timings of the premises

Block A of the premise

Block B of the premise

Block C of the premise

Block D of the premise

Block E of the premise

Block F of the premise

3. Green Building Study Audit

3.1 About the Green Building Study Audit

It is a systematic study of the aspects which make the Institution a sustainable and healthy premise for its inhabitants.

3.2 Analysis for the Green Building Study Audit

The procedure included detailed verification for the following:

Energy Audit
- Analysis of the Lights, Fans, AC, Equipment
- Renewable energy
- Scope for reducing the current energy bills if any
- Improvement in the thermal comfort of the campus

Green Audit
- Green initiatives
- Hygiene audit
- Water Audit - Analysis of the current water consumption of campus; Scope to include Rain water harvesting and Waste water treatment in campus
- Waste Audit - Current waste produced, its segregation and usage; Strategies to be adopted for waste management and awareness

Environmental Audit
- Analysis of the current landscape + hardscape of campus
- Analysis of the flora and fauna of campus
- Strategies adopted at present to enhance vegetation
- Measures that can be adopted for ecological improvement of campus

3.3 Strategy adopted for Green Building Study Audit

The strategies included data collection from admin department, actual inventory, investigation to check the operation and maintenance, analysis of the data collected and preparation of the Report.

3.4 Timeline of the activities for Green Building Study Audit
- 8 September 2021 – Discussion with the College
- 14 September 2021 – Survey of the Student and staff submitted
- 15 September 2021 – Physical site visit of College
- 16 September 2021 – Data submitted by College
- 20 September 2021 – Submission of draft Report
- 23 October 2021 – Submission of Main Report

4. Site Study

4.1   On-site observations study

The following listed are some of the positive site elements which are beneficial to the college in terms of tangible and intangible benefits.
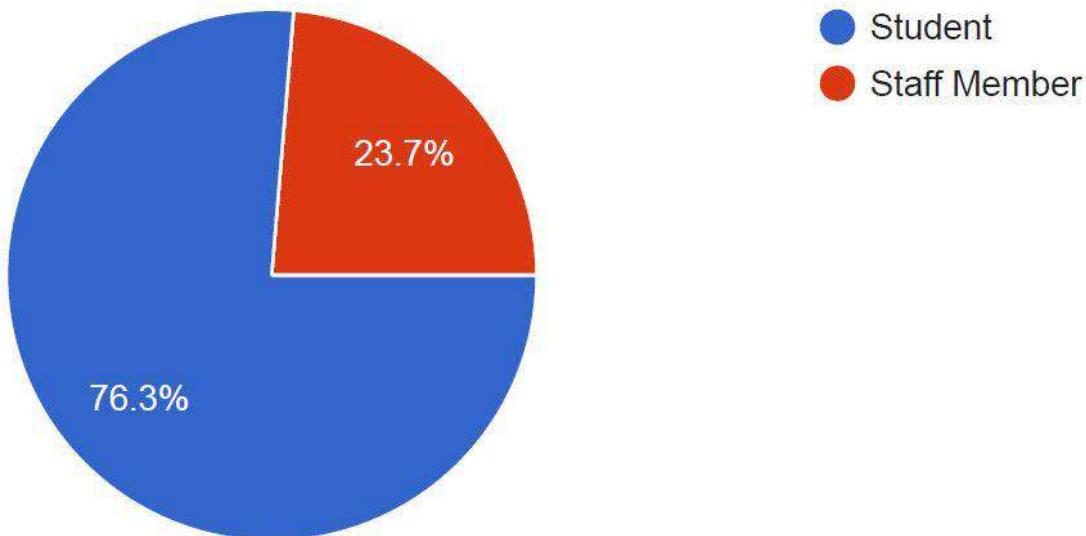
- **Location -** The MIT Academy of Engineering (MITAOE), Maharashtra (India) and is located at Alandi road, Pune – 412105 and falls under the Pune Municipal Corporation.

- **Neighbourhood context -** The premise is surrounding by open spaces and Residential spaces on the immediate surroundings of the site.

- **Natural physical features –** The premise includes a rich biodiversity and huge number of plants in the adjacent open space. The site does not have major different in the land levels (contours). There is slight difference in land level in open spaces. This has proved to be beneficial to college as the rainwater is diverted through pipes into ground and it has helped ground water recharge for the well water over the years as informed by the College. There is provision of pond which helps in rainwater harvesting and has been beneficial for the college over the years.

- **Manmade features –** The premise is situated in an urban area amidst residential areas and open spaces with appropriate proximity to necessary amenities. There is sufficient appreciation space for entrance. The materials used for construction are RCC and the landscaping includes innumerable natural trees as well as potted plants.

- **Circulation –** There is a smooth transition of pedestrian traffic inside the premises due to the large entrance gate and the huge open space where vehicles of students and staff is parked.

- **Climate –** Pune has a tropical climate. In winter, there is much less rainfall in Pune than in summer. According to Köppen and Geiger, this climate is classified as Aw. The average annual temperature in Pune is 24.3 °C | 75.7 °F. The annual rainfall is 1200 mm | 47.2 inch.

(Source: https://en.climate-data.org/asia/india/maharashtra/pune-31/)

4.2   Survey results

An online survey was conducted to analyse the student and staff views about the premise, following are some of the reviews.
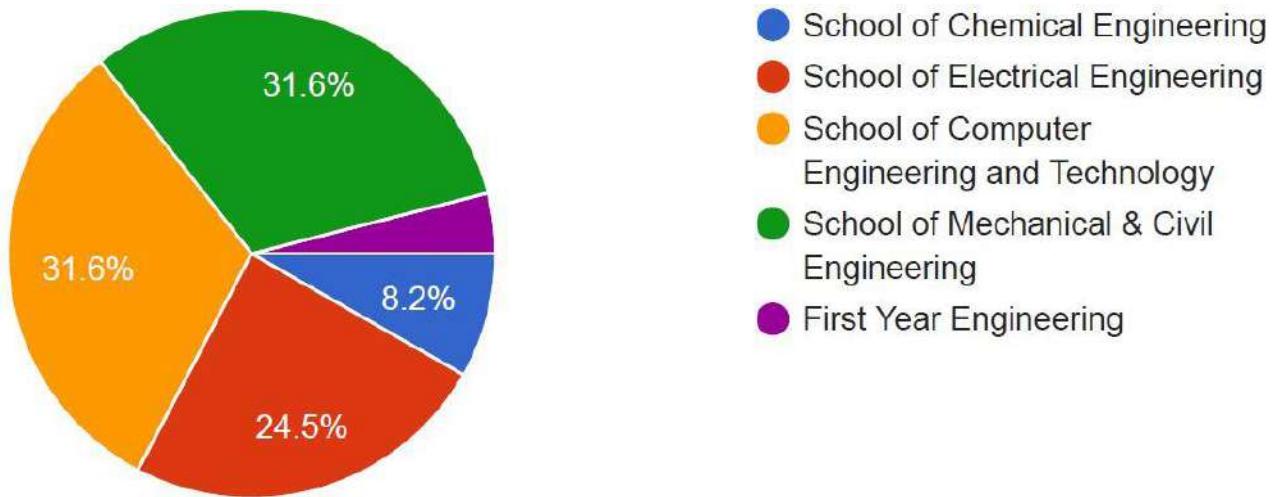
4.2.1 Participation

Figure 3: Participation analysis in the survey

A total of **376 responses** were received out of which 76% were students.
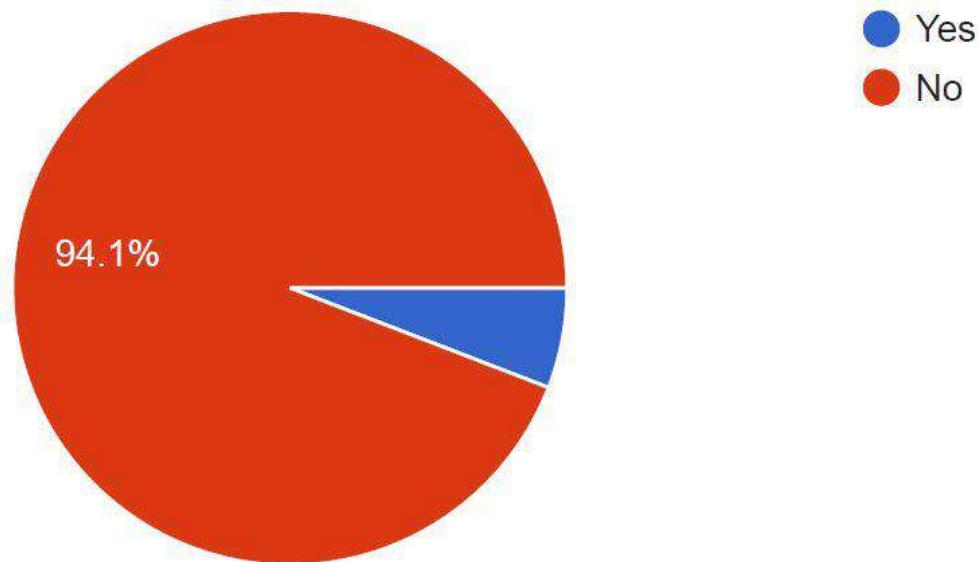
4.2.2 Schools

Figure 4: Participation analysis in the survey

The highest **responses were 32% equal for** responses received from **School of Computer Engineering and Technology** and the **School of Mechanical and Civil Engineering.**
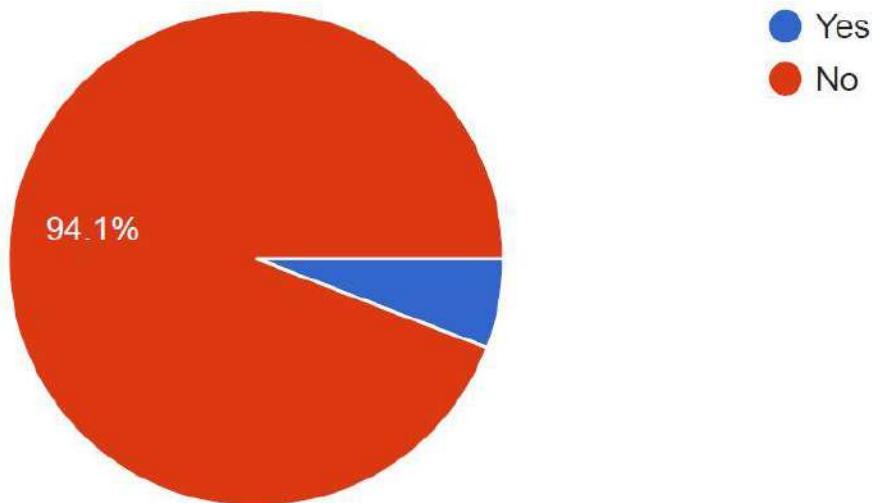
4.2.3 Is there any Dust pollution in the premise?

Figure 5: Participation analysis in the survey

The students, staff **(almost 94%)** of responses confirmed that there is no dust pollution.

4.2.2 Is there any Air pollution in the premise?

Figure 6: Participation analysis in the survey

The students, staff **(almost 94%)** of responses confirmed that there is no air pollution.

4.3   Survey ratings

4.3.1 Rate – Location of the Institute premises with respect to surrounding context
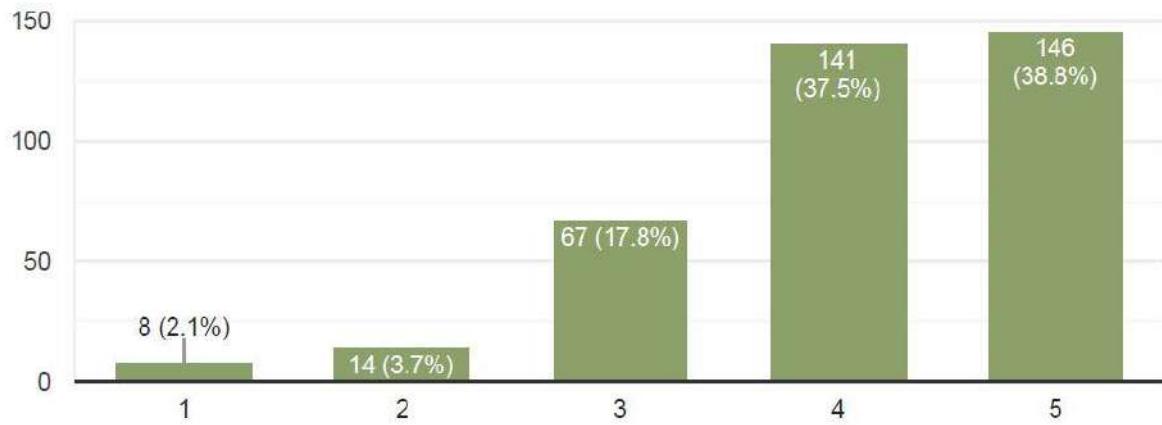
Figure 7: Participation analysis in the survey

There were mixed responses received the equal also the highest was for **rating 5 (Excellent) at 39% and rating 4 (Very good) at 38%** followed by **18% for rating 3 (Good).**

4.3.1 Rate – Circulation of students and staff within the Institute premises with respect to mobility (Travel)
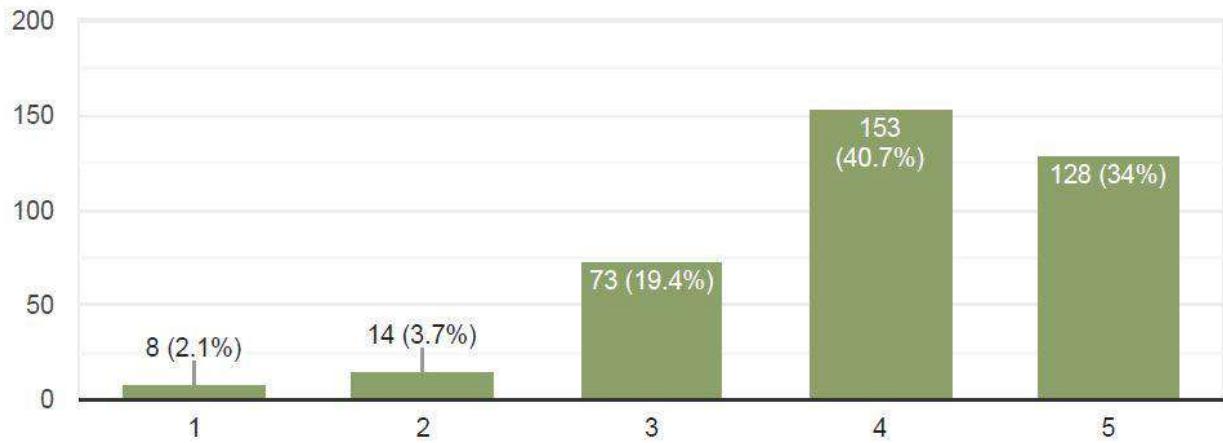
Figure 8: Participation analysis in the survey

There were mixed responses received the equal also the highest was for **rating 4 (Very good) at 41% and rating 5 (Excellent) at 34%** followed by **19% for rating 3 (Good).**

4.4   Survey review

Some of the key responses are noted below as a result of Online survey.

4.4.1 What is the best environmental feature you find about the Institute site?

- Lots of Trees

- Good

- Clean and enough green area ratio

- **Pollution & Dust free**

- **All institute is surrounded by trees and natural scenario**

- Cleanliness, less noise pollution

- Coconut tree

- Large number of trees

- Pollution free.

- Green Campus and no. of trees in the campus

- **Greenery, bio agriculture project**

- **It is silent as compared with the outside areas and really helps to concentrate on our studies.**

- **Many types of Birds and beautiful trees made the environment pleasant. This is notable feature.**

- Greenary all trees planted in manner feels better and good vibes coming from them all time

- Open to surrounding. Agricultural fields nearby

- Plastic free

- **Every roof of my college generates solar energy.**

- Plants on both sides of road, greenery at every open ground, Institute trying to cover most of premise with plant as they can.

- No noise pollution and the evergreen surrounding

- Calm atmosphere

- It is located at calm and eco-friendly environment

- **It has beautiful green campus and we can listen the sweet voice of birds everyday which builds positivity.**

- Agricultural Land

- The premises are very clean.

- Silent, green and clean

- **It is small and green and very well maintained. There are shaded places to sit and relax but it gets enough sunlight to bring in natural light in classrooms.**

- Environmental Peace

- **Very green and superb feel of natural peace. A very clean environment with proper garbage and waste management. Again people, specially non-teaching staff are very polite and cooperative.**

- It is well surrounded by trees

- All the area is good

- Pollution free environment,

- Automatic water supply implementation for purpose of trees growth

- Fresh air

- Silence and Scenic Beauty.

- **Care of existing trees and plants are taken quite well and the entire campus is literally 24 hours clean!!**

- There are plenty of trees which makes us feel refreshed.

- **It's quite peaceful and lush green we can sit wherever we want, i have even spotted a family of mongoose nears mechanical workshop.**

- It's just close to nature.

- **It's a nature friendly campus**

- It is a lush-green campus, not surrounded by any heavy-traffic outside, in a serene environment, on the banks of a river.

- **The institute is surrounded with Trees and Grasses all around and have Pollution meter index.**

- Good academic environment

- Very pleasant atmosphere inside premises even is institute is located in village type area

- Institute has best climate to study, full of greenery, oxygen, positiveness.

- **What I like the most about the institute is its lush green campus. As soon as one enters the campus, the sight of coconut trees lined all along the entrance road is very soothing, calming and mesmerizing. The campus is full of fresh air thanks to the flora and fauna.**

- **Institute is full of greenery and the Institute is nurturing by recruiting the manpower.**

- **I think the location is very good itself and the environment is very suitable for peace and infrastructure is good**

- **100 percent oxygen**

- Building Plan

- **Calm environmental condition**

Ecological (Environment) Audit

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Solutions

5. Ecological (Environmental) Audit

Environment is an essential part for human survival. We co-exist with the environment and it cannot be termed as a separate entity. The Ecological audit helps to understand the flora, fauna that exists and steps that can be taken to improve the same. To denote if there are problems related to sound in and around the surrounding. In terms of the carbon footprint it helps in keeping a tab on the eco-friendly habits incorporated by the inhabitants of the premise. Health today is the topmost priority, a general understanding of the initiatives undertaken along with sufficient hygiene practices adopted. Universal design is applicable to all built and unbuilt spaces.

As part of our study we could state that the Institution has developed eco-friendly practices and sustainable solutions which are well reflected in the rich biodiversity of the Premises. Being situated near the city the appreciation space towards the main entrance provides a welcoming approach to the College.

The college has huge open space used by all. The students use it for as a leisure place for study and college ground is used for sports activities. There are ample resting spaces as part of building design which provide a resting and warm welcoming approach in the premise.

5.1   Open Spaces
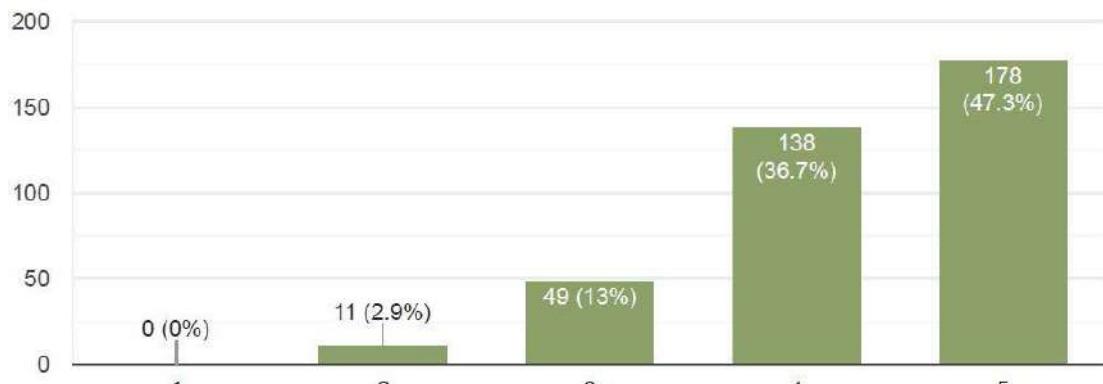
There is a beautiful balance of natural and open spaces in the premise and the open/ vegetation spaces are balanced overall. The ground is used by students at present for sports as it is a Physical Education Institute. **There are provisions for natural plantations which have enhanced thebeauty of the space.**

There are sufficient numbers of Maintenance staff allotted for the open spaces and they have done an excellence job in terms of the duty allotted. The infrastructure committee too is involved in this process. The traditional tap and pipe facility is adopted for watering andthe college has taken special provisions for the same. The spaces are watered daily insummer. T**he efforts to maintain the existing space are commendable.**

5.2   Flora and Fauna Audit

5.2.1 Survey Ratings

An online survey was conducted to analyse the student and staff views about **Rate - The existing flora and fauna and efforts taken by the Institute towards it preservation?**


Figure 9: Participation analysis in the survey

There were mixed responses received the equal also the highest was for **rating 5 (Excellent) at 47% and rating 4 (Very good) at 37%** followed by **13% for rating 3 (Good).**

5.2.2 Flora Audit

A flora survey was carried out to identify the total numbers of plants and trees every year. The landscape area has a variety of plantations constituting thousands of surveyed trees in premise as follows.

S. No.	Name	Type	Scientific names	Location	Nos.
1	Bottle Palm	Grass	*Hyophorbe Lagenicaulis*	Parking, approach road, A, B, C, D, H	48
2	Areca Palm	Grass	*Dypsis Lutescens*	B, D, Approach road, E	178
3	Betel palm	Grass	*Areca Catechu*	A, H, E	11
4	Fan Palm	Grass	*Livistona Chinensis*	D, H, A, B	6
5	Coconut tree	Tree	*Cocos Nucifera*	Approach road, E, B, A, D, H, C	132

6	Gulmohar	Tree	*Delonix Regia*	Parking, ground	85
7	Ficus	Tree	*Ficus Benjamina*	E, A	62
8	Chafa	Tree	*Plumeria*	B, A, D, H	35
9	Tamarind (*Chinch*)	Tree	*Tamarindus Indica*	Parking, F	2
10	Lime	Tree	*Citrus*	Ground, Parking	2
11	Orange Tree	Tree	*Citrus X Sinensis*	Parking, ground, agro farm	6
12	Guava	Tree	*Psidium Guajava*	Agro farm, parking, ground	10
13	Sour orange	Tree	*Citrus × Aurantium*	Agro farm, parking, ground	6
14	Sweet lime	Tree	*Citrus Limetta*	Agro farm	18
15	*Aamala*	Tree	*Phyllanthus Emblica*	Agro farm	7
16	Sapodilla (*Chiku*)	Tree	*Manilkara Zapota*	Agro farm, ground, F, D	7
17	Mango	Tree	*Mangifera Indica*	Parking, ground	10
18	Java Plum (Jambul)	Tree	*Syzygium Cumini*	Parking, D, F	7
19	Pomegranate (*Dalimb*)	Tree	*Punica Granatum*	Agro Farm	1
20	Banana tree	Tree	*Musa*	Agro Farm, Ground	19
21	Dry fig (Anjir)	Tree	*Ficus Carica*	D, Ground,	4
22	Drumstick	Tree	*Moringa Oleifera*	Parking	6
23	Custard apple	Tree	*Annona Reticulata*	Parking, Ground	13
Total					675

Table 10: Details of the Flora in the premise

We were informed that the College volunteers have planted more than 50 trees at their own places and followed the instructions, there were asked to do the Geotagging, update on the university Facebook page and link on the university website.

5.2.3 Fauna Audit

The below mentioned are details of the Fauna in the premise

Sr. No.	Type	Name	A	B (canteen building)	D & D exte	E (Hostel)	F (workshop)	H	Main Approach road	Parking	Sports ground	Takshila Lawn	Agro Farm
			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	Bird	Crow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	Bird	Parrot	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	Bird	Indian grey hornbill			Yes		Yes					Yes	Yes
5	Bird	Greater Coucal	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	Bird	Baya weaver	Yes		Yes	Yes							
7	Bird	Eurasian golden oriole	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	Bird	Woodpecker	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	Bird	Myna	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10	Bird	Kite					Yes	Yes	Yes	Yes	Yes		
12	Bird	Redwattled Lapwing					Yes	Yes	Yes	Yes	Yes		
13	Bird	Black cuckoo	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
14	Bird	Red-vented Bulbul	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
15	Animal	Indian Squirrel	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
16	Animal	Greater bandicoot rat					Yes	Yes	Yes	Yes	Yes	Yes	Yes
17	Animal	Ratsnake					Yes	Yes				Yes	Yes
18	Animal	House Lizard	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
19	Animal	Gardern Lizard	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
20	Animal	Monkey					Yes						
21	Animal	Cat					Yes						
22	Animal	Mongoose					Yes	Yes	Yes	Yes	Yes	Yes	Yes
23	Animal	Bats	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 11: Fauna in the premise

5.2.4 Survey reviews

Some of the key responses are noted below as a result of Online survey.

5.2.4.1Name some of the trees you would like to plant in the premise in future.

- Some Good Trees which are good at oxygen functioning.

- Different colorful Flower plants

- *Naseberry*, Night Blooming Cereus (*Bramhakamal*).

- Deodar, Laurels

- Fruit Yielding trees like Papaya, Chikoo

- *Jamun*

- *Palash*

- *Bahawa*

- Hemlock, Cycads and Eucalyptus

- Jasmine

- *Nilgiri*/Eucalyptus

- Red maples

- *Katesavar* , Flower Garden , All kind of Roses

- Banana, Apple

- Coconut tree, *Saraca Indica, Elaeocarpus nitrus*, etc.

- Those trees which should be given large shadow.

- All medicinal plants

- *Parijatak* flower tree (night jasmine)

- Coconut, *Vad*

- Almond, *Frangipani*

- Marigold

- Red Oak ,Weeping willow

- Palm, Coconut

- Neem

- Rose, *Peru*

- *Kadunimb*

- Sunflower plant

- Mango

- Palm

- Banyan tree, Peepal tree

- Ashoka tree

- *Tamarind*

- *Gulmohar*

- Eucalyptus, *Ashoka*, Rose, Sunflower, *Neem*, Evergreen

- Tulip

- *Ratrani*

- Coconut

- Banyan tree (national tree of india)

- Jasmine, Lotus Pond, Mango Tree

- Tuber Rose

- Trees that grows big like MANGO.

- Areca Palm

- Peepal, *Tulsi* and some of flower trees which gives good smelling.

- Mogra, *Jaijui*

- Fruit trees

5.3   Noise Audit

5.3.1 Macro level
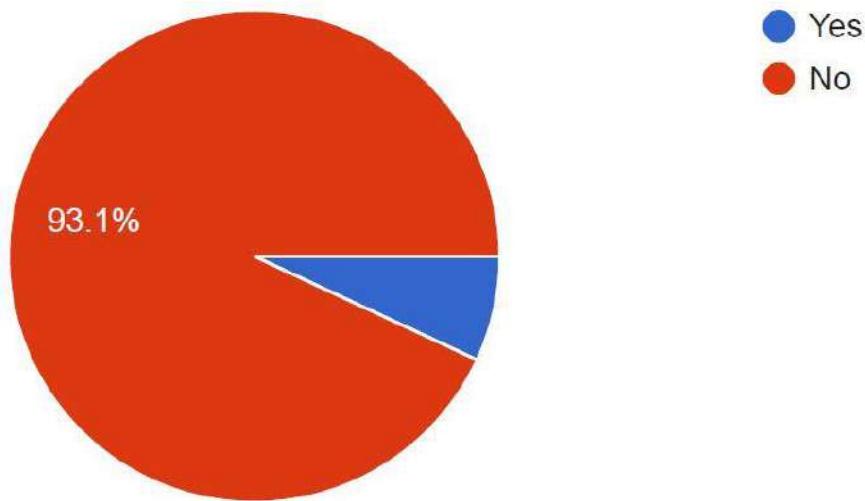
On a macro level there are open grounds in the site. The approach road too has very minimal traffic. As the college is oriented amidst the residential areas with immense vegetation the noise levels do not affect the students and staff in their day to day functioning. The approach road too is pretty away. **Overall the noise level in terms of bad effect is low and there are positive outcomes as per our analysis on macro level.**

5.3.2 Micro level

The college has an adequate open space covered with huge trees prevailing naturally in the premise. There are bare minimum parking provisions provided in the premise which causes bare minimum noise as they are situated near the entrance which is a bit away. The college does not have generator thus there is no inconvenience or sound problem caused due to the same. There are no particular equipments which cause any noise effect. **Overall the noise levels inside the premises are low which is a good approach.**

5.3.3 Survey Result

An online survey was conducted to analyse the student and staff views about **Is there any Noise pollution in the premise?**

Figure 10: Participation analysis in the survey

The students, staff **(almost 93%)** of responses confirmed that there is no light pollution.

5.4   Carbon Footprint Audit

5.4.1 Eco-friendly Commuting Practices

Based on data collection and discussion with staff the following points were noted:

- **Ease of commuting –** Owing to close proximity to public transport the access is very feasible and walk able.

- **Vehicles details** – The provision provided by College includes around 20 bikes parking and 10 cars parking inside the premise for staff and students.

- **Visitors vehicle** – There are very rare number of visitors parking in the premise.

- **Commute details** – The students and staff commute from quite a lot of places. The details of the Teaching Staff are summarised below.

Sr.No.	Name	Designation	Date of joining	Address	Mode
1	Dr. Mahesh Goudar	Director	11.07.2005	Row House No. 54, Chryssalis Housing Society, Lohegaon Road, Wagholi India Maharashtra Pune Pune Pune 412207	Own Car
2	Dr. Nitin Rane	Professor	08.01.2001	Flat Number C 301, Dew Drop Society Alandi Road, Vishrantwadi India Maharashtra Pune Pune Pune 411015	Own Car
3	Mr. Senthilkumar	Sr. Asst. Professor	02.12.2013	205, Indu Heights, Balkrishna Residency, Magazine Chowk, Dighi, India Maharashtra Pune pune pune 411015	Own Two Wheeler
4	Dr. Parag Sutar	Asst. Professor	17.7.2017	101, PRATHAMESH KRUPA, PLOT NO. 82, PURNA NAGAR, CHINCHWAD India Maharashtra Pune PIMPRI-CHINCHWAD PUNE 411019	Own Car
5	Dr. Sandeep Shewale	Asst. Professor	01.06.2010	Tanish Home, Flat No. E/308, Farande Nagar. Alandi Pune Road, Dighi, Pune-411015	Own Car
6	Dr. Mayurkumar Patil	Asst. Professor	15.7.2019	AT Khedi Khurd, Post- Fupnagari,Tal.-Dist.: Jalgaon, Maharashtra-425002.	Own Two Wheeler
7	Ms. Mamta Sardare	Asst. Professor	30.07.2010	c/o sahebrao Pathare, Narmada smruti magzine corner Dighi , pune India Maharashtra Pune pune pune 411015	Own Two Wheeler
8	Mr. Sudhir Gandhi	Asst. Professor	02.08.2010	Flat No 408, Baber solankhi apartment, Near Dattanagar Bus stop Dighi Pune India Maharashtra Pune Pune Pune 411015	Own Two Wheeler
9	Mr.Vinod Pakhale	Asst. Professor	06.09.2012	Department of Chemical Engg Mitaoe,Alandi Devachi India Maharashtra Pune haveli pune 412105	Own Two Wheeler
10	Mr. Vijaykumar Tarange	Asst. Professor	25.08.2008	Flat No 27 G1 building Shubham Cooperative housing Society, Wadgaon Sheri India Maharashtra Pune Haveli Pune 411014	Shared Car
11	Ms.Amra	Asst.	13.06.2013	H1/14, AWCHS, Salunke Vihar, Wanowrie,Pune	Own

		vati Gode	Professor			Two Wheeler
12	Mrs. Shraddha Shende	Asst. Professor	06.01.2012	Building No. 3, Flat No. 5, C/o Mr. Abhijit Nawale,Husen Shah baba raod, Pratik Nagar, Vishrantwadi India Maharashtra Pune khed Pune 411006		Shared Car
13	Dr. Shyam Shukla	Professor	31.03.2021	G-1/302, Gangdham Phase-2, Bibwewadi-Kondhwa Road , Pune.		Shared Car
14	Mr. Vijay Pingale	Asst. Professor	14.08.08	Mauli Appt Flat 106 Santnagar Moshi 412105 India Maharashtra Pune Haveli PCMC 412105		Shared Car
15	Dr. Sushilkumar Magade	Associate Professor	30.9.2019	vijaynagar society, 7, building no. 8B, Sinhgad road, Dhayari, Pune.		Shared Car
16	Mr. Atif Shaikh	Asst. Professor	25.08.2014	604, B2, Shama estate, Alandi		Shared Car
17	Mr. Sumit Patil	Asst. Professor	1.6.2015	B1, 602. Shama estate, charholi, pune		Shared Car
18	Mr. Nilesh Baglekar	Asst. Professor	25.7.2016	Gandharva Exelencee, F1103 A BLDG, Dehu alandi Rd. Moshi Gandharva Exelencee, F1103 A BLDG, Dehu alandi Rd. Moshi India Maharashtra Pune khed pune 412105		Shared Car
19	Mr. Bhaskar Wabhitkar	Asst. Professor	14.9.2016	C/O Vivek Deshmukh, Plot No 5A, Bharat Jyoti Stop, Bibwewadi Pune India Maharashtra Pune pune pune 411037		Own Two Wheeler
20	Mr. Nikhil Bhalerao	Asst. Professor	18.12.2017	SWAROOP, B-67, Sr. No.46/412 Kasid Nagar, Pimple Gurav India Maharashtra Pune Haveli Pune 411061		Own Two Wheeler
21	Mr. Vipul Chitnis	Asst. Professor	24.7.2017	SR.NO.56/1/5, MALHAR BUNGLOW, 38B KAWADENAGAR, PIMPLE GURAV India Maharashtra Pune HAVELI PUNE 411061		Own Two Wheeler
22	Mr. Manish Khandare	Asst. Professor	1.8.2018	H-704, Destination Ostia, Dudilaon, Moshi, Pune		Shared Car
23	Mr. Sitaram Suryawanshi	Asst. Professor	1.8.2018	B2, B403 , Mahalakshmi Nagar, Mumbai Banglore Highway, India Maharashtra Pune Haveli Pune 411058		Own Two Wheeler
24	Mr. Dipak Chaudhari	Asst. Professor	1.8.2018	204, Sri Sri Nikunj Housing Society Chaudhari park, wakad India Maharashtra Pune Haveli Pune 411057		Shared Car
25	Mr. Sachin Shinde	Asst. Professor	26.9.2018	FLAT NO 101, N2 BUILDING, PHASE - III RIVER RESIDENCY, DEHU - ALANDI ROAD, MOSHI India Maharashtra Pune HAVELI PUNE 412114		Own Two Wheeler
26	Mr. Khushal Kanade	Asst. Professor	5.8.2019	S NO 13/1 , HOUSE NO 28 , SHITOLE NAGAR , OLD SANGAVI , PUNE		Own Two Wheeler
27	Dr. Shitalkumar Jain	Professor	01.06.2006	Row House 03, Plot No. 56, Pragati Vihar, Raje Shivaji Nagar, Sector No 16 PCNTDA, Opp. Tata Indiaca Main Gate, Chikhali Pradhikaran, Chinchwad India Maharashtra Pune Pune Chinchwad 411019		Own Car
28	Mrs.	Associate	02.01.2007	C1-305 MAHALAXMI VIHAR VISHRANTWADI		Shared

	Ranjana Badre	Professor		ALANDI ROAD India Maharashtra Pune HAVELI PUNE 411015	Car
29	Dr. Avinash Bhute	Associate Professor	22.1.2019	B, 504, Grand view, Ambegaon (B) Pune 411046	Shared Car
30	Dr. Rajeshwari Goudar	Associate Professor	11.07.2005	Chrrysalis housing society , House no 54 Wagholi Pune India Maharashtra Pune haveli Pune 412207	Shared Car
31	Mrs. Mayura Kulkarni	Sr. Asst. Professor	25.06.2008	A 402 Dwarka Sun Crest Phase 1 Rahatni, Near Kokane chowk India Maharashtra Pune Pune Pune 411017	Shared Car
32	Mrs. Vaishali Wangikar	Sr. Asst. Professor	22.07.2008	F-^03, Rohan Mithila New Air port Road , Viman Nagar ,Pune India Maharashtra Pune Pune Pune 411014	Shared Car
33	Mr.Amar More	Sr. Asst. Professor	18.10.2004	Flat No. 502, Shiv Classic Housing Society Narpatgir Chowk India Maharashtra Pune Pune Pune 411011	Shared Car
34	Mr.Pramod Ganjewar	Sr. Asst. Professor	30.11.2012	Flat No. 203, Asha Empire, Datta Nagar, Krushna Nagar Road, Dighi India Maharashtra Pune Haveli Pune 411015	Shared Car
35	Ms.Minakshi Vharkate	Sr. Asst. Professor	31.05.2013	TULASI ROYAL FLAT NO 3 SEC 27 NIGADI India Maharashtra Pune Pune Pune 411044	Shared Car
36	Mrs. Prajakta V. Ugale	Asst. Professor	18.08.2008	D-5, Shradha Garden, Gawade Park, Chinchwad, Pune-33.	Shared Car
37	Dr. Manish Giri	Asst. Professor	27.06.2011	A-201 Rose iCon Pimple Saudagar India Maharashtra Pune Haveli Pune 411027	Shared Car
38	Mrs. Neha Hajare	Asst. Professor	14.11.2011	A 301 Ganga Kalash kalas vishrantwadi India Maharashtra Pune pune pune 411015	Own Car
39	Mrs. Diptee Ghusse	Asst. Professor	19.12.2011	Fl.No.2,Swastishri Appartment Sai Chowk New Sangvi India Maharashtra Pune Pune Pune 411061	Shared Car
40	Mrs.Padma Nimbhore	Asst. Professor	20.06.2012	Flat 603,D2 Building ,Mahalaxmi Vihar,Vishrantwadi Chawk Near Big Bazar India Maharashtra Pune Haveli Pune 411015	Shared Car
41	Mrs. Kavitha S.	Asst. Professor	03.09.2001	Plot No: 66 , E-16, B.U.Bhandari Skyline, Datta Nagar,Dighi,Pune India Maharashtra Pune khed Pune 411015	Shared Car
42	Mr.Santosh Warpe	Asst. Professor	07.12.2012	Wing A2,flat no. 303,Shaama Estate,Behind Indian Oil Petrol Pump,Near Charohli Phata,Aladni-Pune road Wing A2,flat no. 303,Shaama Estate,Behind Indian Oil Petrol Pump,Near Charohli Phata,Aladni-Pune road India Maharashtra Pune Haveli Pune 412105	Shared Car
43	Mr. Sanjay Ghodke	Asst. Professor	02.05.2013	TULSI ROYAL , PLOT NO 321,FLAT NO.3 PRADHIKARAN , NIGDI PUNE India Maharashtra Pune KHED PUNE 411044	Shared Car
44	Ms.Pranali Lokhande	Asst. Professor	17.06.2013	Flat No. A-309, PCNTDA, Moshi Pradhikaran India Maharashtra Pune Haveli Pune 412105	Shared Car
45	Mr. Mayur	Asst. Professor	02.06.2014	B-401, Swami Residency, Behind More Petrol Pump, NDA Road, Shivane India Maharashtra	Own Two

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				Pune Haveli Pune 411023	Wheeler
46	Mr.Rudra gouda Patil	Asst. Professor	16.06.2014	Flat No: 408 B Wing Solar park Datta Nagar, Dighi, Alandi Road India Maharashtra Pune Pune Pune 411015	Own Two Wheeler
47	Ms. Sharmila Kharat	Asst. Professor	23.06.2014	A-103,Sai laurel Park,Near Dnyanesh Park Lane no 4, Near krishna Chauk,New Sangavi,Pune India Maharashtra Pune Haveli Pune 411027	Shared Car
48	Ms. Bhagyash ree Alhat	Asst. Professor	18.11.2010	Flat No 11,BLD No A-1, Jain Township, Chintamaninagar Handewadi road, Hadapsar,Pune India Maharashtra Pune Haveli Pune 411028	Shared Car
49	Ms.Shubh angi Kale	Asst. Professor	02.06.2014	A-201, Kalpavruksh, Kalpataru Estate Jawalkar Nagar, Pimple Gurav India Maharashtra Pune Haweli Pune 411061	Shared Car
50	Mr. Jayvant Devare	Asst. Professor	17.6.2015	Sr.No 154/3 , Plot No 16, HNo 3421 Parshwanath Nagar, Near Sankatmochan Hanuman Mandir, Soygaon India Maharashtra Nashik Malegaon Malegaon 423203	Own Two Wheeler
51	Ms. Farhana Shaikh	Asst. Professor	5.6.2017	A1-5, Celesta Society, Spine Road, PCNDTA, Chikhali-Pradhikaran, Sector 16-411010 PCMC India Maharashtra Pune pune Pune 411010	Own Two Wheeler
52	Mr. Nilesh Bhandare	Asst. Professor	1.8.2018	1004,Nandadeep Appt, Chosavawadi, Charholi Phata India Maharashtra Pune Alandi Alandi 412105	Own Two Wheeler
53	Dr. Dipti Sakhare	Associate Professor	28.03.2005	Yashshree,1414 Shukrawar Peth,Bajirao road,Pune India Maharashtra Pune Khed Pune 411002	Shared Car
54	Dr. Rushikes h Borse	Associate Professor	1.8.2018	Shital Heights 103, Gokul Nagar, S.No. 58/2, Katraj Kondhwa Road, Pune - 411 048	Shared Car
55	Dr. Prachi Rajarapol lu	Sr. Asst. Professor	01.12.2004	F- 103 Palladium Homes, Near Kamal Lawns India Maharashtra Pune Haweli Pune 411015	Shared Car
56	Mr.Vinay ak kulkarni	Sr. Asst. Professor	01.04.2009	D-7, Karan Greens,Near Rosery School, Warje India Maharashtra Pune Pune Pune 411050	Shared Car
57	Mr.Satish Kabra	Sr. Asst. Professor	28.06.2013	Flat No. 203, A-2 Bldg, Sainagari, Off. Alandi Road, Pune-412105. India Maharashtra Pune Haveli Pune 412105	Own Two Wheeler
58	Mrs. Smita Kulkarni	Asst. Professor	26.06.2008	Matoshri, 38, Aundh Gaone Near Bhiravnath Mandir India Maharashtra Pune Pune Pune 411067	Shared Car
59	Mrs. Shilpa Rudrawar	Asst. Professor	28.07.2008	Mr. Kedar B. Rudrawar , C-307,Sonigara Vihar Adarsh nagar ,kalewadi ,pimpri,pune17 India Maharashtra Pune pune pune 411017	Shared Car
60	Ms. Nutan Bansode	Asst. Professor	01.11.2010	301 A2 wing Sainagari Apartment Wadhmukhwadi,Alandi road pune 301 A2 wing Sainagari Apartment Wadhmukhwadi,Alandi road pune India Maharashtra Pune pune Pune 412027	Shared Car
61	Dr. Aniket Gundech a	Asst. Professor	1.4.2009	Flat No. 31, Vakratund Apartment K. P. Nagar, Dhankawadi, India Maharashtra Pune Haveli Pune 411043	Shared Car

62	Mrs. Vaishali Katkar	Asst. Professor	11.08.2011	Flat No 403,D wing, Kamalraj Shivdharshan housing society,Dighi-15 Flat No 403,D wing, Kamalraj Shivdharshan housing society,Dighi-15 India Maharashtra Pune Haveli Pune 411015	Shared Car
63	Mr. Aniket Kemalkar	Asst. Professor	02.06.2014	Plot no 206 Sector 27A, Nigadi Pradhikaran India Maharashtra Pune Pune Pune 411044	Public Transport
64	Mr. Prashant Aher	Asst. Professor	05.06.2014	7/302, Amba Nagari CHS, Dhanori Road, Vishrantwadi India Maharashtra Pune Haveli Pune 411015	Public Transport
65	Mr. Amit Nagarale	Asst. Professor	12.06.2014	B-2, FLAT NO. 6, SIDDHESHWAR NAGAR CO-OP HOUSING SOCIETY, VISHRANTWADI, PUNE India Maharashtra Pune HAVELI PUNE 411015	Own Two Wheeler
66	Mr. Ashish Srivastava	Asst. Professor	12.01.2015	K101-Iris Magarpatta City India Maharashtra Pune Haveli Pune 411028	Own Car
67	Mr. Swapnil Daphal	Asst. Professor	1.6.2015	At: Nagargaon Post: Andhalgaon Tal: Shirur Dist: Pune Pune India Maharashtra Pune Shirur Pune 412211	Own Two Wheeler
68	Mr. Mandar Nalavade	Asst. Professor	1.6.2015	C/O Supriya Shelar, 6, D. S. Vishwarajani, Near Muktangan Deaadiction Centre Mohanwadi, Yerwada, Pune India Maharashtra Pune Haveli Pune 411006	Own Two Wheeler
69	Mr. Sandeep Nagre	Asst. Professor	1.6.2015	Flat No A-207, A wing, Star City, Moshi Alandi Rd, Dhyarkar Wadi, Dudulgaon, Pimpri-Chinchwad, Maharashtra 412105 India Maharashtra Pune Khed Pune 412105	Public Transport
70	Mr. Mahesh Vibhute	Asst. Professor	8.6.2015	Flat no C-705,Phase-II, Alankapuram Society, Wadmukhwadi, Pune Pune India Maharashtra Pune khed Pune 412105	Public Transport
71	Mr. Ashitosh Chavan	Asst. Professor	5.6.2017	3207, PUNE NASHIK HIGHWAY NO.50, TRIMURTY COMPLEX, NEAR A.P.M.C. MARKET PUNE, MANCHAR, 410503 India Maharashtra Pune AMBEGAON MANCHAR 410503	Own Two Wheeler
72	Mr. Nikhli Sardar	Asst. Professor	1.8.2018	Ravikiran Building No. 4A-304, Survey No 154/2, near Alankapuram vadamukhwadi pcmc pune India Maharashtra Pune Heveli pune 412105	Own Two Wheeler
73	Mrs. Prabha Kasliwal	Associate Professor	15.12.2005	Flat No. 35, C2 Bldg, Dreams Residency, Vishrantwadi India Maharashtra Pune pune Pune 411015	Shared Car
74	Mr. Shridhar Khandekar	Sr. Asst. Professor	01.08.2008	A5 202 , Genesis , Near Sai mandir Pune-Alandi Road India Maharashtra Pune Khed Pune 412039	Own Two Wheeler
75	Mrs.Usha Verma	Sr. Asst. Professor	26.06.2012	Plot No. 143-B, Flat No. 11, 'Uday Angan' Rajeshivaji Nagar Sector-16, Chikhli-Pradhikaran India Maharashtra Pune Haveli Pune 411019	Own Car
76	Mrs. Savita Pawar	Asst. Professor	11.08.2008	Plot no. G47/2, Vishal Residency, Flat No. B-07 Sector No.1, Indrayaninagar, Bhosari, Pune India Maharashtra Pune Haveli Pune 411039	Own Two Wheeler
77	Mrs. Vinaya Tapkir	Asst. Professor	07.07.2008	Chovisawadi, Charholi Near PCMC School India Maharashtra Pune haveli pimpri chinchwad 412105	Shared Car
78	Mr.Hitesh	Asst.	20.06.2013	H.No.14, Mahadvar road, Alandi devachi, Pune-	Own

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	Lodha	Professor		412105 India Maharashtra Pune Rajgurunagar pune 412105	Two Wheeler
79	Mr. Amar Chavan	Asst. Professor	18.03.2013	S.No. 258/1, Lane 21J, Aai Niwas Lane, Lohegaon, Pune	Own Two Wheeler
80	Mr. Dhananjay Devare	Asst. Professor	11.12.2014	A 208 Tanish Orchid Charoli Alandi India Maharashtra Pune Khed Pune 412105	Own Two Wheeler
81	Mr. Uday Mithapalli	Asst. Professor	1.8.2018	Flat no. 501, Shamvihar, Gokulnagar, Katraj Kondhwa Road, Pune	Shared Car
82	Mr. Sunilkumar Bhagat	Professor	01.03.07	Flat No. 803, Bldg H, Padmavati Apt., Sector 7 Indrayani Nagar, Bhosari India Maharashtra Pune Haveli Pune 411026	Own Car
83	Dr. Sunita Barve	Professor	18.06.2009	I-104, Ganeesham Phase II, Near Gold Gym., Pimple Saudagar India Maharashtra Pune Haveli Pune 410027	Own Car
84	Dr. Shrikant Salve	Asst. Professor	25.6.2016	D-508 Palladium Homes India Maharashtra Pune -- Pune 411015	Own Two Wheeler
85	Ms. Jayashree Kulkarni	Asst. Professor	01.07.09	Flat No. 201, Aster-3 Building, Sukhwani Campus, Vallabh Nagar,Pimpri, Pune India Maharashtra Pune Haveli Pune 411018	Public Transport
86	Mrs. Chetana Nemade	Asst. Professor	20.12.2011	A5/202,Swarganga Housing Society Vallabh Nagar,Pimpri India Maharashtra Pune Haweli Pune 411018	Own Two Wheeler
87	Mr. Sandeep Shirvale	Asst. Professor	19.11.2012	501, Gulmohar SOciety Erandawane India Maharashtra Pune Haveli Pune 411004	Shared Car
88	Mr. Pranav Shriram	Asst. Professor	10.11.2014	D Building, Banglow No. 1, Irrigation Coloney Near Ishanya Mall, Yerwada, Pune India Maharashtra Pune Pune Pune 411006	Shared Car
89	Ms. Ashwini Mane	Asst. Professor	1.8.2018	Flat No.401, A Building Nandadeep Society,151/6,151/7,Chovisawadi,Near Shama Estate, Alandi Road, Pune 412105 India Maharashtra Pune Khed Pune 412105	Public Transport
90	Mr. Prafulla Hatte	Associate Professor	16.6.2015	1/B, Stone Ridge, Waghere Colony No. 1 Pimpri Waghere, Pimpri India Maharashtra Pune Pune Pune 411017	Own Car
91	Dr. Yogesh Bhalerao	Professor	19.05.2004	Flat No.9, Gulmohar Glades, Near Agakhan Palace, Nagar Road	Own Car
92	Dr. Abhijeet Malghe	Professor	30.12.2011	Vishal Heights, Flat No 12 Subash Nagar, Tingre Nagar, Vishrantwadi, Pune India Maharashtra Pune Haveli Pune 411015	Own Car
93	Dr. Avinash Kamble	Associate Professor	1.7.2019	A/606, Legacy fortune exotica, Mukai chowk, Ravet, Pune	Shared Car
94	Dr. Preetam Kalos	Associate Professor	15.7.2019	14, SHUBHALAXMI ROW HOUSE, WASAN NAGAR, PATHARDI PHATA, NASHIK-9	Shared Car
95	Mr. Nilesh Totla	Sr. Asst. Professor	01.04.10	D-904, Wisdom park, bh Finolex cables, finolex chowk, Morwadi, Pimpri, Pune India Maharashtra Pune Haveli Pune 411018	Public Transport
96	Mr. Dilip	Asst.	25.01.10	A-206 Sai Icon, Krantiveernagar Lane No.2	Own

	Panchal	Professor		Thergaon-Chinchwad Link Road, Chinchwad India Maharashtra Pune Haveli Pune 411033	Two Wheeler
97	Ms. Archana Mane	Asst. Professor	9.11.2010	K K Meadows, A Building, Flat No- 402 Charholi Phata, Alandi (D) India Maharashtra Pune khed pune 412105	Public Transport
98	Ms. Maya Charde	Asst. Professor	04.07.07	Ft. No. 301, Waman Vishwa Vikas Nagar Kiwale, Dehuroad India Maharashtra Pune Haveli Pune 412101	Shared Car
99	Mr. Sudesh Powar	Asst. Professor	2.12.2013	C1003, Tanish Orchid, Charoli phata Alandi Road, Pune India Maharashtra Pune haveli Pune 412105	Own Two Wheeler
100	Mr. Pramod Kothmire	Asst. Professor	11.12.2013	D2-703, ALANKAPURAM PHASE-1 WADMUKHWADI PUNE ALANDI ROAD India Maharashtra Pune BHOSARI PUNE 412105	Own Two Wheeler
101	Mr. Saurabh Deo	Asst. Professor	30.6.2014	Tanish Orchid, B Building , Flat 1008, 10th Floor Charholi Phata India Maharashtra Pune Haweli Pune 412105	Own Two Wheeler
102	Mr. Rupesh Jadhav	Asst. Professor	21.7.2014	FLAT NO G09 RAMNAGRI 2D SHASTRI CHOWK ALANDI ROAD India Maharashtra Pune HAVELI PUNE 411039	Own Two Wheeler
103	Mr. Bhimgoud Patil	Asst. Professor	2.12.2014	Flat #604, B2 wing , SHAMA Estate Charholi phata, Alandi India Maharashtra Pune khed pune 412105	Own Two Wheeler
104	Mr. Mahesh Joshi	Asst. Professor	1.6.2015	2C/3, Bella C Apt., Aditya garden city, Warje India Maharashtra Pune Haveli Pune 411058	Own Two Wheeler
105	Mr. Amol Asalekar	Asst. Professor	1.6.2015	A606, Tanish Orchid, Charholi Road Alandi Devachi, Pune- 412105 India Maharashtra Pune Junnar Pune 412105	Own Two Wheeler
106	Mr. Ashwin Chandore	Asst. Professor	1.6.2015	D1 504, Umang Hones, Ivy Estate Wagholi, Pune India Maharashtra Pune Haveli pune 412207	Own Two Wheeler
107	Mr. Tukaram Sonawane	Asst. Professor	1.12.2015	Flat no-3, D-wing, Sukhawani Classic Apartment old Mahada colony road, Morwadi India Maharashtra Pune Pimpri Pimpri 411018	Own Car
108	Mr. Murtuza Dholkawala	Asst. Professor	1.6.2016	Banu Mansion Behind Satyanand hospital, kondhwa India Maharashtra Pune pune pune 411048	Shared Car
109	Mr.Abhimanyu Chandgude	Asst. Professor	1.6.2016	Flat No. 15, New Ankita Residency, Behind Lokseva Hanuman Temple Gadital, Hadapsar India Maharashtra Pune Haveli Hadapsar 411028	Shared Car
110	Mr. Venugopal Kulkarni	Asst. Professor	1.6.2016	K 1001, Ganga Ashiyana, Dattanagar, Thergaon, Chinchawad, Pune India Maharashtra Pune Pune Pune 411033	Own Two Wheeler
111	Mr. Rahul Patil	Asst. Professor	1.6.2016	Flat No D 702,Alankapuram,Alandi Road Charholi Budruk,Pimpri Chinchwad India Maharashtra Pune Alandi Pimpri Chinchwad 412105	Own Two Wheeler
112	Mr.Amol Kolhe	Asst. Professor	14.6.2016	GAYATRI NAGAR BALAPUR ROAD OLD CITY India Maharashtra Akola AKOLA AKOLA 444002	Own Two Wheeler

113	Mr. Sachin Dhavane	Asst. Professor	20.6.2016	M -903 River Residency Jaddawadi Moshi chikali India Maharashtra Pune khed pune 412114	Own Two Wheeler
114	Mr. Manoj Bhalwankar	Asst. Professor	5.6.2017	Yashodeep A 2 202 Manikbaug Sinhgad Road Pune India Maharashtra Pune Pune Pune 411051	Own Two Wheeler
115	Mr. Amit Belvekar	Asst. Professor	5.6.2017	C-503, Celestial City- II, Ravet Ravet, Pune India Maharashtra Pune pune Pune 412101	Own Two Wheeler
116	Mr. Rahul Kumar Patil	Asst. Professor	30.8.2017	404, Manomay residency, nr visarjan ghat, kalas, Pune	Own Two Wheeler
117	Mr. Pramod Dastoorkar	Asst. Professor	1.1.2020	Grand View 7, C-506, Ambegaon,Pune	Shared Car
118	Mr. Yogesh Maske	Asst. Professor	1.8.2018	Flat No 807 Building J Tanish Orchid Charoli Phata Alandi Pune India Maharashtra Pune Khed Pune 412105	Own Two Wheeler
119	Ms. Renu Shastri	Asst. Professor	1.8.2018	flat no. 403 F, vivana life vishakha, Dhanori road, Pune	Own Two Wheeler
120	Ms. Nitasha Chaudhari	Asst. Professor	1.8.2018	601, Gulmohor eligance, Vimannagar, Pune	Shared Car
121	Dr. Sanghamitra Sethi	Asst. Professor	5.3.2019	Royale Castle Flat No. A-2/705 near rosewood restaurant Dange Chowk	Shared Car
122	Dr. Vishal Bhosale	Asst. Professor	1.7.2019	JSPM Narhe Technical Campus	Own Two Wheeler
123	Mr. Sagar Mushan	Asst. Professor	26.9.2018	Sai Nagar, Alandi, Near Sai Mandhir, Alandi (D.) Pune.	Own Two Wheeler
124	Mr. Satish Gajbhiv	Asst. Professor	28.09.2011	DWARKA PLATINUM, B-05, SECTOR-7 INDRAYANINAGAR, BHOSARI, PUNE India Maharashtra Pune HAVELI PIMPRI-CHINCHWAD 411026	Shared Car
125	Mr. Shaikh Azhar Riazuddin	Asst. Professor	1.07.2011	3271 C/O A.H. Munshi, Dharti Chowk India Maharashtra Ahmednagar Ahmednagar Ahmednagar 414001	Own Two Wheeler
126	Mrs. Asha Abhilash	Asst. Professor	6.07.2011	S.No.52/2,plot no. 635, bhairav nagar, Dhanori road Vishranth wadi India Maharashtra Pune Haveli pune 411015	Shared Car
127	Mrs. Sini Ronson	Asst. Professor	30.07.2014	C 303, NANDAN EUPHORA HAWALDAR MALA, TINGRE NAGAR, VISHRANTWADI India Maharashtra Pune HAVELI PUNE 411015	Shared Car
128	Mrs.Manisha Pansare	Asst. Professor	4.4.2016	Flat No.17, Vedant Apartment, Sector-1, Plot C-22, Indrayaninagar Bhosari India Maharashtra Pune Haveli Pune 411039	Shared Car
129	Ms. Priti shinde	Asst. Professor	5.7.2017	Sadguru krupa S.no.1-3, New Laxmi nagar, Pimple gurav India Maharashtra Pune Haveli	Own Two

				Pune 411061	Wheeler
130	Mr. Vivekana nd Deshmuk h	Asst. W/S Suptd.	25.03.2011	flat no 15 shau colony India Maharashtra Pune pune pune 411052	Own Two Wheeler
131	Dr. Arika Kotha	Associate Professor	02.06.08	C-10 Amar Paradise Aundh Road, Near Ganesh Temple India Maharashtra Pune Pune Pune 411020	Shared Car
132	Dr. Puja Verma	Sr. Asst. Professor	20.07.09	I-505, Gera Park view-1, Near EON IT Park, Kharadi India Maharashtra Pune Pune Pune 411014	Shared Car
133	Mr. Amol Kapse	Asst. Professor	28.08.2006	Survey. No.15/16, D2-402, The Lake District, Yewalewadi, Kondhwa, Pune-411048 India Maharashtra Pune Hawali Pune 411048	Own Two Wheeler
134	Mr. Manish Khare	Asst. Professor	16.7.2009	702/ A2, Shaama Estate, S.No. 152/2, Chovisavadi Near Charholi Phata, Alandi India Maharashtra Pune Alandi Pune 412105	Own Two Wheeler
135	Dr. Sushma Kulkarni	Asst. Professor	11.7.2016	Survey No. 64/1 'Sai sankul', A-503 India Maharashtra Pune Haveli Rahatni, Pune 410017	Shared Car
136	Mr. Shaikh Hussain Shaikhali	Asst. Professor	11.02.2010	A/4 101, Fortune Easte , Mudhawa bypass road, Khardi India Maharashtra Pune pune Pune 411014	Shared Car
137	Ms. Vithika Sidhabha tti	Asst. Professor	8.6.2016	Flat no- 13 Shakuntal Apartments behind Titan Showroom, Near karve Statute Kothrud, Pune	Shared Car
138	Mr. Mahendr a Shete	Asst. Professor	7.8.2018	Flat no. 204, B Building, Phase 2, Alankapuram Society, Near Wadmukhwadi, Alandi Road, Pune India Maharashtra Pune Haveli Pune 412105	Shared Car
139	Mr. Avinash Bhalerao	Professor	3.9.2019	S/O Sudhakar Bhalerao, F-502, Krushnai Vihar, Fhase II, Jangli Maharaj Nagar, Near Dinosaur Garden, Pimple Gurav.	Own car
140	Mr. Vaibhav Panchal	Asst. Professor	2.12.2020	S/O. Harishchandra Panchal, House No. 264, Sutar Wadi, Mayangadewai, Tarwal Ratnagiri	Shared Car
141	Ms. Apoorva Gijare	Asst. Professor	9.12.2020	Flat.no-9, Building no-1, Kamada Housing soc, Behind Hindustan Bakery, ChinchwadGaon, Pune	Shared Car
142	Mr. Mandar Kulkarni	Asst. Professor	19.4.2021	26/19, nivrutti nagar, near kerala temple	Shared Car
143	Mr.Sugat Ingale	Asst. Professor	22.6.2021	VIJAYRAJ APARTMENT, 4TH FLOOR, MAMTA LAYOUT, NEAR SONEGAON BUS STOP, SOENGAON NAGPUR.	Shared Car

Table 12: Details of the Student and staff commuting from various places

The above summary shows most of the students and staff commute using own vehicle.

5.4.2 Heat Island Reduction

The Institution has **adopted the following practices which are yielding positive results** in terms of Urban Heat Island Effect which refers to increase in temperature of the surrounding because of ineffective strategies.

- **Exposed roof areas –** The terrace is flat roof, it is absolutely clean and well maintained. Though it is quite new, the Buildings are covered with white paint. The current practices are well maintained.

- **Exposed non-roof hardscape areas -** There is a pathway on all sides of the premises. These include some natural and potted plantations. However, the trees are wide and the canopy is wide spread providing ample shade to this space. Hence, there is no direct sunrays or similar effect. In addition there are provisions for grass pavers in the premise. The college multiple types of open spaces in the form of lush green carpet. **The overall temperature measured using the Altech LCD Temperature Control sensor resulted in external temperature being between 26-34^{0}C and Internal temperature around 29^{0}C**

There are adequate measures adopted in the premises to reduce heat island effect of Building roofs and in site.
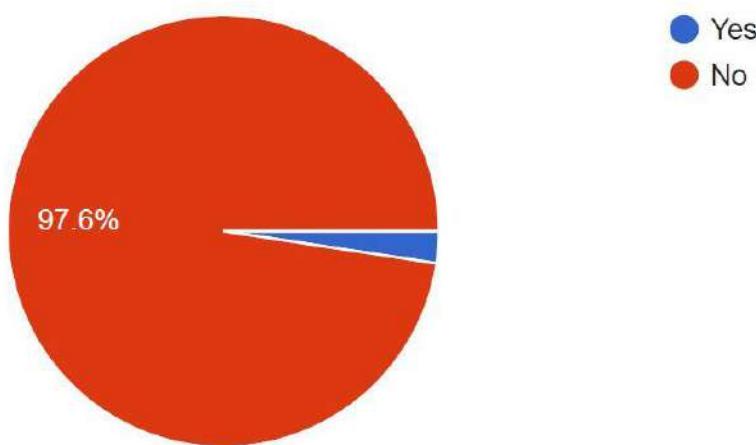
5.4.3 Outdoor Light Pollution Study

5.4.3.1On-site observation

The college compound lights are not upward looking thus, these do not cause light pollution.

5.4.3.2   Survey results

An online survey was conducted to analyse the student and staff views about **Is there any Light pollution in the premise?**

Figure 11: Participation analysis in the survey

The students, staff **(almost 98%)** of responses confirmed that there is no light pollution.

5.5   Universal Campus

5.5.1 On-site observations

As per World Report on Disability, 2011 there are 180 million approx. Persons with Disabilities that makes it 15% of total population of India.

There are Handrails along staircase, ramps, lifts, low height risers in the Staircases as part of universal campus initiatives. The design of the premises is appropriate for access with passages and corridors being wide enough in size and naturally ventilated. The doubly and singly loaded corridors are safe from fire safety aspect. The college has resting places (seating areas) in the outdoor along the trees thereby making it user friendly for the specially abled students.

The below mentioned are details of the Universal Design features in the premise.
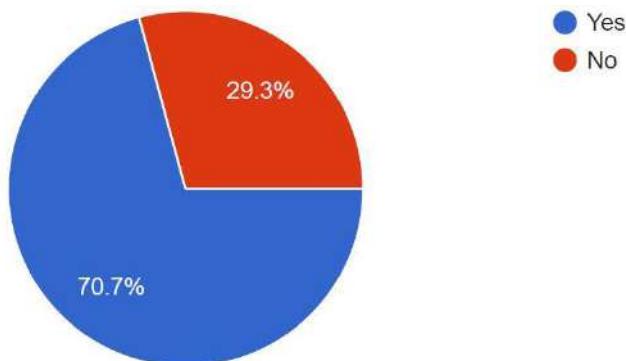
S. No.	Particular	Nos.	Building name
1	Ramp	6	A,D, D-EX,E,F,H
2	Staircase	7	A,D, D-EX,E,F,H
3	Lift	1	D- EX

Table 13: Details of Universal design features

The above table shows there are sufficient numbers of facilities however the number of lifts can be increased.

5.5.2 Survey results

An online survey was conducted to analyse the student and staff views about **Do you find the facilities for the Physically challenged people sufficient in the premise?**
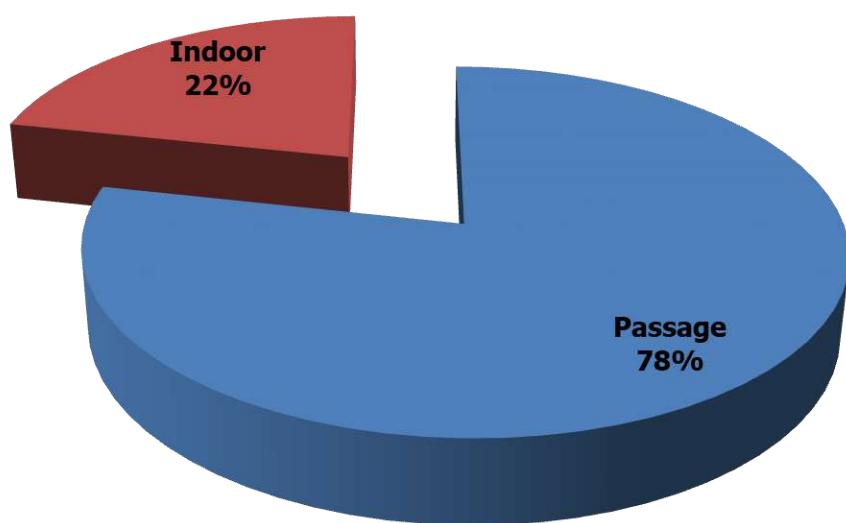
Figure 12: Participation analysis in the survey

The students, staff **(almost 71%)** of responses confirmed activities are conducted sufficient, though this number can be improved.
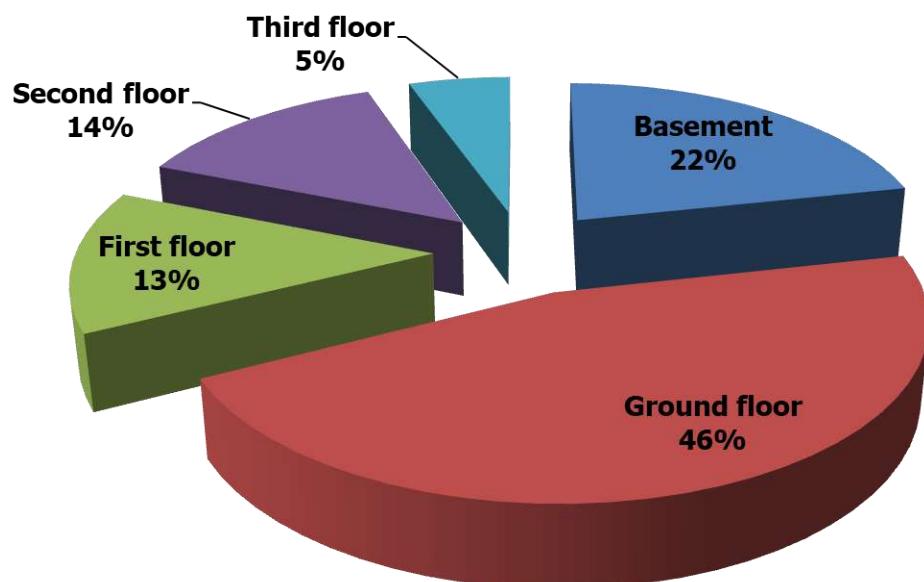
5.6   Fire Safety

The Institution has taken care for adequate fire safety measures to be adopted. Each floor has an open staircase without any barriers for fire safety measures & are free of any kind of storage or combustible material. The college has adopted additional fire safety practices such as fire hydrant and others. The current facilities are quite well maintained. There are 185 Plastic Dustbins in the premise with volume of 7 litres (small) and 60 litres (Big) each. The analysis of dustbins is presented below.
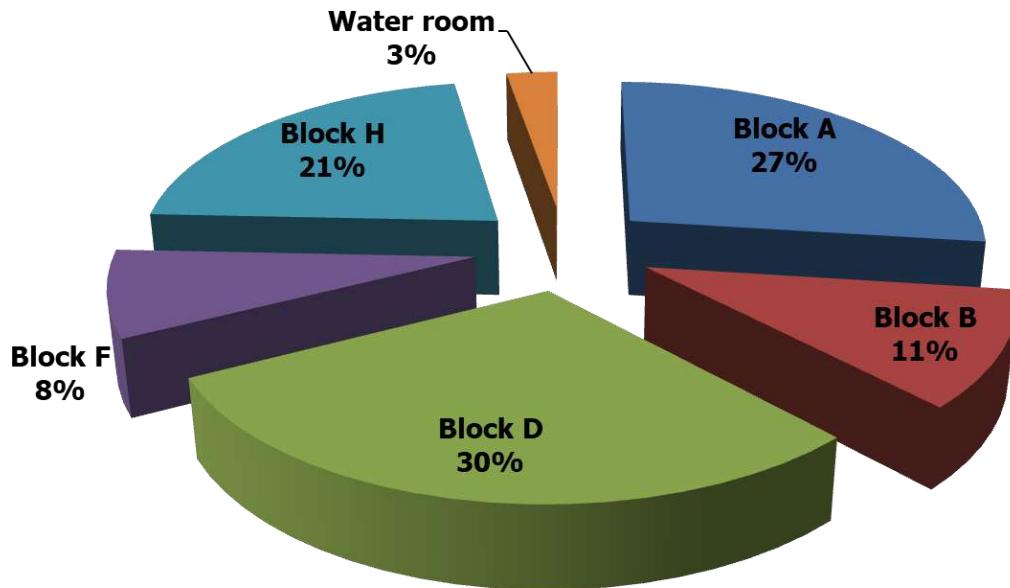
Figure 13: Analysis of dustbins in the premise

The above analysis shows **78% are present in Passage areas** and **22% in the Indoors of the premises.**

Figure 14: Analysis of dustbins in the premise

The above analysis shows **46% dustbins are present in Ground floor, 22% in Basement, 14% in Second floor, 13% in First floor and 5% in Third floor.**

Figure 15: Analysis of dustbins in the premise

The above analysis shows **30% dustbins are present in Block D, 27% in Block A, 21% in Block H, 11% in Block B, 8% in Block F and 3% in Water room.**

The process for fire hydrant is in process, however sand buckets should be introduced and there should be fire extinguishers in every space where there is an Air conditioner.

5.7   Survey review

Some of the key responses are noted below as a result of Online survey.

5.7.1 What can be additional features you would want in terms of Institute premise in terms of accessibility, open spaces, site features and neighbourhood?

- Canteen

- Open space for parking and more ground

- Playground, Sit out Benches in Garden

- Hostel, especially for girls

- In toilets there is a lot of wastage of water try to control it and use the waste water in proper way like for gardening or use the same waste water for flush

- The ground behind mechanical department is little bit unlevelled there need to plant something at boundaries of that ground

- Maybe a small Water fountain, also some benches so one can sit and peacefully see the surrounding or maybe read a book as well.

- Can paint some tree trunks in effective way if possible

- Badminton Court.

- Bigger Entrance roads, parking gate from start of entrance, necessarily increase bandwidth of internet.

- **Nothing required**

- **No need of any features because our campus is really best**

- **I don't think there is no need for anything**

- **Everything is very good. No need for changes.**

- **Right now also there is sufficient Trees in the campus and very fresh and cool Air.**

- Developed Playground | Proper Parking | Road leading to the main gate of premise should be larger or there should be two roads one for entry and another for exit.

- Need spacious entry, space to sit below the trees (katta)

- Kiosks, amphitheatre

- Use of campus buses, Big Auditorium

- Botanical Garden

- Everything is just Perfect.

- A good sports ground is must, Parking seems to be congested, Cafeteria needs more space, & there are no fans in library. To on the AC they needed some special kind of permission also the library is boiling in summer season. NEEDS improvement.

- **Access to every floor of the buildings for physically challenged people. More sustainable surrounding has to be made.**

5.8 Recommendations for a Sustainable Habitat by Greenvio Solutions

Site beautification

a) Low VOC Paints and Adhesives

Whenever the College undergoes repairs or renovations there should be use of materials with low emissions so as to reduce the adverse health impacts on workmen and the students occupying the space thereafter.

Universal Campus

a) Universal Toilet

There should be minimum 1 toilet for the specially abled people as per guidelines prescribed by National Building Code 2016 with size being minimum or more than 1.5m x 1.5m

b) Resting places

There should be increased provision for resting places in premises in outdoor and indoor.

Pollution Control

a) Promote the use of Eco-friendly vehicles

There can be provision for battery operated vehicles/ low emission vehicles such as electrically driven vehicles parking in open space along with battery charge points, this would inspire students to change mode of transportation and adopt sustainable practices.

b) Bicycles as a gift

As an appreciation gesture may be the students toppers/ staff best performers can be awarded with a bicycle occasionally.

6. Towards a Healthy & Sustainable Institution

6.1   Inputs by Greenvio Solutions

Based on the analysis of the study of premises in addition to the recommendations provided in each section of Ecological, Water, Waste and Energy Audit the College can adopt the following strategies towards a Healthy and Sustainable Institution practices.

a) **Kitchen garden and diet canteen -** There can be provision of kitchen garden practices in a designated area of the open space this would enhance the biodiversity and be useful in training students and staff about the healthy practices and vegetables grown which would be used in Canteen. It helps in capacity building. The smaller steps taken have huge impacts when each student would adopt these practices in their homes or societies and grow kitchen garden, terrace garden there will be a long term benefit for the environment as a whole. The College can be one of the first Institutes in the country to have a healthy & nutritious Canteen following which a Research paper can be written by the Green Building Consultant. This would create awareness and encourage other Institutes to adopt similar practice.

b) **Cutlery in the Canteen –** The regular plastic and steel plates, spoons used in Canteen can be replaced with eco-friendly and organic leaves, paper straw, disposable plates, edible spoons and tables made out of sugarcane waste or bamboo. This will be first of its kind initiative to be adopted and practiced thus also inculcating the healthy practices in students.

c) **Waste vio –** Stepping up a little further an initiative can be undertaken wherein College can tie up with an organisation and students can be encouraged to collect dry waste and electronic waste such as newspapers, old computers and others and hand over to organisation on a weekly or monthly basis thereby making a waste reduction approach in the community. This has benefits such as awareness, eco-friendly habits in becoming a responsible citizen.

d) **Signages –** In addition to the signages being in regular language there can be additional signages in braille language for the specially abled students.

6.2   Survey Recommendations

An online survey was conducted to analyse the student and staff views about what changes according to you can be undertaken for Green audit improvement in College premise and activity, some of the key responses are listed below. Whereas many responses **stated there were no changes requires because the present practices are excellent.**

Some of the positive responses are listed as follows:

- No additional suggestions

- Well maintenance of plants and solar energy systems are the main key expect in others institute is good

- None, our institute is perfect

- Everything is very nice in terms of environmental factors

- Everything has been fine in institute. A silent nature perfect for learning and good habitat of students. Changes which should be done in walking and vehicle ways.

- Nothing because our institute is doing their best.

Some of the suggestions by the Students and staff are listed below:

- Water management

- Rain harvesting

- Voluntarily participation in Prakruti Club and awareness about club

- Webinar by experts, Qualified & hardworking gardening staff. Awareness through culture program

- Smart bulbs can be implemented

- Try to minimise the water wastage from toilets and use the same waste water for gardening or as flush water

- Free PUC check-up for all the vehicles coming to college premises

- Small plants can be planted in pot and hang near the edge of premises

- Quizzes about the environment

- Need to have a plant for waste water utilisation.

- Student innovative projects on waste management

- Vehicle free campus

- Natural Resources Management

- Plant more trees and Make one Flower garden

- Built more advanced classroom

- The students can be encouraged to focus on the environment through their projects and assignments. Organisation of awareness programmes and internship programmes can be adopted.

- Tree plantation camping in Alandi

- Better drinking water facilities. Lifts in each building.

- Regular remainder in form of social media post may increases the awareness

- Lights can be kept on sensors which detect movement and auto switch off

- More space can be utilised for plantation purpose, classrooms and open spaces may be more equipped with dustbins preferably for separation of wet and dry waste, students and staff may be voluntarily roped in to assist for regular plantation and cleanliness activities by making a space in their scheduled activities on the premises.

However, it should be noted that the College has taken up multiple initiatives and because of Pandemic the students have not practically visited the campus so many of these points are not mandatory at the moment.

7. References

1. Uniform Plumbing Code – India, 2008

2. IGBC Green Existing Buildings – Operation & Maintenance (O&M) Rating system, Pilot version, Abridged Reference Guide, April 2013

3. IGBC Green Landscape Rating system, March 2013

4. BOMA Canada Waste Auditing Guide, Best Environmental Standards, BOMA BEST - Canada

5. Climate data https://en.climate-data.org/asia/india/maharashtra/pune-31/

6. Used only for understanding Universal design - Universal accessibility Guidelines for Pedestrian, Non-motorizes vehicle and Public Transport Infrastructure – Report guidelines by Samarthyam (National centre for Accessible Environments) – an initiative supported by Shakti Sustainable Energy Foundation.

GREEN AUDIT

2019-21

AUDIT REPORT

Studied for

**Maharashtra Academy of Engineering
and Educational Research's (MAEER)**

MIT Academy of Engineering

Alandi, Pune - 412 105

Analysed by

Greenvia
solutions

23 October 2021

Disclaimer

Green Audit Team has prepared this report for **Maharashtra Academy of Engineering and Educational Research's (MAEER), MIT Academy of Engineering, Alandi, Pune - 412 105** based on input data submitted by the College analysed by the team to the best of their abilities.

The details have been consolidated and thoroughly studied as per the various guidelines for Green Buildings available in National and International Standards; the report has been generated based on comparative analysis of the existing facilities and the prerequisites formulated by various standards. The inputs derived are a result of the inspection and research. These will further enhance and develop a Healthy and Sustainable Institution.

These can be implemented phase wise or as a whole depending on the decision taken by the Hon'ble Management and College. The warranty or undertaking, expressed or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

The audit is a thorough study based on the inspection and on-site investigation of data collected over a period of time and should not be used for any legal action. This is the property of Greenvio Solutions and should not be copied or regenerated in any form.

The Report is prepared by the Team of Greenvio Solutions under their brand and department – Sustainable Academe as Consultancy firm along with Ar. Nahida Shaikh as an Accredited Green Building Professional.

Greenvio Solutions

Developing Healthy and Sustainable Environments

We are an Environmental and Architectural Design Consultancy firm

Sustainable Academe is our department for conducting Audits

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Acknowledgement

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Our special thanks are due to **Rev. Prof. Dr. Vishwanath D. Karad, Founder & President,** Maharashtra Academy of Engineering and Educational Research (MAEER), Pune, India; **Hon. Shri. Rahul V. Karad, Executive President;** Maharashtra Academy of Engineering and Educational Research (MAEER), Pune, India**; Dr. Sunil Karad, Executive Director,** Treasurer & Trustee MIT Group of Institutions, Pune, India and everyone from the Management.

Our heartfelt thanks to Chairperson of the entire process **Dr. Mahesh D Goudar,** Director and **Prof. S. M. Bhagat,** Registrar, MIT Academy of Engineering for their valuable inputs.

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Contents

1. Introduction

1.1 About MIT Academy of Engineering (MITAOE)

It was established in 1999 under MAEER by the honorable Prof. Dr. Vishwanath D. Karad, Founder and Executive President of MIT Group. The institute offers seven UG programs (B.Tech) and three PG programs (M.Tech). Recently, the UGC has honored the institute with 'Academic Autonomy' considering the quality of pedagogical practices, research, faculty and the state-of-the-art infrastructure that meets global standards.

The Savitribai Phule Pune University (SPPU) has honored the institute with the 'Best Engineering College (Professional Courses) award. The institute has made its mark by excelling in academics and research and it continues to grow as a **'Centre of Excellence'** in engineering education and research.

The NBA Accreditation to all branches, 'A' Grade by NAAC and the 2(F) & 12(B) status from the UGC, are the testimony to their pursuit of excellence.

Learning-centered approach, personal attention to all the students and effective implementation of their valuable suggestions received through the continual feedback mechanism and 'Student Teacher Interaction pedagogy', makes the teaching & learning process more effective.

Selection and retention of the most efficient and talented staff members to enhance the quality of education and administration, is their key to success. A special emphasis is laid on their quality improvement by sponsoring the staff members for pursuing research and higher studies. Another significant feature is the **'Tutor System for Counselling'**.

The Institute endeavours to impart holistic education to its students in order to contribute to their all-round development. The students at MITAOE get an opportunity to not only enhancing their technical skills but also their communication and soft skills.

The Institute is committed for their bright future and hence facilitate them to realize their dreams.

1.2   About MITAOE as an Autonomous Institute

MITAOE is only the third institute in Pune which has been bestowed with 'academic autonomy' by the University Grants Commission (UGC). Academic autonomy is granted only to those institutes that are accredited by NAAC with 'A' grade for all programs. Besides, the institute should also have the 2(F) & 12(B) status of the UGC. This exemplifies that the 'academic autonomy' is awarded only to the best institutes. Only those institutes that persistently excel in every aspect of quality education are bestowed with autonomy. Under autonomous status an institute remains affiliated to the University but gets freedom to design the advanced & industry-oriented syllabi, decide the modes of instruction & evaluation, and conduct examination and assessment of papers. The degree though, is awarded by the University. There are many advantages of academic autonomy for all stakeholders of the institute.

- Updated and contemporary syllabi; flexibility in updating as per industry needs.

- Innovative approaches to teaching and learning; skill-based education.

- Interdisciplinary approaches in academics and research.

- A wide range of subjects to choose from.

- Opportunities for collaborations with reputed foreign & national universities and companies.

- Better placement opportunities.

- Support for higher education in India and abroad.

- Internships and scholarships for projects.

- Guest lectures and training programs by eminent experts from academia and industry.

Thus, academic autonomy opens the doors for excellence in education, research and administration. The students earning their degrees from an autonomous institute have an extra edge which guides them to achieve success in any future endeavours; be it placements in reputed national and multinational companies, entrepreneurship or higher education in renowned Indian or international institutes. MITAOE, as an autonomous institute, strives to make a huge difference by creating winning personalities and catering to the all-round development of its students.

1.3   Vision and Mission Statement of College

Our Vision – To develop MITAOE into a new-age learning center with an excellent ambiance for academics and research conjugated with a vibrant environment for honing the extra and curricular skills of all its stakeholders, to enable them to solve real-world problems and bring a positive change in the society.

Our Mission – To leave no stone unturned in our endeavour to ensure that every alumnus looks back at us and says MITAOE has not merely taught me, it has educated me.

1.4   Institution and the surrounding premises

The Premises is situated amidst the landscape serene of the **Alandi, Pune** with immense peace and calmness in the surroundings. The college is surrounded by Residential areas on all sides. There is a frontal approach which provides quite a beautiful appreciation space while approaching the premise. The location of college is feasible to the nearby essential amenities such as Public Health Center, Fire Station, Civic body-Public administrative buildings, Recreational gardens and Police Station. The details of various Institutions in the premise are as follows, there are modifications going on in the premise to expand the Infrastructure.

The aim of the college is to be a leading educational institute to create leaders, and innovators for contributing towards the industrial, economic, and social growth of the society.

It continuously enhances the teaching methods in order to provide students with an opportunity for their all-round development. **It strives for excellence in Holistic development for Students with a balanced Educational Environment.** It makes an effort to induce passion for learning along with the inspiration for decisive thinking and assessment, thereby helping them to become the best professionals in life. The institution offers the following courses as an Autonomous entity.

Name of the School	Courses provided	Name of the HOD/ Director	Approx. students
School of Chemical Engineering	B Tech (Chemical Engineering)	M Senthilkumar	250
School of Electrical Engineering	B Tech (Electronics Telecomunication Engineering)	Dr Dipti Sakhare	500

	B Tech (Electronics Engineering)		
	M Tech (VLSI and EMBEDDED)		
School of Computer Engineering and Technology	B Tech (Computer Engineering)	Mrs R R Badre	700
	B Tech (Information Technology)		
	M Tech (Computer Engineering)		
School of Mechanical & Civil Engineering	B Tech (Mechanical Engineering)	Dr P R Hatte	700
	M Tech (Mechanical Engineering)		
	B Tech (Civil Engineering)	Mr Atif Shaikh	250
First Year Engineering	First year	Mrs Prabha Kasliwal	700

Table 1: Educational Details of the courses offered by the Institution

The College aspires at training young women and men to be competent, committed and compassionate and lead in all walks of life. It has the following objectives.

1. To provide a professional and liberal education to students with guiding principle of a broad and strong foundation, a skillful training and a practical orientation towards solving real-world problems.

2. To improve research publications and its impact.

3. Develop and offer skill-based programs to cater student's requirements from career point of view.

4. Provide exposure to the students in technical, cultural, recreational and sports domain.

5. Enhance alumni involvement in curricular and co-curricular activities.

6. To encourage faculty for lifelong learning.

7. Improve the quality of students intake.

8. To encourage and support students and youngsters to opt for entrepreneurship as a career opportunity.

9. Build an e-learning infrastructure for online & on campus courses.

10. To directly work with the society and community needs.

1.5   Assessment of the College

The College is recognised as an Autonomous Institute, below mentioned are the administrative details of the Institute.

Affiliations - The institution is affiliated to <u>Savitribai Phule Pune University (SPPU), Pune</u>

Recognitions - University Grant Commission (UGC) by 2(f) 12(b)

Approval - It is approved by All India Council of Technical Education (AICTE), New Delhi

Certifications - It has received the Certificate of Quality System Assessment (ISO 9001:2015)

Accreditation - The following are details of the reaccreditation of the Institute.

Cycle	First
CGPA	3.13
Grade	A
Year	2014

Table 2: NAAC Accreditation details of the Institute

1.6   Awards of the College

Savitribai Phule Pune University (SPPU) has honoured the institute with the 'Best Engineering College (Professional Courses) award in the year 2014

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद

विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

An Autonomous Institution of the University Grants Commission

Certificate of Accreditation

The Executive Committee of the
National Assessment and Accreditation Council
on the recommendation of the duly appointed
Peer Team is pleased to declare the
MIT Academy of Engineering
Alandi, Pune, affiliated to University of Pune, Maharashtra as
Accredited
with CGPA of 3.13 on four point scale
at A grade
valid up to September 23, 2019

Date : September 24, 2014

Director

EC(SC)/03/A&A/54

N A A C A c c r e d i t a t i o n C e r t i f i c a t e

CERTIFICATE

Certificate Number: **3770177**

This is to certify that

MIT ACADEMY OF ENGINEERING

Dehu Phata, Alandi (D),
Tal. Khed, Pune,
Maharashtra - 412 105, India.

has implemented and maintains a **Quality Management System**

with

Scope : **Designing Curriculum and Imparting Education** leading to Graduation in the disciplines of **Chemical Engineering, Civil** Engineering, **Computer Engineering, Electronics Engineering, Electronics** & Telecommunication **Engineering, Information Technology, and Mechanical** Engineering, and Post **Graduation in Computer Engineering, Electronics** & Telecommunication **Engineering and Mechanical Engineering being an** academic autonomous **institute affiliated to Savitribai Phule Pune University.**

that meets the requirements of the standard:

ISO 9001:2015

Quality Management Systems – Requirements

The file that forms the basis of this certificate: 3770177

Date of Initial Certification	: **September 11, 2009**
Date of Transition	: **September 12, 2018**
Date of Current Revision	: **October 27, 2018**
Certification Expiry Date	: **October 26, 2021**

K. G. Garg

K.G. Garg
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Note: Please verify current validity of certificate from NVT Quality Certification Pvt. Ltd.,

2. Institution overview

2.1 Populace analysis for Academic year 2019-20

2.1.1 Students data macro level

The student data (shared by the College) shows there are total of **3,036** students occupying the premises out of which Boys form the majority of **2,260** in numbers.

Figure 1: Summary of the students in Academic year 2019-20

The above graph shows **boys occupied 74%** as compared to **girls 26%**

2.1.2 Department wise Student data micro level

S. No.	Department	Male	Female	Total
1	Chemical Engineering	174	76	250
2	Civil Engineering	180	61	241
3	Computer Engineering	452	150	602
4	Electronics Engineering	128	48	176
5	Electronics and Telecommunication Engineering	392	165	557
6	Information Technology	223	88	311
7	Mechanical Engineering	692	182	874
8	M.Tech - First year	3	0	3
9	M.Tech - Second Year	16	6	22

Table 3: Department wise student bifurcation 2019-20

2.1.3 Staff data macro level

| Type	Male	Female	Total
Faculty	129	42	171
Staff	137	58	195
Total	**266**	**100**	**366**

Table 4: Staff data of the Institution for 2019-20

The staff data shows the premise has a total of **366** staff members.

2.2 Populace analysis for Academic year 2020-21

2.1.1 Students data macro level

The student data (shared by the College) shows there are total of **2,862** students occupying the premises out of which Boys form the majority of **2,144** in numbers.

Figure 2: Summary of the students in Academic year 2020-21

The above graph shows **boys occupied 75%** as compared to **girls 25%**

2.1.2 Department wise Student data micro level

S. No.	Department	Male	Female	Total
1	Chemical Engineering	157	76	233
2	Civil Engineering	175	63	238
3	Computer Engineering	441	135	576

4	Electronics Engineering	109	43	152
5	Electronics and Telecommunication Engineering	371	149	520
6	Information Technology	215	74	289
7	Mechanical Engineering	678	168	846
8	M.Tech - First year	3	5	8
9	M.Tech - Second Year	0	0	0

Table 5: Department wise student bifurcation 2020-21

2.1.3 Staff data macro level

Type	Male	Female	Total
Faculty	105	46	151
Staff	164	50	214
Total	**269**	**96**	**365**

Table 6: Staff data of the Institution for 2020-21

The staff data shows the premise has a total of **365** staff members.

2.3   Total Institute Area & College Building Spread Area

The total site area is 8.33 acres and total built-up area is 2,38,915 sq. ft. for approx. 3,228 footfalls.

2.4   Institute Infrastructure

2.4.1 Establishment

The Society was formed in 1983 and today it **the MITAOE a name to reckon with in the field of Engineering Education and boasts of an infrastructure and standard of education which is one of the best in the country.** It is **an Autonomous entity.**   The Building is a Reinforced Cement Concrete (RCC) framework building. **Overall the Infrastructure of the Building is excellent in terms of the Architecture Design and Green Building Design. The Premise covers quite a few of the requirements for a Green Habitat.**

2.4.2 Spatial Organisation

The overall ambience of the College is warm and inviting. The classrooms and other spaces have ample natural ventilation in the form of clear glass windows with fresh air ventilation. The architecture of the building is quite well designed. The colour palette not just helps the building to stand out but also provides an Institutional arena. It balances with the local architecture with the natural landscapes of huge trees all around. The design emphasis on providing calmness to the built form and gradually merges with the serene landscape.

The floor to floor height is more than 10 feet. There is provision for lift in one block in the premise, there are with CCTV, Fire extinguishers, first aid box and amenities such as courtyards, libraries, serene landscape, open areas, gardens.

2.4.2.1   Building wise details

The Building wise details on the MITAOE premise are mentioned below:

S. No.	Name of the School	Building No.	Constructed in	Nos. of floor	Built-up area sq. m
1	CHEM+ETX+IT	A	1999	G+2	3620.01
2	CHEM+CIVIL	B	1999	G	719.3
3	OTHER FACILITIES	C	1999	G	76.87
4	FY+ETX+ETC	D	2006	B+G+3	3958.56
5	FY+ADMIN	D -EXT	2015	B+G+3	1477.48
6	HOSTEL	E	2004	G+3	5061.68
7	WORKSHOP	F	2008	G+M	1111.01
8	CIVIL+MECH+COMP	H	2007	B+G+3	6171.95

Table 7: Building wise detail in the premise

2.4.2.2   Room-wise details

The room-wise details are mentioned below:

S. No	Room No.	Room Name	Department	Section	Floor	Building Block
1	A-001	Dean Office	Chemistry	MITAOE	Ground floor	Block A
2	A-002	Dept. Office	Chemistry	MITAOE	Ground floor	Block A
3	A-003	Laboratory	ETC	MITAOE	Ground floor	Block A
4	A-004	Toilet	COMMON	MITAOE	Ground floor	Block A
5	A-005	Laboratory	FY	MITAOE	Ground floor	Block A
6	A-006A	Laboratory	CHEM	MITAOE	Ground floor	Block A
7	A-006B	Tutorial Room	CHEM	MITAOE	Ground floor	Block A
8	A-007	Conference Room	COMMON	MITAOE	Ground floor	Block A
9	A-008	Laboratory	CHEM	MITAOE	Ground floor	Block A

10	A-009	Classroom	CHEM	MITAOE	Ground floor	Block A
11	A-010	Classroom	CHEM	MITAOE	Ground floor	Block A
12	A-011	Toilet	COMMON	MITAOE	Ground floor	Block A
13	A-012	Laboratory	ETX	MITAOE	Ground floor	Block A
14	A-013	Laboratory	ETX	MITAOE	Ground floor	Block A
15	A-014	Dean FSA	COMMON	MITAOE	Ground floor	Block A
16	A-101	Dean Office	SEE	MITAOE	First floor	Block A
17	A-102A	Dept. Office	ETC	MITAOE	First floor	Block A
18	A-102B	Tutorial Room	ETC	MITAOE	First floor	Block A
19	A-103	Laboratory	ETC	MITAOE	First floor	Block A
20	A-104	Toilet	CPMMON	MITAOE	First floor	Block A
21	A-105	Classroom	ETC	MITAOE	First floor	Block A
22	A-106	Classroom	ETC	MITAOE	First floor	Block A
23	A-107	Laboratory	ETC	MITAOE	First floor	Block A
24	A-108	Laboratory	ETX	MITAOE	First floor	Block A
25	A-109	Laboratory	ETC	MITAOE	First floor	Block A
26	A-110	Laboratory	ETC	MITAOE	First floor	Block A
27	A-111	Toilet	common	MITAOE	First floor	Block A
28	A-112	Classroom	ETC	MITAOE	First floor	Block A
29	A-113	Classroom	ETC	MITAOE	First floor	Block A
30	A-201A	Laboratory	ETX	MITAOE	Second floor	Block A
31	A-201B	Tutorial Room	ETX	MITAOE	Second floor	Block A
32	A-202	Laboratory	ETC	MITAOE	Second floor	Block A
33	A-203	Toilet	COMMON	MITAOE	Second floor	Block A
34	A-204	Ladies Room	COMMON	COMMON	Second floor	Block A
35	A-205	Language Laboratory	COMMON	COMMON	Second floor	Block A
36	A-206A	Registrar Office	ADMIN	MITAOE	Second floor	Block A
37	A-206B	Faculty Room	IT	MITAOE	Second floor	Block A
38	A-207A	Laboratory	IT	MITAOE	Second floor	Block A
39	A-207B	Laboratory	IT	MITAOE	Second floor	Block A
40	A-207C	Laboratory	IT	MITAOE	Second floor	Block A
41	A-207D	Laboratory	IT	MITAOE	Second floor	Block A
42	A-208	Laboratory	ETX	MITAOE	Second floor	Block A
43	A-209	Laboratory	ETX	MITAOE	Second floor	Block A
44	A-210	Laboratory	ETX	MITAOE	Second floor	Block A
45	B-001	Laboratory	CIVIL	MITAOE	Ground floor	Block B
46	B-002	Laboratory	CHEM	MITAOE	Ground floor	Block B
47	B-003	Laboratory	CHEM	MITAOE	Ground floor	Block B
48	B-004	Laboratory	CHEM	MITAOE	Ground floor	Block B
49	B-005	Laboratory	CHEM	MITAOE	Ground floor	Block B
50	B-006A	Laboratory	CHEM	MITAOE	Ground floor	Block B
51	B-006B	Laboratory	CHEM	MITAOE	Ground floor	Block B
52	B-007	CANTEEN	COMMON	MITAOE	Ground floor	Block B
53	C-1	ATM	COMMON	COMMON	Ground floor	Block C

54	C-2	Store	COMMON	COMMON	Ground floor	Block C
55	C-3	Housekeeping	ADMIN	COMMON	Ground floor	Block C
56	C-4	Maintenance	ADMIN	COMMON	Ground floor	Block C
57	D-001A	Director's Office	ADMIN	COMMON	Ground floor	Block D
58	D-001B	Board Room	ADMIN	COMMON	Ground floor	Block D
59	D-002	HR Dept.	ADMIN	COMMON	Ground floor	Block D
60	D-003	Faculty Room	FY	COMMON	Ground floor	Block D
61	D-004	Ladies Toilet	COMMON	MITAOE	Ground floor	Block D
62	D-005	Gents Toilet	COMMON	MITAOE	Ground floor	Block D
63	D-006	Classroom	MECH	MITAOE	Ground floor	Block D
64	D-007	Classroom	MECH	MITAOE	Ground floor	Block D
65	D-008	Classroom	IT	MITAOE	Ground floor	Block D
66	D-009	Classroom	IT	MITAOE	Ground floor	Block D
67	D-010	Classroom	MECH	MITAOE	Ground floor	Block D
68	D-011	Seminar Hall	COMMON	DESIGN	Ground floor	Block D
69	D-013	Reception Area	ADMIN	COMMON	Ground floor	Block D
70	D-101	Computer Center	COMMON	COMMON	First floor	Block D
71	D-102	Seminar Hall	COMMON	MITAOE	First floor	Block D
72	D-103	T.P.Officer	ADMIN	COMMON	First floor	Block D
73	D-104	Laboratory	FY	MITAOE	First floor	Block D
74	D-105	Laboratory	ETC	MITAOE	First floor	Block D
75	D-106	Laboratory	ETC	MITAOE	First floor	Block D
76	D-107A	Laboratory	IT	MITAOE	First floor	Block D
77	D-107B	Laboratory	IT	MITAOE	First floor	Block D
78	D-108	Classroom	ETX	MITAOE	First floor	Block D
79	D-109	Class Rooms	FY	MITAOE	First floor	Block D
80	D-201	Library & Reading Room	COMMON	COMMON	Second floor	Block D
81	D-202	Classroom	ETX	MITAOE	Second floor	Block D
82	D-203	Class Rooms	FY	MITAOE	Second floor	Block D
83	D-301A	Tutorial Rooms - PG	ETX	MITAOE	Third floor	Block D
84	D-301B	Laboratory	ETX	MITAOE	Third floor	Block D
85	D-302	Research Laboratory	ETX COMP	MITAOE	Third floor	Block D
86	D-303	Gents Toilet	COMMON	MITAOE	Third floor	Block D
87	D-304	Ladies Toilet	COMMON	MITAOE	Third floor	Block D
88	D-305	Classroom	ETC	MITAOE	Third floor	Block D
89	D-306	Laboratory	ETX	MITAOE	Third floor	Block D
90	D-307	Classroom	ETC	MITAOE	Third floor	Block D
91	D-308	Classroom	ETX	MITAOE	Third floor	Block D
92	D-309	Classroom	CHEM	MITAOE	Third floor	Block D
93	D-310	Class Rooms	FY	MITAOE	Third floor	Block D
94	DBM-01	Central Store	ADMIN	COMMON	Basement	Block D
95	DBM-02	Office All	ADMIN	COMMON	Basement	Block D

		Inclusive				
96	DBM-03	Student Section	ADMIN	COMMON	Basement	Block D
97	DBM-04	Exam Dept.	ADMIN	COMMON	Basement	Block D
98	DBM-05	COE Office	ADMIN	COMMON	Basement	Block D
99	F-001	Workshop	CIVIL/CHEM	MITAOE	Ground floor	Block F
100	F-002	Workshop	FY	MITAOE	Ground floor	Block F
101	F-003	Drawing Hall	MECH	MITAOE	Ground floor	Block F
102	F-004	Workshop	MECH	MITAOE	Ground floor	Block F
103	F-005	Workshop	MECH	MITAOE	Ground floor	Block F
104	F-007	Tutorial Room	DESIGN	DESIGN	Ground floor	Block F
105	F-008	Tutorial Room	DESIGN	DESIGN	Ground floor	Block F
106	F-009	Tutorial Room	DESIGN	DESIGN	Ground floor	Block F
107	F-010	Tutorial Room	DESIGN	DESIGN	Ground floor	Block F
108	F-101A	Tutorial Room	MECH	MITAOE	Ground floor	Block F
109	F-101B	Tutorial Room	MECH	MITAOE	Ground floor	Block F
110	H-001A	Laboratory	MECH	MITAOE	Ground floor	Block H
111	H-001B	Tutorial Room	MECH	MITAOE	Ground floor	Block H
112	H-002	Laboratory	MECH	MITAOE	Ground floor	Block H
113	H-003	Toilet	COMMON	MITAOE	Ground floor	Block H
114	H-004	Toilet	COMMON	MITAOE	Ground floor	Block H
115	H-005A	Laboratory	MECH	MITAOE	Ground floor	Block H
116	H-005B	Laboratory	MECH	MITAOE	Ground floor	Block H
117	H-006	Dean Office	SMCE	MITAOE	Ground floor	Block H
118	H-007	Laboratory	MECH	MITAOE	Ground floor	Block H
119	H-008	Laboratory	MECH	MITAOE	Ground floor	Block H
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145	H-207B	Laboratory	COMP	MITAOE	Second floor	Block H
146	H-208	Toilet	COMMON	MITAOE	Second floor	Block H
147	H-209	Toilet	COMMON	MITAOE	Second floor	Block H
148	H-210	Faculty Room	COMP	MITAOE	Second floor	Block H
149	H-211	Dean Office	SCET	MITAOE	Second floor	Block H
150	H-301	Classroom	COMP	MITAOE	Third floor	Block H
151	H-302	Classroom	COMP	MITAOE	Third floor	Block H
152	H-303	Classroom	IT	MITAOE	Third floor	Block H
153	H-304A	Laboratory	COMP	MITAOE	Third floor	Block H
154	H-304B	Laboratory	COMP	MITAOE	Third floor	Block H
155	H-305	Classroom	COMP	MITAOE	Third floor	Block H
156	H-306A	Laboratory	COMP	MITAOE	Third floor	Block H
157	H-306B	Laboratory	COMP	MITAOE	Third floor	Block H
158	H-306C	Laboratory	COMP	MITAOE	Third floor	Block H
159	H-306D	Laboratory	COMP	MITAOE	Third floor	Block H
160	H-307	Toilet	COMMON	MITAOE	Third floor	Block H
161	H-308	Toilet	COMMON	MITAOE	Third floor	Block H
162	H-309	Classroom	COMP	MITAOE	Third floor	Block H
163	H-310	Classroom	COMP	MITAOE	Third floor	Block H
164	H-311	Tutorial Rooms - PG	COMP	MITAOE	Third floor	Block H
165	HBM-01	Faculty Room	CIVIL	MITAOE	Basement	Block H
166	HBM-02	Laboratory	CIVIL	MITAOE	Basement	Block H
167	HBM-03	Laboratory	CIVIL	MITAOE	Basement	Block H
168	HBM-04	Laboratory	CIVIL	MITAOE	Basement	Block H
169	HBM-05	Laboratory	CIVIL	MITAOE	Basement	Block H
170	HBM-06	Laboratory	CIVIL	MITAOE	Basement	Block H
171	HBM-07	Laboratory	CIVIL	MITAOE	Basement	Block H
172	HBM-08	Tutorial Room	CIVIL	MITAOE	Basement	Block H
173	HBM-09	Faculty Room	CIVIL	MITAOE	Basement	Block H
174	HBM-10	Classroom	CIVIL	MITAOE	Basement	Block H
175	HBM-11	Classroom	CIVIL	MITAOE	Basement	Block H
176	HBM-12	Drawing Hall	CIVIL	MITAOE	Basement	Block H
177	HBM-13	Laboratory	CIVIL	MITAOE	Basement	Block H
178	HBM-14	UPS Room	COMMON	MITAOE	Basement	Block H

Table 8: Room-wise space details

2.4.3 Operation and Maintenance of the premises

The interview session with the staff regarding the operation and working hours is summarized in the table. The Institutions are open Monday to Saturday for full day. Sunday is an off for all. Below mentioned in the table are the average working hours. The detail wise timing for each is mentioned below the table.

S. No.	Section	Spaces	Hours/ day	Days in a year
1	Main Institutional College	Student areas and Teaching faculty	8.5	200
2	General areas	Admin areas and library, Passage, staircase, toilet, Lift	8.5	240

Table 9: Schedule of the timings of the premises

Block A of the premise

Block B of the premise

Block C of the premise

Block D of the premise

Block E of the premise

Block F of the premise

3. Green Building Study Audit

3.1 About the Green Building Study Audit

It is a systematic study of the aspects which make the Institution a sustainable and healthy premise for its inhabitants.

3.2 Analysis for the Green Building Study Audit

The procedure included detailed verification for the following:

Energy Audit
- Analysis of the Lights, Fans, AC, Equipment
- Renewable energy
- Scope for reducing the current energy bills if any
- Improvement in the thermal comfort of the campus

Green Audit
- Green initiatives
- Hygiene audit
- Water Audit - Analysis of the current water consumption of campus; Scope to include Rain water harvesting and Waste water treatment in campus
- Waste Audit - Current waste produced, its segregation and usage; Strategies to be adopted for waste management and awareness

Environmental Audit
- Analysis of the current landscape + hardscape of campus
- Analysis of the flora and fauna of campus
- Strategies adopted at present to enhance vegetation
- Measures that can be adopted for ecological improvement of campus

3.3 Strategy adopted for Green Building Study Audit

The strategies included data collection from admin department, actual inventory, investigation to check the operation and maintenance, analysis of the data collected and preparation of the Report.

3.4 Timeline of the activities for Green Building Study Audit
- 8 September 2021 – Discussion with the College
- 14 September 2021 – Survey of the Student and staff submitted
- 15 September 2021 – Physical site visit of College
- 16 September 2021 – Data submitted by College
- 20 September 2021 – Submission of draft Report
- 23 October 2021 – Submission of Main Report

Green practices

4. Green Practices Audit

The increasing global warming and climate change have made us realise that apart from the enormous strategies the individual small efforts need to be taken by individuals and Educational Institutes as the younger generations are the future of the world and once they are taught about these practices only then can we assume a better future.

4.1   Green practices
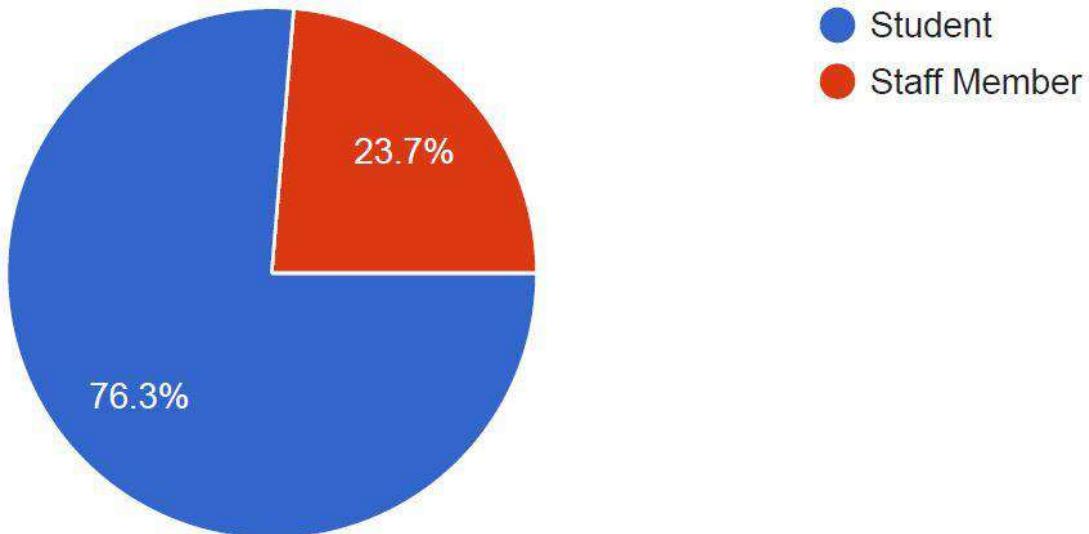
We observed the following points during the Site investigation:

- There is **availability of open space in the premise in addition to the provision of the multiple varieties of flora.**

- **The ample vegetation benefit the users by providing shade.**

- **Experiments using the electric vehicles in premise.**

- There is **organic composting process carried out for decomposition of organic matter of plants and it is used as an organic fertilizer and increase ecology, this is done through Vermiculture.**

- The NSS Team, College authorities **jointly conduct initiatives for upgrading of the premises from environmental view.**

- **The trees are well planned and organised this makes the ambience very refreshing.**

- **There is provision of SAFAR – An Air pollution meter index which reports and is connected to the City Municipal Authority. As per our observation this is one of its kind initiative which requires immense appreciation**

- **We would like to specially mention about the staff, though the College has provision for hired staff and personal housekeeping their co-operation and dedication towards maintaining the staff has lead to it being one of the most clean premise in the city of Pune.**

- **The Teaching staff too is very cautious about eco-friendly initiatives such as encouraging the students towards electric vehicle, ample knowledge about the systems installed which is quite commendable.**

4.2   Survey results

An online survey was conducted to analyse the student and staff views about the premise, following are some of the reviews.
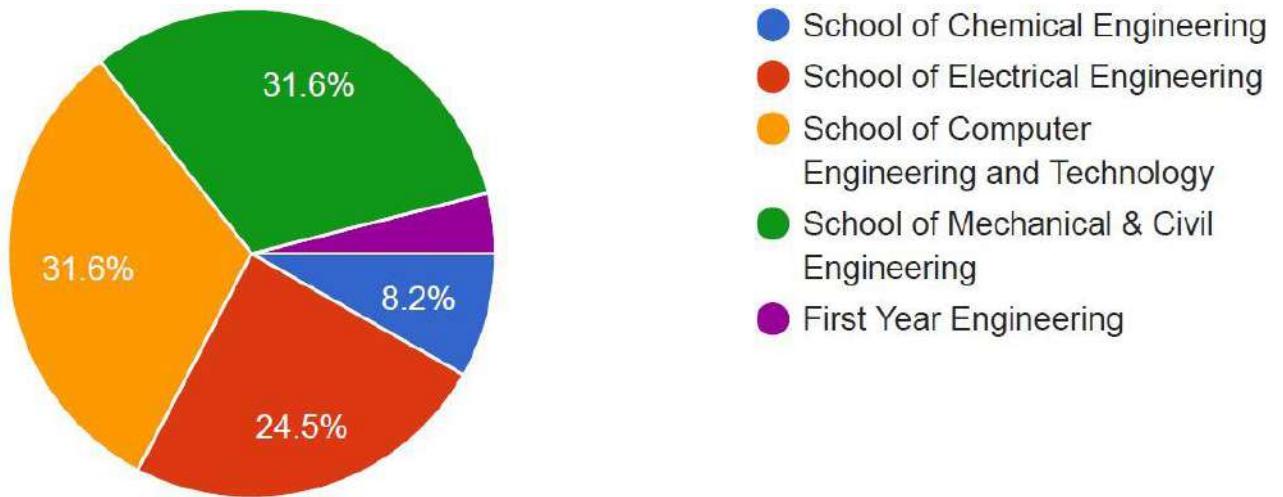
4.2.1 Participation

Figure 3: Participation analysis in the survey

A total of **376 responses** were received out of which 76% were students.

4.2.2 Schools
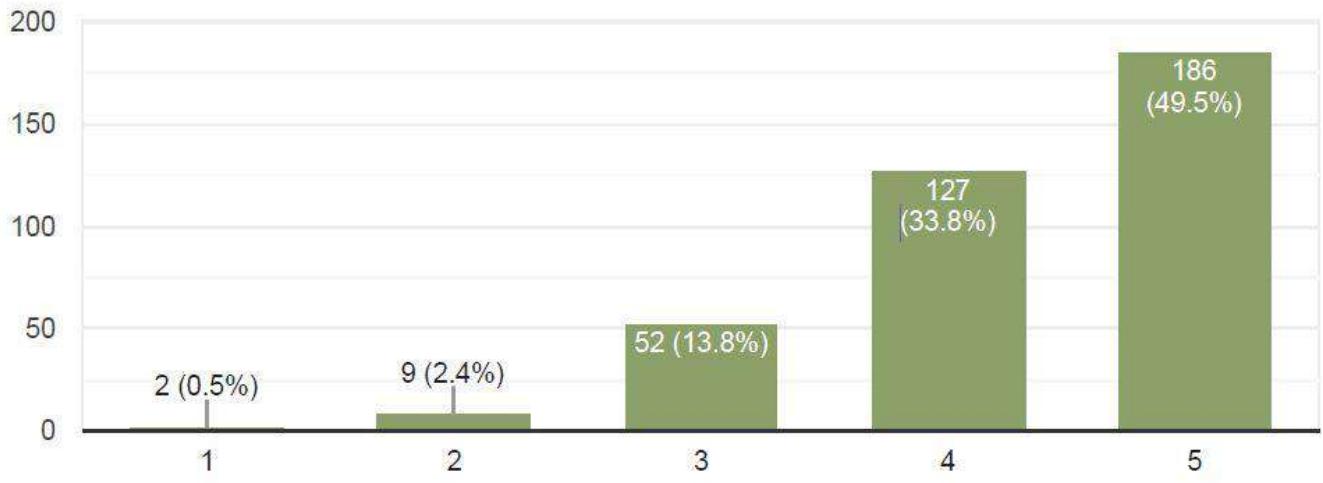
Figure 4: Participation analysis in the survey

The highest **responses were 32% equal for** responses received from **School of Computer Engineering and Technology** and the **School of Mechanical and Civil Engineering.**

4.3   Survey Ratings

4.3.1 Rate the Green awareness practices in College

An online survey was conducted to analyse the student and staff views

Figure 5: Participation analysis in the survey

There were mixed responses received the equal also the highest was for **rating 5 (Excellent) at 50% and rating 4 (Very good) at 34%** followed by **14% for rating 3 (Good).**

4.4   Community Development

4.4.1 On-site verification

The various community development programs conducted include Tree Plantation, Life Learning, Employability Skill program introduced for the youth, Blood Donation Camp, Food Kit Distribution Program to the neighbourhood community, Relief fund programs. **The most special part is the Unnat Bharat Abhiyan initiative which are conducted by the College for generating awareness. A lot of efforts get involved right from planning to execution. The main motive behind these is social welfare. This kind of a though process is highly admirable. We respect and congratulate the Institute for the same.**

4.4.2 Survey reviews

An online survey was conducted to analyse the student and staff views about **the Rural community programs undertaken by the Institute?**

Greenvio

Some of the key responses are noted below as a result of Online survey.

- Good initiative like unnat bharat Abhiyan, NSS

- Excellent initiative

- **It's worthful**

- Best program

- Outstanding

- It's a great thing to be a part of it.

- **It's is essential for future and every institute must take it.**

- **Should be continued**

- **Great task**

- NSS actively organize and conduct the rural community program. Those programs are really inspiring and motivating.

- There is a club named Saksham, it is a very great initiative in which students from our college go to rural areas or to unfortunate areas and educate kids.

- **Institute always organize various programs like Cleaning River, Cleaning City, Cleaning S T , Bus Stands in the City.**

- Institute had adopted villages for improvising the essential facilities. Institute is working deliberately on outreach activities.

- **Very useful for rural people & effectively implemented but not maintained properly**

- It is nice and heart warming.

- Institute is trying its best to uplift the rural community in the surrounding

- Institute has carried out several activities such as swacha wari, niraml wari, harit wari, clean indrayani campaign, hand wash awareness campaign. In my opinion, institute has well contributed to rural community programs.

- Good work by MIT

- Good. Can be further enhanced

- **Appreciable campaigns runs by students and faculty**

4.5   Eco-friendly initiatives undertaken

The Institution has undertaken the following initiatives through **excellent efforts** towards save environment measures before pandemic. The NSS Department conducts various activities like tree plantation, nature cleanliness, visits to nearby flora and fauna, rural development initiatives. The NSS unit focuses on the need and welfare of the neighbourhood community and sensitizes their social problems and initiates appropriate programmes and activities to contribute in the process of   development of the society. These social outreach programmes brought a great impact on the holistic development of the students as they come across different types of the people and their living standards.

4.5.1   Activities conducted by NSS unit

Below mentioned are the details of NSS activities.

Year	Name of Activity	No. of students	Recognition/ awards received
2019-20	• Eco-San toilet building • Swachha Wari, Nirmal Wari, Harit Wari • Participated Guiness Book of World Records by NSS SPPU • Tree Plantation (500 trees planted) • Traffic awareness	100	Tree plantation (appreciation certificate by AICTE)

Table 10: Details of NSS Activities

Additional activities undertaken by NSS include the following.

- Rain water harvesting project is undertaken in Nirgudi, Kelgaon village. The initiative has improved the water level in the area.

- To avoid the use of plastic under Swachha Wari, Nirmal Wari, Harit Wari, 10000 banana-leaf plates were distributed among the pilgrims in the Alandi Area and collected back to make the compost out of it. It helped in maintaining the cleanliness in the surrounding area and contributed in the saving the environment.

4.5.1.1 Achievements of NSS unit

- Received an Appreciation certificate under **"Clean and Smart Campus Award 2019- Best Practices"** by AICTE Delhi.

- Considering the scarcity of water in Thakarwadi, we have built Eco-San toilets for five families where 25-30 member got the benefit. MGNCRE-MHRD GOI recognised us as one of the **"Exemplary Performer"** Institute in the field of water conversation, sanitation and campus water management in March 2020.

- The NSS unit was also the participant in the "Guinness World Record" campaign of distributing more than 15000 nim-tree samplings organised by Savitribai Phule Pune University. Active participation of the NSS unit is recognised by SPPU, Pune with the **"Memento of Appreciation".**

- The prestigious **Green Institutional Mentor Award**, Hyderabad by MHRD, Government Of India was received on 22 March 2020.

4.5.2 Activities conducted by Unnat Bharat Abhiyan

Unnat Bharat Abhiyan is inspired by the vision of transformational change in rural development processes by leveraging knowledge institutions to help build the architecture of an Inclusive India. Their mission is conceptualised as a movement to enable processes that connect institutes of higher education with local communities to address the development challenges of rural India through participatory processes and appropriate technologies for accelerating sustainable growth. It also aims to create a virtuous cycle between the society and an inclusive university system by providing knowledge and practices for emerging professions and to upgrade the capabilities of both the public and the private sectors.

4.5.2.1 Villages adopted as part of Unnat Bharat Abhiyan Project

Village	Tahsil	District	Population	Distance from MIT AOE
Dhanore	Khed	Pune, MH	2540	4.1 KM
Markal	Khed	Pune, MH	1530	7 KM
Golegaon	Shirur	Pune, MH	2244	10 KM
Nirgudi	Haveli	Pune, MH	724	4.6 KM
Pimpalgaon	Daund	Pune, MH	5126	8.2 KM

Table 11: Details of Villages adopted undeer Unnat Bharat Abhiyan

4.5.2.2   Projects Under Unnat Bharat Abhiyan, 2019-20

1. Augmented Reality based Crop Disease Identification Technique for Indian Farmers
2. Development and Installation of water treatment plant for Indrayani river water at Nirgudi village
3. Design and Development of water supply system for sugarcane field
4. Briquettes from waste

4.5.2.3   Projects Under Unnat Bharat Abhiyan, 2020-21

Village allotted	List of Project		
	Completed Projects/ Activity	On-going Projects/ Activity	Newly Registered/ Activity
Dhanore Village	1.Augmented Reality-based Crop Disease Identification Technique for Indian Farmers 2.Seed sowing equipment for farmers 3. Smart farming management app for farmers	1.AR-based education application for illiterate people and primary school kids 2. Augmented Reality-based Crop Disease Identification Technique for Indian Farmers 3.Mobile-based app for farmers to sell their product	1. A guide to Government schemes for Villager: A mobile app
Markal Village	Briquettes from waste		1. River cleaner 2. Weeding of grass and sowing of fertilizer machine 3. Agriculture Product: cotton seed sowing machine 4. Designs and Development of Cooling System for Agricultural Applications 5. Modelling and development of flexible

			blade windmill
			6. Belt Inclined Conveyor for Bags Loading
Pimpalgaon		1. Design and Development of water supply system for sugarcane field	
Nirgudi village		1.Development and Installation of water treatment plant for Indrayani river water at Nirgudi village	1.Development and Installation of water treatment plant for Indrayani river water at Nirgudi village
Golegaon			1 Save Electric Energy wastage in street light
			2 Restrict the overflow of fresh water supply.

Table 12: Details of Unnat Bharat Abhiyan Project 2021

4.5.3 Survey results

4.5.3.1Does your College conduct environment awareness programs/ webinars/ plantations/ cleanliness or similar programs?
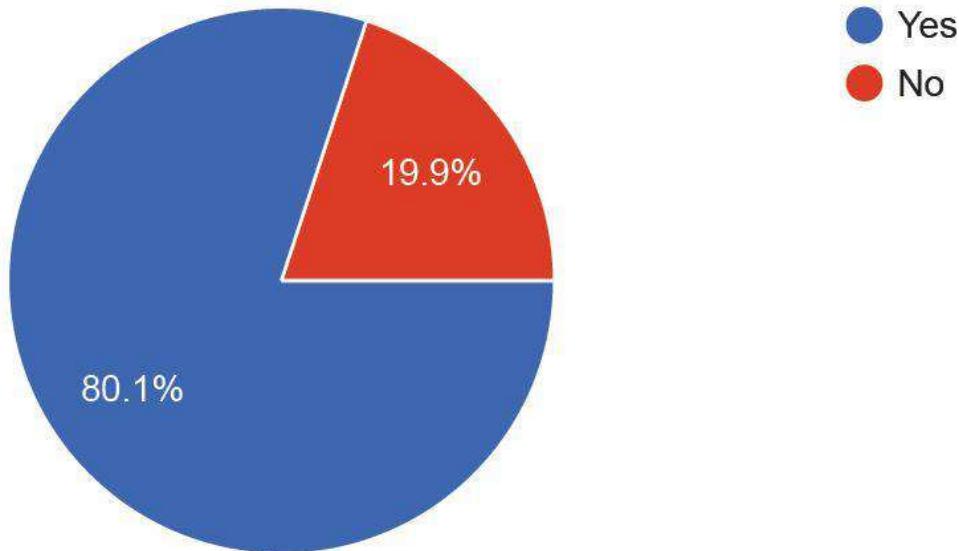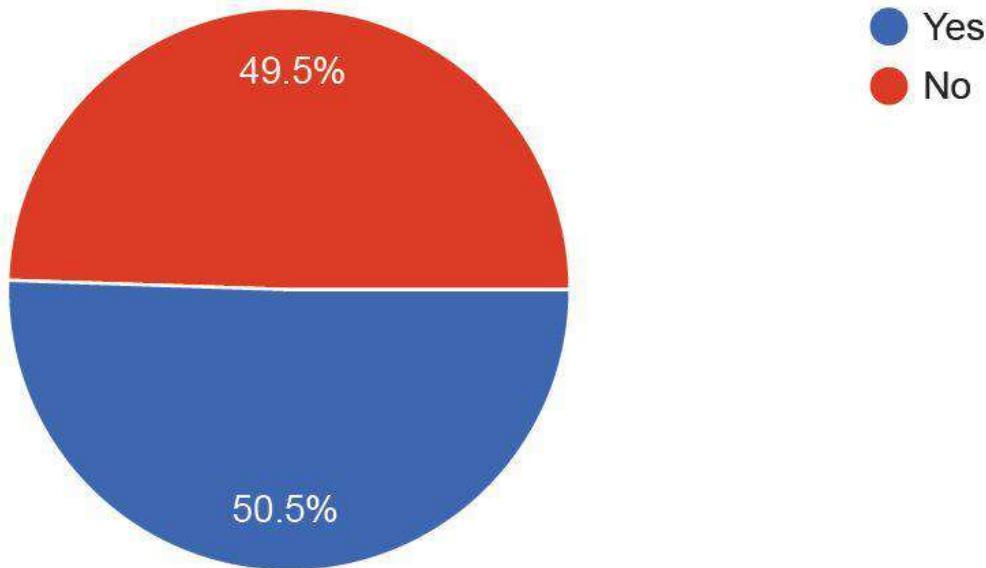
Figure 6: Green awareness practices in College

The students, staff **(almost 80%)** of responses confirmed activities are conducted which is very excellent.

4.5.3.2   Do you participate is such events?

Figure 7: Green awareness practices in College

The students, staff **(almost 51%)** of the responses confirmed their participation, **this should be improved.**

4.5.4 Survey review

4.5.4.1   If yes, what has been your experience about the program?

We have listed some of the key responses below.

- Experience was great

- It gives us inspiration of planting trees

- Verygood

- **Excellent**

- **It's an honour to be a part of such beneficial programs**

- **I am glad to take part in such program for betterment of Future.**

- **Students are voluntarily involved in such programs**

- **Very nice experience as a nature lover and try to preserve this natural treasure more and more**

- Nicely conducted and makes environment healthy

- It was great experience

- It was excellent experience

- Very good experience

- It was wonderful

- We have planted few plants , really we got motivated in protecting our environment.

- **Very nice presentation and make us aware about the facts and solutions that we might implement on our side**

- Gained a lot of knowledge

- They create awareness among us

- Their are some clubs organised in our institute they are taking various webinars and my experience was pretty good as a part of webinars

- Amazing experience

- **It was a great experience, we get know more thing s about environment, and our duty towards our environment**

- Its been a good to plant trees on hills in nearby premises

- It was very informative!

- The programs are very excellent

- **I have learned about the importance of a green environment through these sessions and i also try towards maintaining cleanliness around me now.**

- Very beautiful experience, it enhance my knowledge about greenery environment.

- Experience was especially by NSS team

- It was very good and beneficial

- Its a nice experience to be a part of such events

- It's a best way to develop eco-friendly campus

- Excellent

- This is very amazing expreince

- Such programs have always inspired us with different ways of helping and saving our Mother Environment and thus made us the responsible citizen.

- Very Nice

- i had very amazing experience, it was cleaning campaign because of that i understand the nature. How we treat with it. We should take care of nature, nature also take care of us.

4.6   Recommendations for a Sustainable Habitat by Greenvio Solutions

We have found that the current practices are very excellent and thus there are only minimal recommendation with respect to this section.

a) Plant as a gift

As a kind gesture the guests visiting the premise can be asked to plant a small plant in the premise itself and they can be even given plants/ bouquet from the flowers of the plants in the premise as a gift.

b) Environmental awareness

There can be various artworks on compound wall giving message of saving environment through the joint efforts of the students and staff thereby making the student socially and environmentally responsible citizen.

c) Tree adoption scheme

The college can adopt One Faculty – One tree adoption scheme which is one of its kind practice, this can be very beneficial especially during the summer season.

d) Signages on the plants mentioning scientific names

The practice of having the names of each plant and tree will provide awareness among the staff and students.

Waste Audit

5. Waste Audit

Waste is an inevitable part of our lives. Over the years as the awareness about waste management techniques has given a rise to rethink how the waste can be avoided form being sent to the landfills. The audit provides an approximation of the types of waste generated, location of waste collections, disposal techniques used, waste segregation methodologies adopted, waste management strategies that are and implemented in addition to the newer ways the can be adopted aiming to make the premise clean and sustainable. Here sustainable refers to a broader aspect to analyse whether the current techniques are having positive or negative effect on the stakeholders of the premises.

5.1   Waste produced

The types of waste collected in the campus are as follows. These are separated before processing and not given to the local Corporation. The details of the quantity and type of waste are as follows.
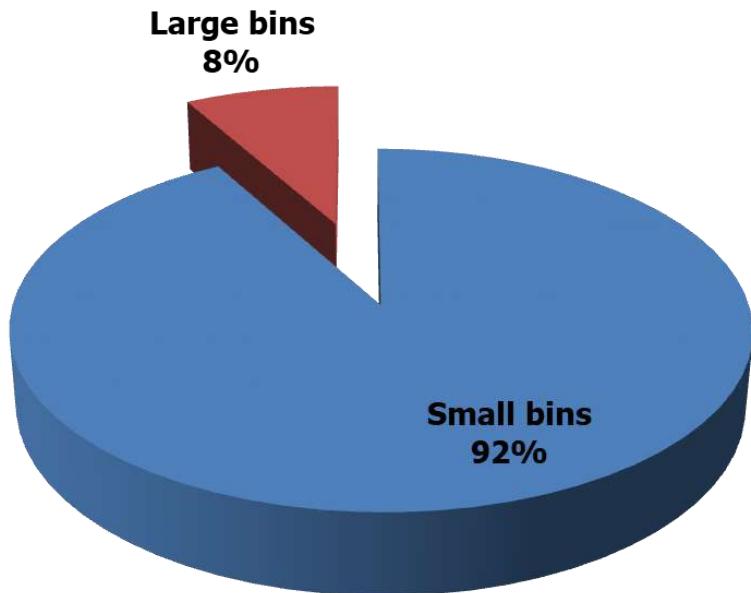
S. No.	Type of waste	Source and quantity	Current Disposal method	Can be treated/ recycled?	Methodology
1	Solid waste	Toilets–Biodegradable waste of 100kg per week	Led in the storm water drains	Yes	TREATED - Small biogas plant can be proposed in open space
2	E-waste	Computers - Non-biodegradable waste as per the annual year usage	Reused	Yes	CONTINUE - with the current practice
3	Dry waste in form of leaves	Open space & plantations, papers - Non biodegradable waste of 8kg per week	Organic Composting	Yes	CONTINUE - with the current practice
4	Liquid waste	Toilets, washbasins – Around 200 – 250 litres per week during general times and 50 litres at present	Led to the storm water drain	Yes	TREATED - Waste water treatment plant

Table 13: Summary of the types of waste produced in the premises

The initiative of reusing the old computers for experimentation is highly appreciating. It highlights the values of college and concern towards social well-being. We highly appreciate these thoughts. We are sure College would continue such practice in future as well.
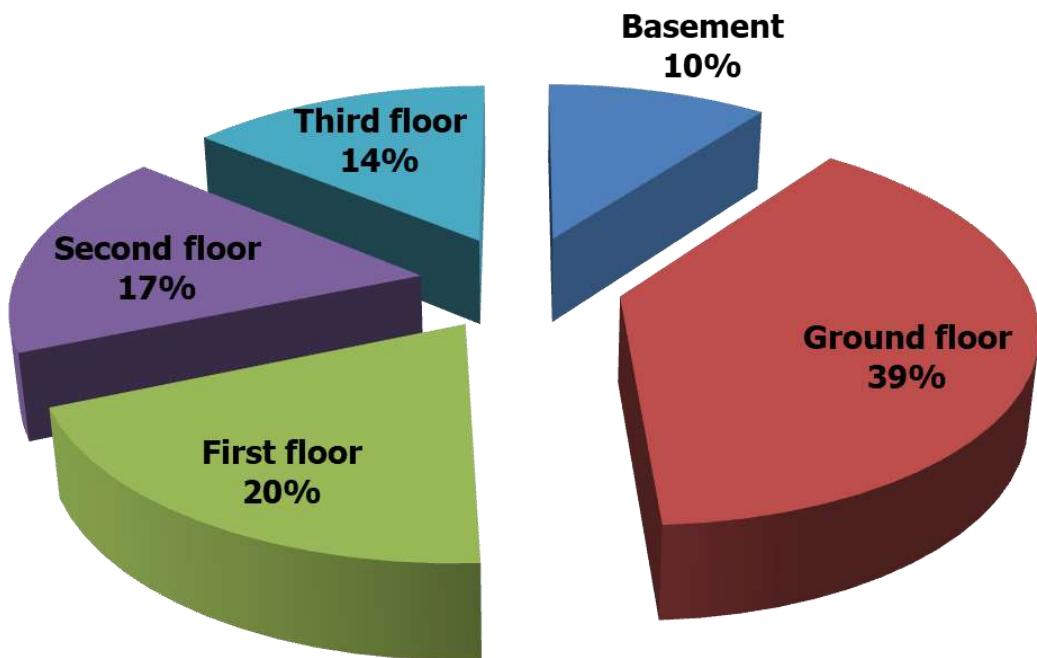
5.1.2 Bins summary

There are 185 Plastic Dustbins in the premise with volume of 7 litres (small) and 60 litres (Big) each. The analysis of dustbins is presented below.
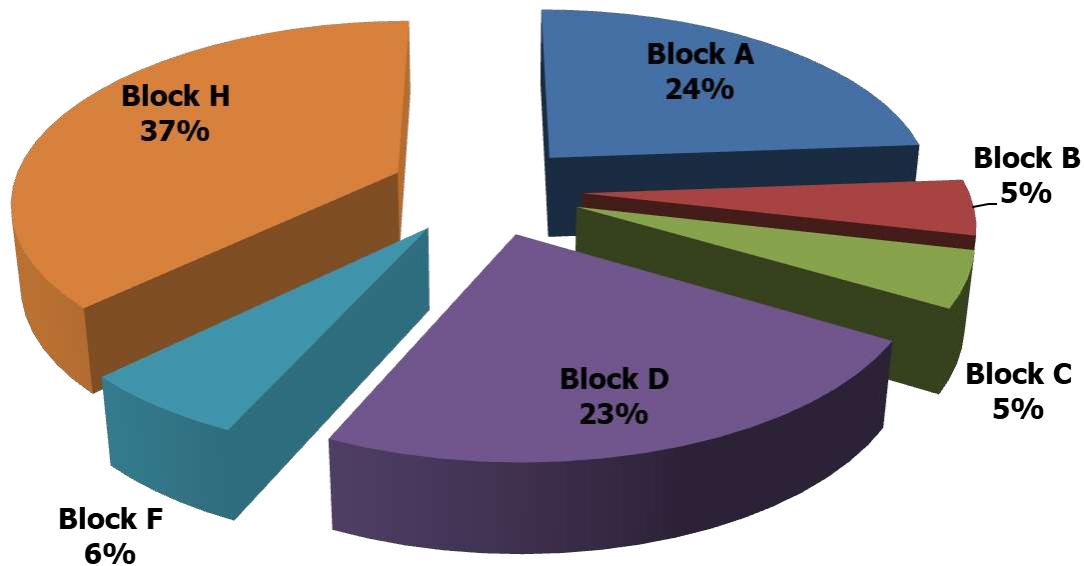
*Figure 8: Analysis of dustbins in the premise*

The above analysis shows **92% are Small dustbins** and **8% are Large dustbins.**

Figure 9: Analysis of dustbins in the premise

The above analysis shows **39% dustbins are present on Ground floor, 20% on First floor, 17% on Second floor, 14% on Third floor ad 10% Basement.**

Figure 10: Analysis of dustbins in the premise

The above analysis shows **37% dustbins are present in Block H, 24% in Block A, 23% in Block D, 6% in Block F and 5% in Block B,C.**

5.2   Waste handling

Quantification wise as per Interview and survey it was found that the Solid, Dry leaves collected is approximately 60 kg per week. The liquid and hazardous waste (septic tanks) is approximately 200 litres per week. The waste produced on campus is segregated. The staffs are very well trained and do an excellent job. **During on-site physical visit and interaction with the Team we observed the concern and dedication the entire Team shows towards the College management aspect. We highly appreciate these efforts and way of working.**

5.3   Waste management
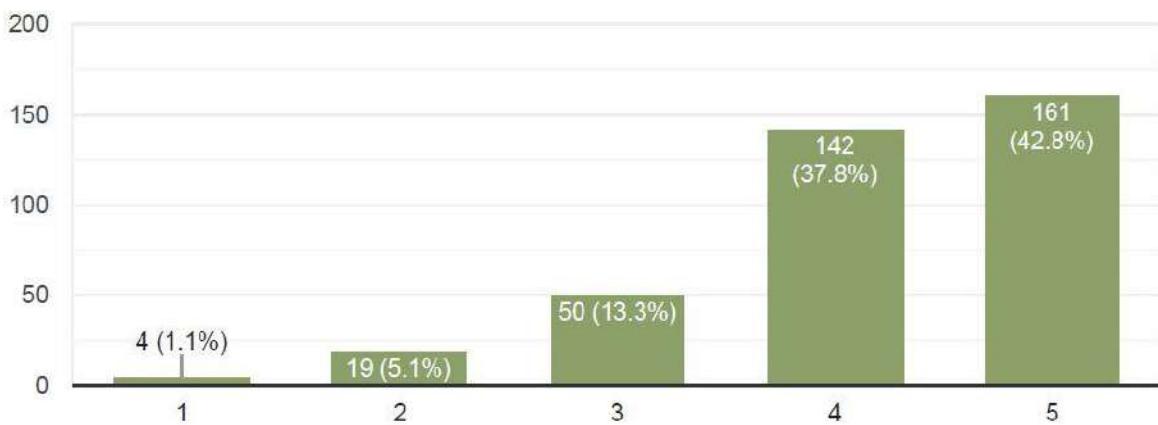
The college reuses the papers. It was informed newspapers were given in bulk to Raddi and not to Municipal Corporation **thereby not adding to landfill site.** Ample measures are taken to maintain hygiene. **No smell problem or health related issues due to the waste are there.** There are adequate numbers of bins present in all parts of building. **The waste does not pollute the ground or surface water.** The wastes from toilets are discharged to main drains through underground covered channels (Safety Tanks) thus avoiding any incident. **There is no problem of air pollution from waste as informed.**

5.4   Composting

As per the note provided by the College - **Composting is an aerobic method (carried out in presence of air) of decomposing organic solid wastes. It can therefore be used to recycle organic material. The process involves decomposing organic material into a humus-like material, known as compost, which is a good fertilizer for plants.Composting can be carried out in the presence of   Earthworms i.e.termed as vermi compost .The worms make the process quite faster & the quality of compost obtained is also a good fertilizer. The type of waste generated is the biodegradable waste like plant waste, leaves, stem, fruits household biodegradable waste etc.This waste is put into the composting chambers.where earthworms are added.It is kept for few days and the compst is obtained. During composting, microorganisms from the soil or the earthworms eat the organic (carbon containing) waste and break it down into its simplest parts. This produces fiber-rich, carbon-containing humus with inorganic nutrients like nitrogen, phosphorus and potassium. Benefit of Compost - Compost being a good source of plant nutrients such as nitrogen (N), phosphorus (P) and potassium (K), it improves the physico-chemical and biological properties of the soil. In this sense, compost can compensate for a lack of fertilizers and improve food production.**

5.5   Survey Ratings

Rate - Usage of waste saving practices adopted in Institute premises
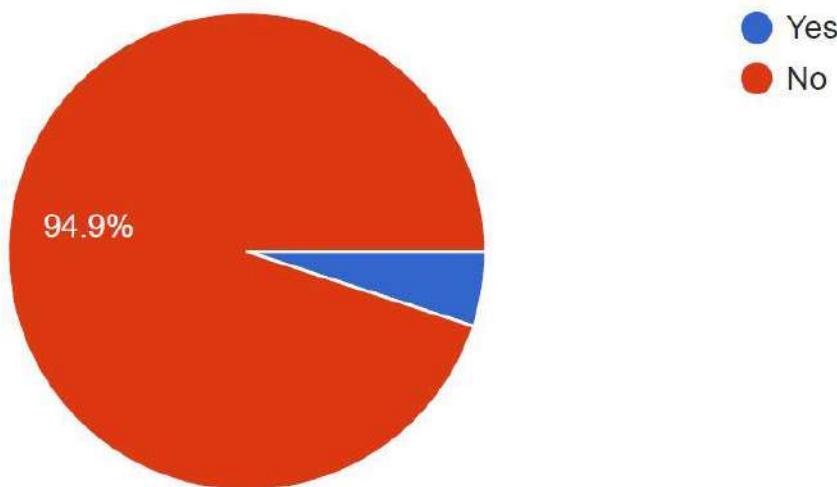
Figure 11: Water management practices in College

There were mixed responses received the highest was for **rating 5 (Excellent) at 43%** followed by **38% for rating 4 (Very Good).**

5.6   Survey Results

### Is there any Waste pollution in the premise?

Figure 12: Participants response in survey

The students, staff **(almost 95%)** of responses confirmed there is no water pollution

5.7   Survey review

According to your observation what are the simple steps adopted by the Institute towards water conservation?

Some of the key responses are noted below as a result of Online survey.

- Vermi compost

- Activities takes for waste management like best out of waste

- Number of Garbage bins are placed and the waste is recycled frequently.

- Paperless work

- **Vermi compost, biogas plant, shredding of papers, scrap material given to scrap vendors for proper disposal**

- Giving away the waste to municipality everyday

- With the help of waste, they create fertilizer

- Waste segregation is done on daily basis.

- Alandi government authority handle the waste management

- Everywhere dustbins are there and cleaning workers cleans 3-4 times daily

- **The cleaning staff is soo good in the campus, and thankfully students and staff are also well informed in these matters and hence I have never seen waste skatered anywhere. The wet and dry waste are always seperated by students themselves, but the cleaning staff ensures that the standard is maintained.**

- **Vermi Compost Plant Implementation with use of Garden waste, Bio Gas Plants at college Canteens from waste food.**

- **E waste is centrally collected**

- **Paperless campus, LMS use for submission, plastics free campus**

- Separating biodegradable and non biodegradable wastes

- Seperation of Dustbins for wet and dry waste

5.8 Recommendations for a Sustainable Habitat

The following practice can be adopted for further up gradation.

a) Zero Waste

The college can undertake a zero organic waste protocol. The following practices can be adopted as part of the same. The food waste generated by the students and staffs are taken by them to their own home, so that, minimum waste is generated inside the premises.

b) Sanitary vending machine

There can be machines installed at various appropriate locations.
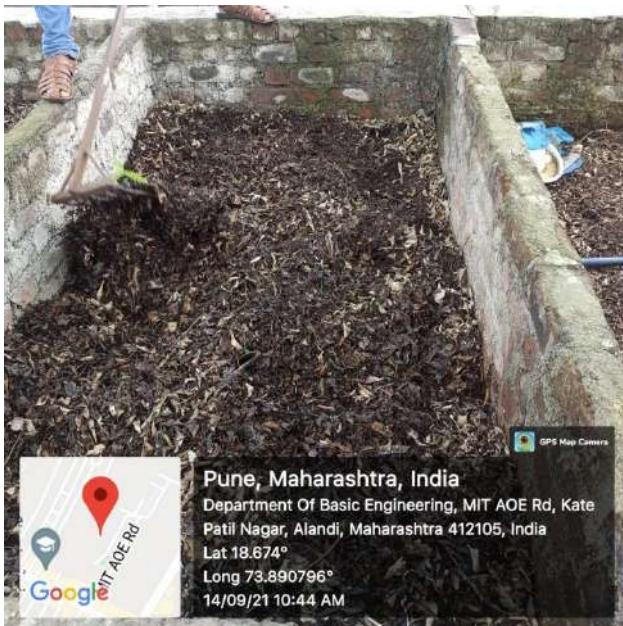
c) Incinerators

The Incinerators should be installed in Girls toilets for disposal of sanitary napkins

d) Signages

Message about avoiding wastage should be placed at appropriate locations.

Water Audit

6. Water Audit

Water is one of the basic needs. Pure drinking water is a resource which needs to be preserved efficiently. Water audit helps to identify the sources of water consumption, the water requirement by the campus met by these sources. The points and effective usage of without any wastage. Understanding the techniques which are best suited to the site to increase water conservation in terms of awareness and practice.

6.1 Water availability and consumption

6.1.1 Sources of Primary water supply

The main source of water is through Bore well and well. The College does not require water from the Local Municipality. The total water consumption through the tanks on site, these are available in a quantity of tanks at multiple location. The capacity of each is as follows:

S. No	Type of Tank	Nos.	Location	Capacity (litres)
1		3	A Building	3,000
2	Sintex	1	B Building	3,000
3		1	Canteen	3,000
4		1	B Building	30,000
5	Cement Tank	1	H Building	30,000
6		2	Hostel	30,000
7		1	RO Plant for Drinking water	2,00,000
8	Underground Tank	1	RO Plant for Raw Water	2,00,000
9		1	WTP	2,00,000
10		1	Canteen	2,00,000
Total		13		8,99,000

Table 14: Tanks and well in the premise

6.1.2 Sources of Secondary water supply

a) <u>Well</u> **–** There is 1 well available on the site as underground water facility with daily water being pumped for using submersible pumps. The actual depth of the well is 55 ft. On a daily basis nearly 25,000 litres of water is pumped for usage depending on the need.

b) <u>Canteen</u> **–** There is provision for Alandi Nagarpalika Tap Connection near the Canteen and daily 50,000 litres water is utilised from this source.

c) **<u>Natural Rainwater harvesting</u> – It is done through the ground water recharging and upgrading the water quantity for bore well recharging. Though, no particular system is adopted for harvesting but the water gets recharged and water table is maintained well naturally. The areas of gardens, tracks do not hav any kind of flooding and water is percolated on its own.** Though, there can be provision of water tanks to store the water in future. At present the requirements are met within the limits.

6.2   Water requirement

The main areas of water requirement and type of usage is as follows

- **Drinking water –** Consumption of around 2,000 litres of water through Aquaguard like system available in the premise, the taps and water cooler.

- **Toilet blocks**– General usage by occupants in toilets, urinals, bathrooms, wash basins using approx. 500 litres of water daily

- **Cleaning of the premises –** The entire Institution is very well maintained with respect to hygiene and cleaning is one of the major uses of water requirement. **The toilet areas are cleaned twice on a daily basis.**

- **Garden and surrounding open space** – Cleaning, watering the plants requires approximately more than good amount of water, keeping in mind the scale of the open spaces there is supply system connected directly and the plants, trees are hardly watered regularly. Though, they are watered on alternate days in winter season and about 2-3 times a day in summer season on a regular climate day it is watered 3 days a week and in rainy season it is dependent on the monsoon showers.

6.3 Areas of water usage

Based on the inventory done and data shared by the staff it was found that the premise has the following facilities:

S. No.	Floor	Urinals	Toilets	Wash basins	Taps in Indoor	Taps in outdoor	Water cooler
1	A Building	8	4	15	15	0	3
2	B Building	13	12	20	20	0	4
3	H Building & Workshiop	15	30	35	35	2	4
4	D Building	4	3	10	10	1	1

Table 15: Areas of water usage in premise

As per the data shared by the College and on site observation, it was noted that there is no water wastage of water in the form of Cleanliness of toilets.

6.4   Site investigation about water management.

The college has an excellent management system which is very appreciable. We have observed the following points.

- There was **no water leakage in the entire premise;** the pipes are well maintained with adequate hygiene.

- **The premise has an efficient water management in terms of operations and maintenance.**

- The toilets were kept very tidy and are cleaned every day.

- The **waste water does not mix with ground water and gets directed to storm water drains.**

- **The college has natural rainwater harvesting system which is very useful.**

- There is sufficient number of taps in the premise.
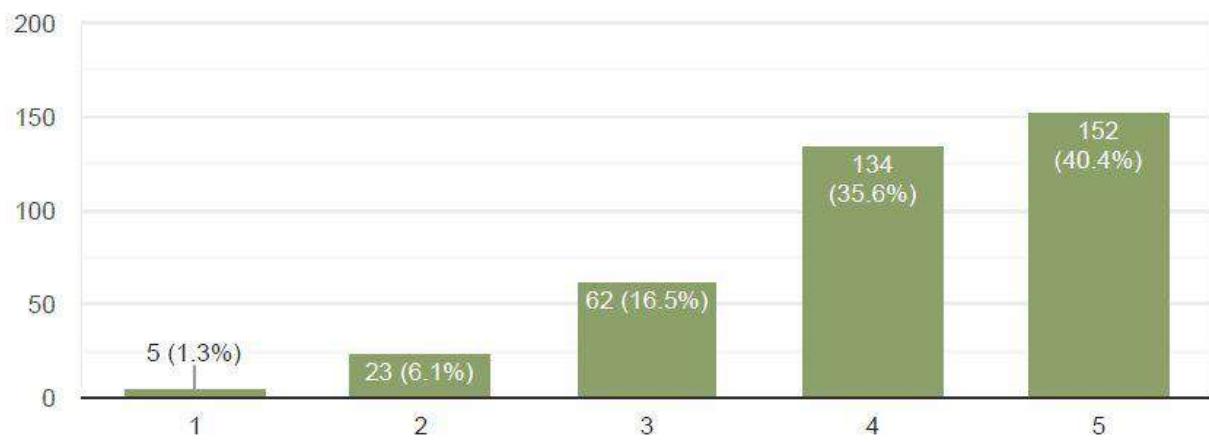
6.5   About the green laboratory practice.

As per the information provided by the College - **Green chemistry is the design of chemical products and processes that reduce or eliminate the use or generation of hazardous substances. Green chemistry applies across the life cycle of a chemical product, including its design, manufacturing process, use, and ultimate disposal. Green chemistry is the approach in chemical sciences that efficiently uses renewable raw materials, eliminating waste and avoiding the use of toxic and hazardous reagents and solvents in the manufacture and application of chemical products.**

The major focus in green chemistry is on process selection for the manufacturing of chemical products.The selected process should not create any hazardous pollutants which have direct impact on the environment.The major benefit of the green chemistry is to the plants and animals becuase their life get secured from hazardous chemicals & products.Most of the problems like global warming, ozone depletion smog formation can be avoided by the use of green chemistry.

6.6   Survey Ratings

Rate - Usage of water saving practices adopted in Institute premises
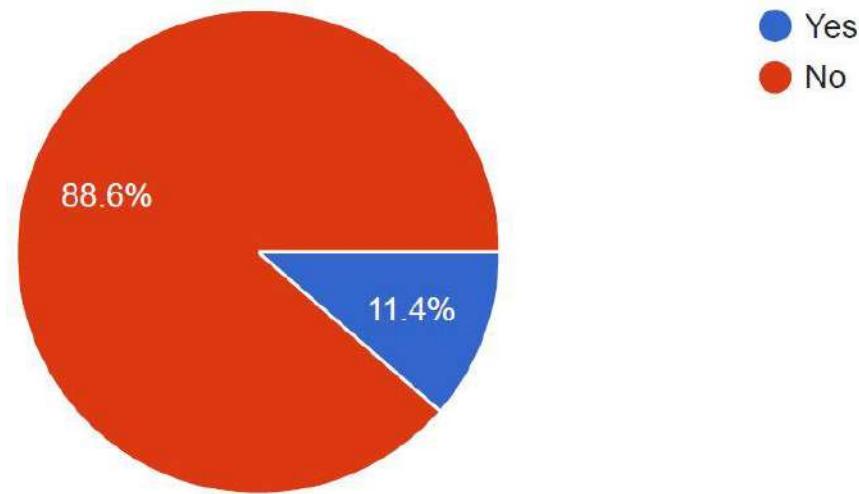
Figure 13: Water management practices in College

There were mixed responses received the highest was for **rating 5 (Excellent) at 40%** followed by **36% for rating 4 (Very Good).**

6.7   Survey Results

### Is there any Water pollution in the premise?

Figure 14: Participants response in survey

The students, staff **(almost 89%)** of responses confirmed there is no water pollution

6.8   Survey review

According to your observation what are the simple steps adopted by the Institute towards water conservation?

Some of the key responses are noted below as a result of Online survey.

- Sprinkler for plants

- Repairing of taps for water saving, spread awareness by presenting slogans, etc

- Taps are of high quality it prevent water wastage.

- Automatic taps in washrooms , water level controller..

- Open taps should be stopped. Ask students to fill their bottle rather than drinking from cups of mugs attached. Make sure the taps are not leaking.

- Proper taps with no leakages and way to increase max ground water level from rain water.

- They are doing a lot of work to save water

- Water treatment plant is already established in the premises to purify and reuse the used water.

- There is irrigation system implemented in our institute

- There is a water filtering center behind the H wing. It is used to filter and use un useable water washroom purpose.

- **Water coolers with no Leakage. Proper water tabs also strictly with no Leakage. Waste Water from water purification plant is given to trees and crops. Again tree plantation is a kind of water conservation which is also followed**

- They already conserve so much water so any special step not required to adopt.

- **Water containers for birds**

- Saving rain water

- Construction of water harvesting tank near H basement

- Taps do not leak and are in good condition

- Source reduction through sound irrigation water management

- **The institution has always taken a small but effective step of repairing the plumbing whenever there is a leakage to avoid the unnecessary wastage of water.**

- All taps needs to be fixed. There are running taps in the institute. Many times there were water crises. At least there should be 24 hours water supply in washroom

- I am a water conservationist person on an individual level, many a times i found that the tap used to leak in the boys bathroom and i used to try closing them without any getting any success i used to leave them as it is or used to tell the caretakers and cleaning staff about the problem, they used to check but most of the times my friends and i used to face the same problem. i hope this gets sorted out, i might would have been better now since i left the college in 2019.

6.9   Recommendations for a Sustainable Habitat

Below mentioned are few suggestions for better water management practices in the premise.

a) Universal Toilet

At least 1 toilet should be made for specially abled as per universal design norms.

b) Toilet flush system

Replace the existing single flush cisterns with dual flush, if possible to include waterless urinals or e-toilets.

c) Waste water from toilets

This should be collected and a waste water treatment plant can be installed in open space wherein this water can be treated and reused for gardening and toilet flushing.

d) Signages

Message about avoiding water wastage should be placed at appropriate locations.

e) Waterless urinals

There can be provision of waterless urinals as a Green Building initiative in the premise, either the existing ones can be replace with such a facility of new toilets can be constructed in this manner.

Health & Hygiene Audit

7. Health and Hygiene Audit

The hygiene is a part and parcel of our daily life. It is extremely essential to keep the surroundings clean in the same manner as we would want our houses to be. Educational Institutes have a bigger role to play in order to affect the young minds in the positive manner through better hygienic practices.

7.1   Facilities available

The Institution has the following facilities as part of the premise.

- Washroom facility in each of the Building.

- Hand wash facility

- Drinking water facility in the form of Water coolers and taps

- Ample number of dustbins in the premise

7.2   Smoke Exposure

As per the Site visit the following analysis **has a positive impact on premises.**

- The college has No Smoking on its compound wall as part of the awareness.

- Canteen uses Gas cylinders for cooking, there is no utilisation of fire wood. Thus **there is no smoke from burning of fire wood and any health issues related to the same.**

- The **garbage in premise is not burnt in huge numbers** (bare minimum quantity is burt which can b avoided) and there is not much air pollution because of it.

- There is provision of SAFAR software in the premise.

- The Institution is a tobacco and smoke free campus which helps in adapting to a Healthy Institution

- There is parking provision inside the campus there is slight issue of dust owing to the same but it is **balanced with the good vegetation in the premise.**

7.3   Hygiene

As per the Site visit the following analysis **has a positive impact on premises.**

- For overall hygiene of the students and staff there are facilities such as Washroom facility on ground floor, hand wash. The hygiene of toilet areas is well maintained. **The entire campus is cleaned twice on a daily basis. It is very appreciating that there are sufficient numbers of Maintenance staff who strive their best to take care of the entire premise in the most excellent way possible.**

- There staff keep a regular check about the operation and maintenance of the equipments each floor.

- Water management initiative with appropriate hygiene is undertaken. The areas of water tanks in site on ground floor are clean and no mosquito breeding spots are there.

- There are pest controls program practiced with appropriate sanitation facilities and Annual Maintenance Contract for pest control is done once a year by professional Pest control units

- The food premises and equipments are cleaned as per schedule with special care taken to avoid any water stagnation. The food waste and other refuse are removed periodically from food handling areas to avoid accumulation.

- As part of Tree Plantation programme the initiative of **Swachh Bharat Abhiyan of Govt. of India** is undertaken during various occasions.

- There are appropriate storage areas which are well maintained.

7.4 On-site investigation

During the physical verification of the site, the following points were noted.
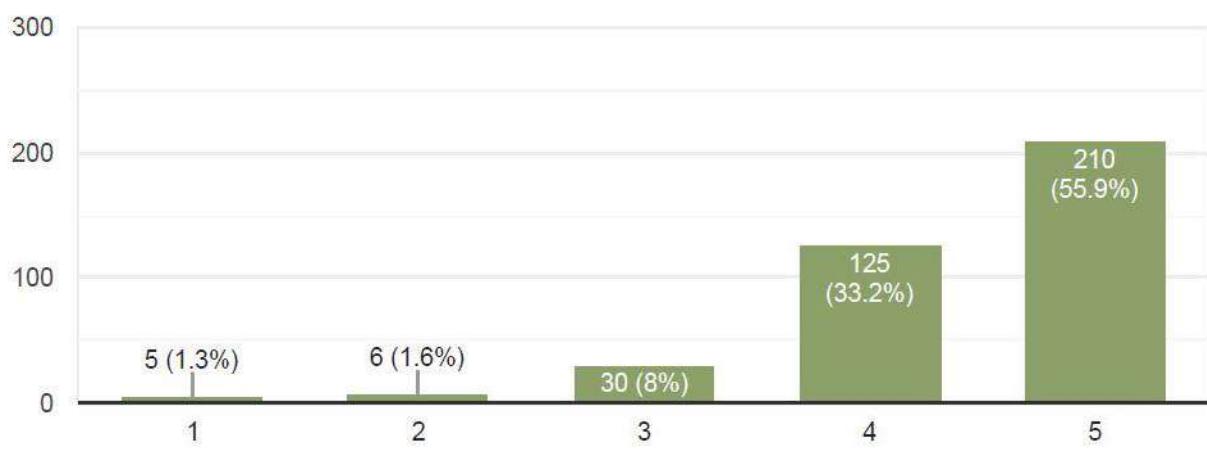
- All the facilities are cleaned on a daily basis.

- The Maintenance staffs are allotted the responsibility of the washroom hygiene and they do a very commendable and excellent job to maintain hygiene of the premise.

7.5   Recommendations for a sustainable habitat

As per out physical site verification for this audit the efforts of the College are highly appreciable as they are very well maintained. As an up gradation some additional signages pertaining to cleanliness can be included in the premise.

7.6   Survey ratings

An online survey was conducted to analyse the student and staff views about **Rate - Hygiene practices in Institute premises**

Figure 15: Participation analysis in the survey

There were mixed responses received the equal also the highest was for **rating 5 (Excellent) at 60% and rating 4 (Very good) at 33%** followed by **8% for rating 3 (Good).**

7.7   Survey review

Some of the key responses are noted below as a result of Online survey.

7.7.1   According to your observation what are the simple steps adopted by the Institute towards cleanliness of the premise?

- Very good House Keeping Team

- **Instiue was always clean and staff ate working excellent in clenliness of institute**

- **Full time house keeping staff and department**

- Daily cleaning of gardens and roads and also at some distance there is dustbin
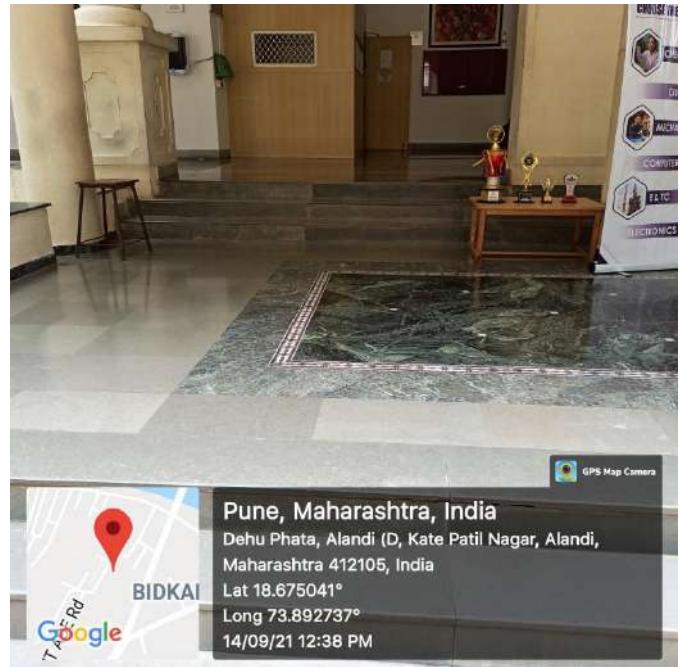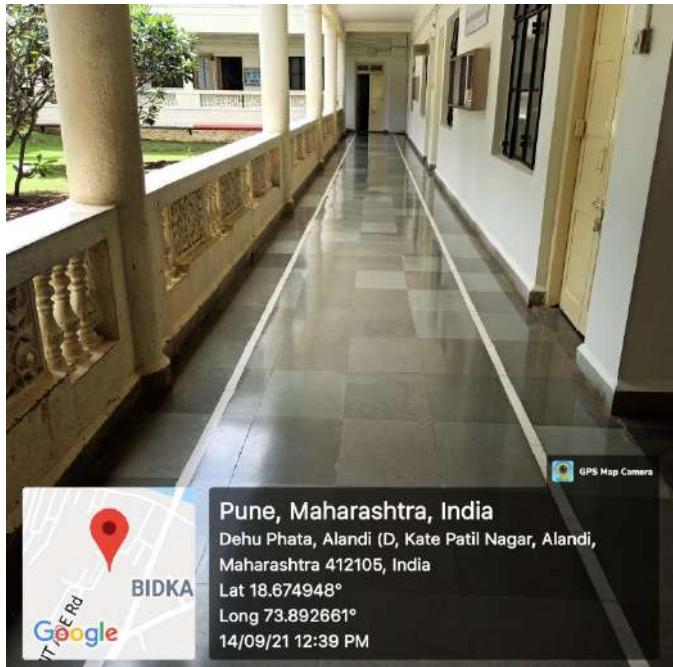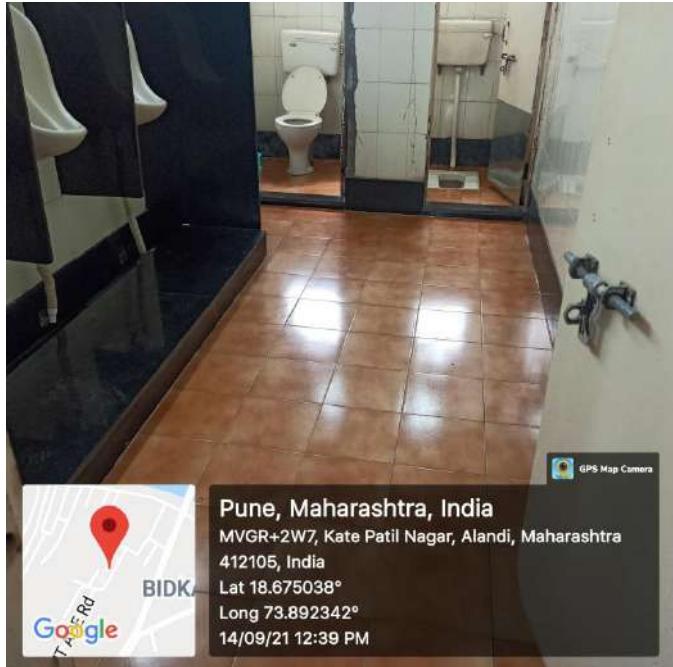
also

- According to me Institute is spending most of it fund on cleaning

- Maintenance dust beans everywhere, cleaner are on every floor, space, Awareness tag at every place, hand wash in ever washroom, etc

- Daily cleaning of classrooms and the premise. Lots of dustbins are there.

- **The MIT Academy of Engineering is the cleanest infrastructure I have ever seen. Kudos to the effort of the cleaning staff. Even in lockdown when I visited the campus for collecting my marksheet I have seen the cleaning staff maintaining the campus and keeping it as clean as possible.**

- Not throwing anything on ground

- **They have maintained hygiene at the max level from classrooms to washrooms..**

- Everyday cleaning of the gardens, lobbies, cabins and classrooms. Dustbins available everywhere.

- Regular cleaning, watering, cleaning of the ground , proper care of plants/ trees, keeping the surrounding clean 24/7

- **Daily and routine cleaning of the Institute. Dedicated cleaning staff. Very hard working and cooperative people**

- Still we need to work on drinking facilities, water filter should be have periodical maintenance.

- Premise is too much focused on cleanliness, hygiene. Just waste water treatment, rain water harvesting facilities should be in premise

- **Housekeeping is monitored regularly.**

- **Cleaning plans for the day week and month are fixed and they are executed nicely.**

- **The cleanliness is one of the aspect that the cleaning staff is master in taking care of. I always found those hard working people cleaning from morning till evening every patch they used to find dirty or muddy, such a great staff. what i feel is that Cleanliness is the most**

important thing for the administration as per my observation, and they used to maintain that standard as well.

- **The first priority has been given to cleanliness of campus and all the things that comes under the campus**

- Well guided Cleaning and Swipping staff

- Practicing Everyday Cleaning Habits. Wipe your feet on mats before you enter the school building.

- The floors are cleaned regularly. The washrooms are also very clean. There are dustbins in every class and floor. Overall the premise are very clean.

- Separate hospitality team

- Extreme care taken for cleanliness and hygiene, regular cleanliness going on multiple times on a daily basis is a very regular feature of the institute.

- Cleanliness s maintained all the time, in the whole campus with floor mopping, dust cleaning etc. It is the most clean place I have ever been to.

- yes our campus canteen uses branded oil for cooking food and every one has nit and clean clothes and also all the worker or waiter or we can say chief wear a hand gloves.

- Very good and friendly housekeeping staff which take care of cleaniness always, because of which students also enjoying spending time in institute after college time for hours doing studies and any other group works.

- Institute always look after proper cleanliness of the premise by having regular cleanings of the premise.

- Regular cleaning of entire campus and hostel twice a day. Apt litter and garbage management. Well maintained canteen.

- House keeping people continuously working to keep our campus clean

- Regularly cleaning premises

- Cleaning staff is there, they have to give hard time in rain season & they do it whole day. Like i mentioned lawn cutting & cleaning on regularly basis.

- At every place always cleaners are avilable for better hygine

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8. Survey review of Positive steps

Some of the key responses are noted below as a result of Online survey.

8.6.1 What according to you are the positive steps taken by the Institute towards Green Building/ Good maintenance?

We have listed some of the key responses below.

- Good Housekeeping Team

- **We are having good number of plants and trees then other Institute.**

- **Taking good efforts in maintaining campus green**

- Solar panels, water treatment plant, trees plantation

- Natural light, Regular maintenance, Use of LCD bulbs

- **Institute looks so good as they have so many big and small plants and trees. It looks clean and fresh and it shows that institute take serious steps towards environment**

- **Natural Light, LED Bulbs, Natural ventilation, solar roof tops, regular maintenance, daily house keeping**

- They are doing everything they can.

- Schools are aware of Green building.

- Cleaning and water management

- **The use of solar panels and clean energy is the best move that could've be done. Also college faculty shows and explains its working as a part of graded assignment during the course of a basic subject in 1st year which makes it compulsory for everyone. I think this is a great effort and very efficient way to enlighten every student.**

- Tree Plantations, Gardening, Lush Green Lawns, separate Staff for Garden maintenance

- Presence of greenery throughout the campus as well as use of solar system and rainwater harvesting

- **House keeping staff works relentlessly for maintenance of the college**

premises. **Electric audit, lab audits are conducted in a year for better and efficient working of machines. Institute has developed vegetation on a dedicated land given to Agrotech club.**

- Digital campus infrastructure and waste management

- **Inform about reduce pollution with different activities**

- **Private agency hired for cleanliness**

- **Green Electricity using solar panels**

- **Surroundings are full of trees and cleanliness is well maintained. The atmosphere is peaceful there is no noise pollution**

- **Foundation of Prakruti club**

- Taking care that each building is cleaned everyday properly

- Good human resources for maintenance for the campus area

- **NSS Team really give efforts toward green building/maintenance and taking various activities**

- **More than 40% campus area is green**

- Recycling plastic cups

- **Good structure to accommodate sunlight and ventilation all-round the day**

- **Less document are printed. Most of the Operation is becoming paperless.**

- **Strictness in terms of cleanliness. The workers are strictly monitored for their work.**

- **Many of the academic processes are turned into the online mode saving trees and reducing wastes, all wastes are properly segregated and reused/recycled and many other such activities are conducted by Institute to not only make the premise Green Premise, but to also take its surrounding towards a Green Area.**

- **Switching off the electrical appliance when not in use.**

- Maintaining the trees in shape and size

9. Towards a Healthy & Sustainable Institution

9.1   Inputs by Greenvio Solutions

Based on the analysis of the study of premises in addition to the recommendations provided in each section of Ecological, Water, Waste and Energy Audit the College can adopt the following strategies towards a Healthy and Sustainable Institution practices.

a) **Kitchen garden and diet canteen -** There can be provision of kitchen garden practices in a designated area of the open space this would enhance the biodiversity and be useful in training students and staff about the healthy practices and vegetables grown which would be used in Canteen. It helps in capacity building. The smaller steps taken have huge impacts when each student would adopt these practices in their homes or societies and grow kitchen garden, terrace garden there will be a long term benefit for the environment as a whole. The College can be one of the first Institutes in the country to have a healthy & nutritious Canteen following which a Research paper can be written by the Green Building Consultant. This would create awareness and encourage other Institutes to adopt similar practice.

b) **Cutlery in the Canteen –** The regular plastic and steel plates, spoons used in Canteen can be replaced with eco-friendly and organic leaves, paper straw, disposable plates, edible spoons and tables made out of sugarcane waste or bamboo. This will be first of its kind initiative to be adopted and practiced thus also inculcating the healthy practices in students.

c) **Waste vio –** Stepping up a little further an initiative can be undertaken wherein College can tie up with an organisation and students can be encouraged to collect dry waste and electronic waste such as newspapers, old computers and others and hand over to organisation on a weekly or monthly basis thereby making a waste reduction approach in the community. This has benefits such as awareness, eco-friendly habits in becoming a responsible citizen.

d) **Signages –** In addition to the signages being in regular language there can be additional signages in braille language for the specially abled students.

9.2   Survey Recommendations

An online survey was conducted to analyse the student and staff views about what changes according to you can be undertaken for Green audit improvement in College premise and activity, some of the key responses are listed below. Whereas many responses **stated there were no changes requires because the present practices are excellent.**

Some of the positive responses are listed as follows:

- No additional suggestions

- Well maintenance of plants and solar energy systems are the main key expect in others institute is good

- None, our institute is perfect

- Everything is very nice in terms of environmental factors

- Everything has been fine in institute. A silent nature perfect for learning and good habitat of students. Changes which should be done in walking and vehicle ways.

- Nothing because our institute is doing their best.

Some of the suggestions by the Students and staff are listed below:

- Water management

- Rain harvesting

- Voluntarily participation in Prakruti Club and awareness about club

- Webinar by experts, Qualified & hardworking gardening staff. Awareness through culture program

- Smart bulbs can be implemented

- Try to minimise the water wastage from toilets and use the same waste water for gardening or as flush water

- Free PUC check-up for all the vehicles coming to college premises

- Small plants can be planted in pot and hang near the edge of premises

- Quizzes about the environment

- Need to have a plant for waste water utilisation.

- Student innovative projects on waste management

- Vehicle free campus

- Natural Resources Management

- Plant more trees and Make one Flower garden

- Built more advanced classroom

- The students can be encouraged to focus on the environment through their projects and assignments. Organisation of awareness programmes and internship programmes can be adopted.

- Tree plantation camping in Alandi

- Better drinking water facilities. Lifts in each building.

- Regular remainder in form of social media post may increases the awareness

- Lights can be kept on sensors which detect movement and auto switch off

- More space can be utilised for plantation purpose, classrooms and open spaces may be more equipped with dustbins preferably for separation of wet and dry waste, students and staff may be voluntarily roped in to assist for regular plantation and cleanliness activities by making a space in their scheduled activities on the premises.

However, it should be noted that the College has taken up multiple initiatives and because of Pandemic the students have not practically visited the campus so many of these points are not mandatory at the moment.

10. References

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