



GREEN AUDIT REPORT



**M/s. Sri Venkateshwara College
of Engineering,**
Airport Road, Vidya Nagar, Central
Telecom Society, Bengaluru,
Karnataka 562157

Prepared By,
M/s. Enviro Engineering Solutions,
Thrupthi Nilaya, 8th Cross, Leelavathi
Extension,
Maddur, Karantaka-571428

2019-2020

CERTIFICATE

M/s.Enviro Engineering Solutions, Thrupthi Nilaya, 8th Cross, Leelavathi Extension, Maddur, Karnataka -571428 has carried out Green Audit for M/s. SRI VENKATESHWARA COLLEGE OF ENGINEERING Karnataka State. In year August - 2019

Date: 14.09.2019

Place: Maddur

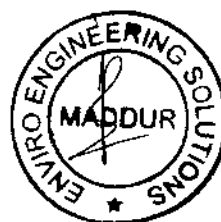
For Enviro Engineering Solutions

Puneeth C.M.
Proprietor

Authorized Signatory

TABLE OF CONTENTS

Sl. No	Description	Page No
1	Introduction	1
2	Basic Information	2
3	Infrastructure Facility	4
4	Green Audit	5
5	Methodology	6
6	Applicable of Environmental Regulations	7
7	Audit Framework	8
8	Field Observation	15
9	Recommendations	19
10	Conclusion	19



EXECUTIVE SUMMARY

Rapid urbanization, industrialization has led to several environmental and ecological crises. Now people have realized the need for Environment protection. Several legislations were enacted by various countries for protection of environment. Before initiating action to mitigate the problems, there is necessity to identify the problem issues. Hence the concept of Green audit has emerged.

The management of M/s. Sri Venkateshwara College of Engineering is environmental concerned and has intention to make the campus eco-friendly. In order achieve 'The Green Campus', the auditing work was taken up. Before taking up the work lot of preparatory work was carried out and methodologies developed.

After discussions with the management, stake holders in the college, field verification of site, regulatory requirement, the report is prepared and also suggestions are made to achieve Green Campus.



1. INTRODUCTION

M/s.Sri Venkateshwara College of Engineering (SVCE) is a private engineering college located Vidyanagar, Bangalore International Airport Road, Bengaluru -562157. SVCE provided with Technology for Classrooms, Laboratory, Sports, Accommodation, Cafeteria.For over decade SVCE has provided peerless academic, administrative and pastoral support to students hoping to succeed and beyond. From academic aspirations to the simple day-to-day challenges of living, by understanding the importance of every part of the student journey. The college is approved by AICTE, New Delhi and affiliated to Visvesvaraya Technological University, Belgaum. The college offers 6 under Graduate and 2 Postgraduate courses. In which 5 of its departments are recognized as research centre offering Ph.D/M.Sc Programmes. Currently more than 2229 students are pursuing their higher education in this esteemed Institution. The M/s. Sri Venkateshwara College of Engineering has the following colleges

1. S.V. College of Engineering.
2. S.V. MBA College.

Other Infrastructure facilities provided to the students of our Institution are

1. Spacious classrooms.
2. Laboratories.
3. Workshops.
4. Libraries.
5. Faculty Room.
6. Conference halls.
7. Auditoriums administrative block and other Unit.
8. S.V.C Boys Hostel.
9. S.V.C Girls Hostel.
10. Beautiful landscape.
11. Natured gardens and lawns.

12. Dustbins have been provided along all major corridors for collection and disposal of Waste.

VISION

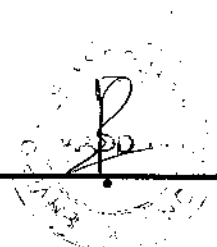
To be a premier institute for addressing the challenges in global perspective

MISSION

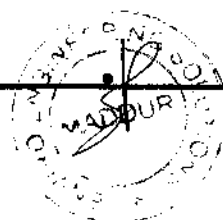
- Nurture students with professional and ethical outlook to identify needs, analyze, design and innovate sustainable solutions through lifelong learning in service of society as individual or a team.
- Establish State of the Art Laboratories and Information Resource centre for education and research.
- Collaborate with Industry, Government Organization and Society to align the curriculum and outreach activities

2. BASIC INFORMATION

Sl. No	Description	Observation
1	Name of the Institution	SRI VENKATESHWARA COLLEGE OF ENGINEERING
2	Address	Vidyanagar, Bengaluru-562157 Karnataka
3	Contact Person	Shri. Dr. Suresh, Shri. Dr. Rajkumar , Mrs. Lavanya
4	Telephone No	9880160464
5	Mail ID	principal@svcengg.edu.in
6	Website	www.svcengg.com
7	Total Area in Sq. feet	609840
8	Green Built Area, Sq feet	544805.74493



9	No of Staff	350 No's
10	No of Students	2229 No's
11	Type of courses run by college	<p>1. Bachelor of Engineering</p> <p>UG Courses</p> <ul style="list-style-type: none"> • Electronics & Communication Engineering • Computer Science & Engineering • Information Science & Engineering • Mechanical Engineering • Mechatronics Engineering • Civil Engineering <p>2. PG Courses</p> <ul style="list-style-type: none"> • M.Tech • Digital Communications & Networking • Computer Science & Engineering • Structural Engineering • Machine Design • Master of Business Administration
12	Source of Water	Borewell
13	Water Consumption in KLD	154.555 KLD
14	Wastewater Generation in KLD	134.809 KLD
15	No of Pumps	~



16	Borewell in No's	2 No's
17	Latitude and Longitude	13.1594357 and 77.621688
18	Dist-Residence, Mtrs	349 Mtrs
19	Dist-Highway, Mtrs	1910 Mtrs
20	Wastewater Discharge Point	Sewage Treatment Plant
21	Power Requirement in KVA	250 KVA

3. INFRASTRUCTURE FACILITIES

1	Total land available in Acres	14 Acre
2	Class Rooms	
	No. of Class rooms in Nos	22 No's
	Covered area in Sq. Mtr.	2169.75 Sq. Mtr
3	Laboratories	
	No. of labs rooms in Nos	27 No's
	Covered area in sq. Mtr.	4291.38 Sq. Mtr
4	Central Library	125.82 Sq. Mtr
5	Hostels (No. of rooms with students Hostels accommodated)	
	Men	
	No. of labs rooms in Nos	250 No's
	Covered area in Sq. Mtr.	1573.89 Sq. Mtr
	Women	
	No. of labs rooms in Nos	135 No's
Covered area in sq. Mtr.	2015.44 Sq. Mtr	



4. GREEN AUDIT

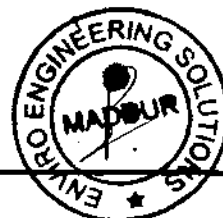
a. Definition

New England Interstate water pollution Control commission defines Green Campus as under,

1. Is one that carries out these functions according to a system-wide culture of environmental sustainability, balancing function and design with existing and foreseen resources.
2. Is a place where environmentally responsible practice and education go hand in hand and where environmentally responsible tenets are borne out by example.
3. Institution is a laboratory of self scrutiny, experimentation, and application. At its best, it is a model environmental community where operational functions, business practices, academic programs, and people are interlinked, providing educational and practical value to the institution, the region, and the world.

b. Benefits of Green Campus

1. Reduced maintenance costs.
2. Productivity gains for the occupants of the campus.
3. Carbon Neutral environment.
4. Un-interrupted clean power supply.
5. Drastic pollution reduction.
6. Healthy, hygienic study environment.
7. Recognition for the organization.
8. Attracts enrolment of students.
9. Sustainable future.



5. METHODOLOGY

The Green Audit was conducted for M/s. Sri Venkateshwara College of Engineering (SVCE) for the academic year 2019-2020 by M/s. Enviro Engineering Solutions to identify green practices being followed, identify the gaps and to make recommendations.

Desk study

- Collection of associated legislations
- Issues in the education institutions
- Develop audit plan including materials

Field study

- Collecting data regarding environmental issues
- Identification of gaps

Evaluation

- Evaluation of data
- Discussions with stake holders

Reporting

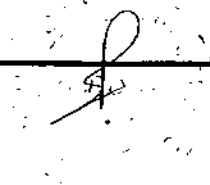
- Report writing
- Verification of Report
- Finalization

6. APPLICABILITY OF ENVIRONMENT REGULATIONS**a) Environmental Legislations**

SL. No	Applicable Act	Applicability
1	The Water (Prevention and Control of Pollution) Act,1974	Applicable
2	The Water (Prevention and Control of Pollution) Cess Act,2003	Not Applicable, after GST, this has become redundant.
3	The Air (Prevention and Control of Pollution) Act,1981	Applicable
4	The Environment (Protection) Act, 1986	Applicable
5	The Public Liability Insurance Act, 1991	Not Applicable

b) Rules

S/No	Applicable Rule	Applicability
1	The Water (Prevention and Control of Pollution) Rules, 2003	Applicable
2	The Water (Prevention and Control of Pollution) Cess Rules,1978	Not Applicable
3	The Air (Prevention and Control of Pollution) Rules, 1983	Applicable
4	The Environment (Protection) Rules, 2016	Applicable
5	The Hazardous and other waste (Management and Tran boundary movement) Ammended Rules,2019.	Applicable
6	The manufacture, storage and import of hazardous chemicals Rules, 2000	Not Applicable
7	The Chemical accidents (Emergency	Not Applicable

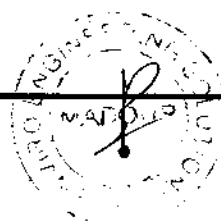


	Planning, Preparedness and Response) Rules, 1996	
8	The Biomedical waste Management (Amended) Rules, 2019	Applicable
9	The plastic waste (Management) Rules, 2016	Not Applicable
10	The Solid waste Management Rules, 2016	Applicable
11	The E-waste (Management) (Amended) Rules, 2018	Applicable
12	The Noise pollution (Regulations and control) Rules, 2010	Applicable
13	The Batteries (Management and Handling) Rules, 2011	Not Applicable

7. AUDIT FRAMEWORK

The following audit framework is used for conducting Green Audit

Sl no	Audit Area	Audit Observations
1	Water Consumption	
	1. Source of water supply	Bore well
	2. Storage tank capacity in KLD	200 KLD
	3. Total Population in Campus in No's	2579 No's
	4. Hostel Population	
	1. Boys Hostel No of Boys in Hostel (taking average consumption of 145liters/capita/day) Total water consumption in KLD	250 No's 36.25 KLD

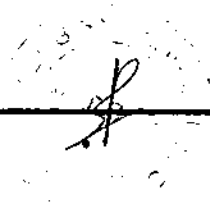


	<p>2. Girls Hostel</p> <p>No of Girls in Hostel in Nos</p> <p>(taking average consumption of 145 liters/capita/day)</p> <p>Total water consumption in KLD</p>	<p>135 No's</p> <p>19.575 KLD</p>
	<p>5. Non-residing Population(Difference of Total Population and Hostel Population) in Nos (taking average consumption of 45 liters/capita/day)</p> <p>Total water consumption in KLD</p>	<p>2194 No's</p> <p>98.73 KLD</p>
	<p>6. Total water consumption of the campus in KLD</p> <p>(addition of Hostel consumption and Non-residing consumption)</p>	<p>154.555 KLD</p>
2	Wastewater Generation	
	<p>1. Total wastewater generated from the Campus in KLD (80% of total water consumption)</p>	<p>134.809 KLD</p>
	<p>2. Wastewater discharge</p>	<p>Sewage Treatment Plant(STP)</p>
	<p>3. Lab Effluent in Liters</p>	<p>50 liters, Effluent is neutralized and then treated in STP</p>
3	Domestic Hazardous Waste	<p>Waste is generated from DG Set and from laboratories (negligible quantity).</p>
4	<p>Solid Waste</p> <p>Under Solid waste Management Rules, 2016 institution is covered under the definition -- "Bulk waste generator"</p> <p>Means and includes buildings occupied by the Central Government Departments or</p>	



	undertakings, State Government Departments or undertakings, Local Bodies, Public Sector undertakings or Private Companies, Hospitals, Nursing Homes, Schools, Colleges, Universities, Other Educational Institutions, Hostels, Hotels, Commercial Establishments, Markets, Places of Worship, Stadia and Sports Complexes having an Average Waste Generation Rate Exceeding 100 Kg/Day.	
	Dry waste in Kgs/Day Disposed (Office & Classroom) Avg generation of 0.74 kg/day	743.2 Kg/day Collected by Gram Panchayat
	Wet waste in Kgs/Day Disposed (Canteen & Hostel) Avg generation of 0.74 kg/day	858.8 Kg /day Poultry form as feed for the Hogs.
5	Air Pollution	Source of air pollution from DG Set
6	<p>E-Waste</p> <p>Under E-waste Management Rules, 2016 institution is covered under the definition – “Bulk Consumer”</p> <p>Means Bulk Users of Electrical and Electronic Equipment such as Central Government or State Government Departments, Public Sector Undertakings, Banks, Educational Institutions, Multinational Organizations, International Agencies, Partnership and Public Or Private Companies that are Registered under the Factories Act, 1948 (63 of 1948) and Companies Act, 2013 (18 of 2013) and Health Care Facilities which have turnover of more than 1 crores or have more than 20 employees.</p>	

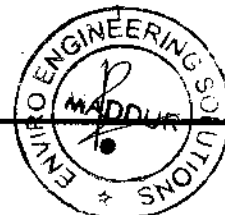
8	Hazardous waste	Used Oil is generated from DG Set, it is stored in a leak proof container in a scientific manner.												
6	Rain water harvesting	The college has been place to increase the water table the college building has rain water harvesting system contains 43 numbers of recharge pits of 1.5 meter diameter and 9 meters depth. The RWH is also being in the Hostel premises of the college. The roof top harvesting of rain water with necessary plumbing work has been implemented. The collected water from the roof top is let through a filter system into a recharge pits.												
7	Solar energy	<p>The college hostel building uses renewable energy (solar energy) for water heating system.</p> <table border="1" data-bbox="942 1267 1451 1856"> <thead> <tr> <th>Sl. No</th> <th>Block Name</th> <th>No of Occupants</th> <th>Solar Water Heater Capacity in Liters</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Boys Hostel</td> <td>250</td> <td>3000</td> </tr> <tr> <td>2</td> <td>Girls Hostel</td> <td>135</td> <td>2000</td> </tr> </tbody> </table>	Sl. No	Block Name	No of Occupants	Solar Water Heater Capacity in Liters	1	Boys Hostel	250	3000	2	Girls Hostel	135	2000
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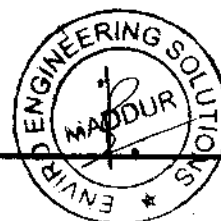
8	Environmental Policy	Environmental policy is present
9	Environmental awareness programs/conference/workshops	The various programs conducted/attended by the college are: <ol style="list-style-type: none">1. Emission Test Camp.2. Plantation Program.3. Awareness program to save water .4. Celebrates World Environmental Day every year.5. Green Marathon
10	Waste Management	<ol style="list-style-type: none">1. Solid waste has been stored in scientific manner2. Domestic Hazardous waste -- stored in a separate bin in scientific manner3. E-waste- stored in separate storage bin in scientific manner4. Bio-medical Waste- stored in scientific manner.



11	College Achievements in line with Government	<ol style="list-style-type: none"> 1. The college has reduced energy consumption by using LED lights instead of traditional lights due to which 20% of the electric energy is saved. 2. They are using Solar water heaters in hostels(boys & girls) instead of electric energy 3. RO water filter is installed in the campus. 4. As per IS standards, the college have maintained 33.33% of Green Belt Area. 5. The college is plastic, litter & smoke free campus. 6. The college hostel building uses renewable energy (solar energy) for water heating system. 7. The college has been place to increase the water table the college building has rain water harvesting system
12	Carbon Neutrality	<p>Necessary steps several plantations across the campus. The vehicle traffic is restricted with in the campus in view to reduce carbon emission. Well grown plants around the campus are maintained to reduce the effect of pollution. The grecnery initiation has been implemented in a phased manner. Details of plant present in campus are:</p>



		<p>➤ Ornamental Plants</p> <table border="1"> <thead> <tr> <th>Name of the Plant</th> <th>Total Number</th> </tr> </thead> <tbody> <tr> <td>Palm Tree</td> <td>9</td> </tr> <tr> <td>Catherenthus</td> <td>100</td> </tr> <tr> <td>Roses</td> <td></td> </tr> <tr> <td>Ashoka</td> <td>2</td> </tr> <tr> <td>Arecca plant</td> <td>30</td> </tr> <tr> <td>Bamboo</td> <td>30</td> </tr> <tr> <td>Hibiscus</td> <td>5</td> </tr> <tr> <td>Champaka</td> <td>2</td> </tr> <tr> <td>Gosampige</td> <td>10</td> </tr> </tbody> </table> <p>➤ Well Grown Trees</p> <table border="1"> <thead> <tr> <th>Name of the Trees</th> <th>Total Number</th> </tr> </thead> <tbody> <tr> <td>Coconut</td> <td>12</td> </tr> <tr> <td>Kadamba</td> <td>20</td> </tr> <tr> <td>Forest Trees</td> <td>100</td> </tr> </tbody> </table>	Name of the Plant	Total Number	Palm Tree	9	Catherenthus	100	Roses		Ashoka	2	Arecca plant	30	Bamboo	30	Hibiscus	5	Champaka	2	Gosampige	10	Name of the Trees	Total Number	Coconut	12	Kadamba	20	Forest Trees	100
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13	Clean Campus	There are around 77 house keeping Staff continuously working to keep the campus clean and tidy.																												



8. FIELD OBSERVATIONS

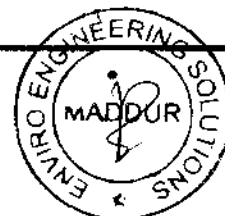
SL.No	Control objectives	Controls	Audit Observation						
1	To minimize water consumption	Repair sources of water leakage, such as dripping taps as quickly as possible.	The college carries out regular checking and maintenance of pipelines, taps to control water wastage.						
		Install appliances which reduces water consumption such as, Aerators on taps used for hand washing, Installing water misers, Landscaping with drought-tolerant plants, toilets, Leak detection technology, Recycling rooftop rainwater, Rooftop vegetation, Hand sanitizers.	Yes, the college is installed the rain water harvesting mechanism to reuse rainwater in toilets, gardening, and washing of corridors.						
		Encourage a decrease in water usage among staff, students and conference guests.	Yes, the college encourages all its faculties and student body to decrease water usage.						
		Use an efficient and hygienic water storage mechanism to minimize the loss of water during storage.	The college will include a leak management program to minimize the real losses of water during storage.						
		Minimize the wastage of water, if RO filter are used and regular service to be done.	RO Filters are yet to be implemented of 100 liters capacity <table border="1" data-bbox="964 1556 1450 1870"> <thead> <tr> <th>Description</th> <th>Nos</th> </tr> </thead> <tbody> <tr> <td>Basic Science</td> <td>1</td> </tr> <tr> <td>Electrical Department</td> <td>1</td> </tr> <tr> <td>Mechanical and Civil Block</td> <td>2</td> </tr> </tbody> </table>	Description	Nos	Basic Science	1	Electrical Department	1
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			<table border="1"> <tbody> <tr> <td>Ground Floor</td> <td>1</td> </tr> <tr> <td>2nd Floor</td> <td>1</td> </tr> <tr> <td>Boys Hostel</td> <td>4</td> </tr> <tr> <td>Girls Hostel</td> <td>1</td> </tr> </tbody> </table>	Ground Floor	1	2 nd Floor	1	Boys Hostel	4	Girls Hostel	1
Ground Floor	1										
2 nd Floor	1										
Boys Hostel	4										
Girls Hostel	1										
		Install water recycling mechanism i.e., rain water harvesting system.	The college will implemented the Rain water Harvesting.								
2	Minimize the use of chemical pollutants and Hazardous waste	Ensure that all cleaning products used by college have minimal detrimental impact on environment	Negligible amount of washing liquids are used in college and all toilet cleaners are eco-friendly.								
		Minimize the use of fertilizers and pesticides in college grounds, opting for the use of compost produced on site wherever possible.	Negligible amount of fertilizers and pesticides are used in the college.								
		Dispose the chemical waste generated from laboratories in a scientific manner	The chemical waste generated from laboratories in a scientific manner								
		Reduce the practice of burning plastic and other material that	No such burning is observed/evidence at the time of auditing by us.								



		emits harmful gas on burning.	
		Provision of Separate bins for Storage of Domestic Hazardous waste as per the norms.	Yes, the college maintains separate Hazardous waste storage bins to store the generated domestic hazardous waste.
		Provision of Storage room for Domestic Hazardous waste as per norms.	Separate storage room is not provided, since domestic hazardous waste is generated.
3	Minimize Air pollution in the campus	Identify the sources of air pollution.	The college has identified air pollution sources.
		Maintenance and periodic sampling of identified air pollution sources.	The sampling of identified pollution sources are periodically done and maintained.
		Is the Ambient Air Quality (AAQ) Monitoring within the National Ambient Air Quality (NAAQ) Standards.	Yes, AAQ are within the NAAQ Standards.
4	Ensure that environmental awareness is created	Conduct environmental awareness workshops as a part of program.	Yes the college conducts such programs.
		Conduct events such as plant trees to spread environmental awareness among the students.	Have an active club to conduct events.
		Promote environmental	Yes, the college has an Environmental



		awareness as a part of course works in various curricular areas, independent research projects.	Science subject, wherein the environmental awareness is promoted.
		Awareness programs to promote recycling among staff, students through training, posters and incentives.	Yes, the college promotes recycling among staff and students regarding.
5	Ensure that Environmental Policy is enacted, enforced and reviewed	Establish a college Environmental Committee that will hold responsibility and serve as a source of advice and guidance to staff and students on how to implement the policy.	The college has implemented the Environmental Policy.
		A Green officer who is engaged in the profession of providing guidance on environmental impact.	Yes, there is a green officer who is engaged in profession of providing guidance on environmental impact.



9. RECOMMENDATION

1. A model Vermi-composting plant to be set up in the college campus.
2. Grow potted plants at both verandah and class rooms.
3. Beautify the college building with indoor plants
4. Adapting more renewable energy source
5. Establish a system of car pooling among the staff to reduce the number of four wheelers coming to the college

10. CONCLUSION

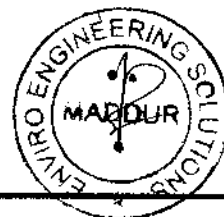
The Audit carried out in the M/s. Sri Venkateshwara College of Engineering and discussions with stake holders indicate that there is willingness to convert the campus into green campus. Time schedule for implementation will go long way in achieving the desired objective.

General Conclusion

1. Environmental policy for the college had been adapted.
2. Environmental friendly materials are been using.
3. Environmental Science course to all students had been added.
4. Seminars and group discussions on environmental education had been done regularly.
5. Established water, waste and energy management systems.

A. Water

1. Damaged taps recognized and replaced.
2. Established rain water harvesting systems.
3. Established water treatment systems.
4. Awareness programs on water conservation been conducted.



B. Energy

1. Employed of more solar panels and other renewable energy sources.
2. Conducted more save energy awareness programs for students and staff.
3. Observed a power saving day every year.

C. Waste

1. Established a functional Bio Gas Plant.
2. Practiced waste segregation
3. Establish a plastic free campus.
4. Avoided Plastic Paper plates and Plastic cups for all functions in the college.

D. Green Campus

1. Trees in the campus are planted scientifically.
2. We are not just celebrating environment day but making it a daily habit.
3. Provided funds to nature club for making campus more green
4. Encouraged students not just through words, but through action for making the campus green.
5. Conducted competitions among departments for making students more interested in making the campus green.

E. Carbon footprint

1. Introduced college bus services to the students and staff.
2. Encouraged students and staff to use cycles.
3. Discouraging the students using two wheelers for their commutation.

