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Power Audit Certificate

This certificate attests that St. Aloysius College has conducted a Power Audit for the academic year 2024-2025, with the aim of assessing and optimizing the energy utilization across the campus. The audit focused on detailed measurements and analysis of energy consumption patterns to identify strategic opportunities for enhancing energy efficiency.

Audit Summary:

- **Date of Audit:** May 2024-25
- **Location:** Jabalpur, Madhya Pradesh
- **Total Energy Consumption:72177.** kW
- **Major Contributors to Consumption:** Air conditioning units, computers, printers, ceiling fans, and lift.

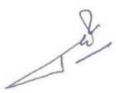
Significant Findings:

- A variety of electrical appliances including 32 AC units, 380 computers, and 303 ceiling fans were audited.
- Key issues identified included varied voltage at plug points, extensive use of extension boards, and some earthing problems.
- Recommendations include upgrading to LED lighting, enhancing earthing systems, and implementing automated control systems for electrical devices.

Recommendations for Energy Efficiency:

- **Infrastructure Upgrades:** Replacement of old switches and boards, transition to LED lighting, and enhanced use of natural lighting.
- **Grounding Improvements:** Improvements in earthing practices to ensure equipment safety and efficiency.
- **Automation and Control:** Installation of smart switches and motion sensors to optimize energy usage.
- **Sustainable Practices:** Encouragement of recycling initiatives and the use of energy-saving power strips.
- **Enhanced Energy Practices:** Regular maintenance of appliances, education on energy-saving practices, and exploration of solar energy options.

Issued by:
SD Integrated Private Limited





Prakash Sarathe
Place: Jabalpur
Date of Issue: 23rd August 2025

ST. ALOYSIUS' COLLEGE (AUTONOMOUS), JABALPUR, M.P.

RE-ACCREDITED 'A+' GRADE BY NAAC
COLLEGE WITH POTENTIAL FOR EXCELLENCE (CPE) BY UGC
DST FIST SUPPORTED AND STAR COLLEGE SCHEME BY DBT.

Power Audit Report
(2024-25)

ST. ALOYSIUS COLLEGE, 1, AHILYA BAI MARG, PENTINAKA CHOWK,

SADAR CANTT., JABALPUR, MADHYA PRADESH, INDIA 482001

St. Aloysius' College(Autonomous),

Power Audit Committee

S.No.	Name	Designation	Signature
1	Dr. Pramod Chaitenya	Head, Physics	
2	Dr. Poonam Pendke	Asst. Prof. Physics	
3	Dr. Abhilasha Shukla	Asst. Prof. Hindi	

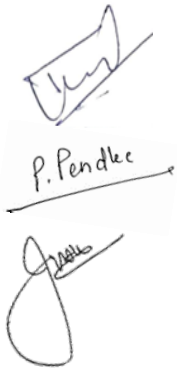


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Power Audit Certificate

This is to certify that an “Power Audit” for St. Aloysius' College (Autonomous), Ahilya Bai Marg, Pentinaka Chowk, Sadar Cantt., Jabalpur, Madhya Pradesh, India 482001, has been conducted in June to assess energy cost, availability and way to reduce power consumption.

Place: Jabalpur

Date:

Coordinator **Auditor**

Preface

Data collection for Power audit of the St Aloysius College (Autonomous),Jabalpur, Madhya Pradesh, was conceded by team for the period of July 2024 to June 2025. This audit was over sighted to inquire about convenience to progress the energy competence of the campus. All data collected from each classroom, laboratory, every room. The work is completed by considering how many tube lights, fans, A.Cs, electronic instruments, etc in each room. How much was participation of each component in total electricity consumption. St Aloysius College (Autonomous) management for creating the awareness of power saving they promote the use of renewable energy such as solar energy and their significance.



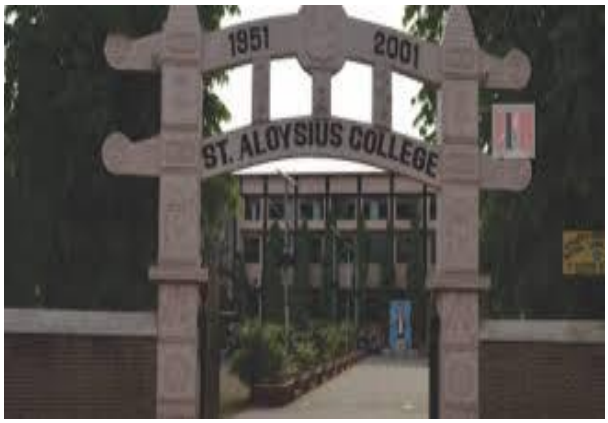


Aims and Objectives of Power Audit

The Power Audit is **a survey and information collection of premises and electric equipment.** In any institution, the energy consumption is found to be one of the top most costs involving aspect. Power audit is an active tool for developing and applying comprehensive energy management plans of an Organization. The aim of the power audit of Organization will identify power - saving opportunities for less power consumption. It will help us to understand how to reduce the costs and energy consumption and avoid extra energy consumption.

Introduction

The Power Audit is a survey and information collection of premises and electric equipment. This collected data is then used to provide a detailed report describing how energy is currently being used and outline efficiency opportunities that are available to you. It will identify low cost and no cost ways to save energy, as well as cost effective capital improvements of electricity and equipment. Every year Power audit is proposed and conducted to ensure that power saving practices is implemented and followed by the institute. The audit includes suggestions of Power Audit is the translation of conservation ideas into realities, by lending technically feasible solutions with economic and other organizational considerations within a specified time frame. The primary objective of Power Audit is to determine ways to reduce energy consumption per unit of product output or to lower operating costs.









Observation and Analysis

The data collected during the above observation is manipulated and then interpreted. First the energy consumed in each block of College is measured and then the data is visually represented.

Load Details:

The structure of St. Aloysius College, Jabalpur can be divided into three floors, each floor consisting of various class-rooms, Laboratories, Library, Reading room, and rooms allotted for various extra-curricular activities like Sports, Health Club, NCC and NSS. In the following load survey we are estimating the approximate power consumption if the college is running on full load i.e. load that the college would be using in case all the appliances are operational at the same time.



Library



Conference Room



Prerna



Sports Room



Reading Room

Measurements & Observations in Earthing system:

Earth resistance testing is carried out for different equipment & distribution board in college premises by earth tester. Test results are tabulated as under:

S.No.	Location/Equipment	Earth Resistance Value in Ohms (Ω)	Remark	Recommendation
1	DG Body (40 KVA)	40	Earth resistance is a bit higher	Earthing network connection should be checked & corrected for the proper connection from equipment to earth pit & salt water can be added to earth pit for improving earth resistance.
2	Earth Neutral	0.47		
3	DG Body Earth Pit	4.65		

Besides this a DG set of capacity 40kVA/36kW/62.6A has been installed in the campus for back up during power loss. But as load is unbalanced and non-linear, DG set should not be run above 80% of its capacity i.e.28.8kW for reliable operation. The following chart approximates the fuel consumption of a diesel generator based on the size of the generator and the load at which the generator is operating at. The table is an estimate of how much fuel a generator uses during operation and is not an exact representation due to various factors that can increase or decrease the amount of fuel consumed.

Generator Size (kVA)	Generator Size (kW)	1/4 Load (ltr/hr)	1/2 Load (ltr/hr)	3/4 Load (ltr/hr)	Full Load (ltr/hr)
40	36	3.4	5.8	7.9	9.9

Testing of Earth Continuity at different Plug points.

Testing of Earth Continuity at different Plug points is carried out on sample basis and results are tabulated as under:

Following Colour Coding is used to indicate Correction work priority

Priority	Colour Code
High	
Medium	
Low	

Power Measurements at Main Incomer

PhaseVoltage Measurements			Current Measurements			kW / Phase			Total Load In kW
R	Y	B	R	Y	B	R	Y	B	
230	230	230	50.8	49.5	57.1	16.2	15.8	18.2	50.2
228	229	229	52.9	48.5	55.5	16.7	15.4	17.6	49.7
228	230	230	54.4	49.3	57.4	17.2	15.7	18.3	51.2
Average Load in kW									**50.4**

Observations:

- Extensive use of extensions boards
- Earthing problems was observed at some points.
- Few tube lights are still being used.

Suggestions:

- Earthing problems need to the addressed by increasing salt at the earth pit.
- Automated switching on/off of appliances must be implemented,
- Use Energy Saving Power Strips.
- Encourage Students to Recycle.
- Use Sensors for turning Lights on or off in a Room.
- The use of natural light should be encouraged.
- To reduce power usage by as much as 75%, put your computer into a power saving mode when you won't be using it for an extended period of time and enable power management features during shorter periods of inactivity.

Building details - Sample file

2024-25

Sr.No	Room Name	Building name	Light type	
			LED	Tubelight
1	Classrooms		236	25
2	Dept. of Physical Sciences(CS,Maths, Physics)		7	10
3	Exam Cell		13	5
4	Arts			3
5	NCC +NSS			4
6	Hindi + Eng Departmen		3	1
7	Dept. of life Sciences		12	25
8	Reading Room			7
9	Library		11	29
10	Dept of Education		1	2
11	IT Cell			3
12	Dept of Management			1
13	Commerce Dept		5	4
14	Conference Room		11	
15	Vice Principles Office			3
16	Gym			5
18	IQAC		3	
19	Central Lab		6	
20	Placement Cell			1
21	Common Room		20	3
22	Office		1	5
23	Prerna		41	4
24	Principal Office		14	2
25	IT Room			
26	Corridor		30	

		Light Wattage				Fan Type	
CFL	**Filament Light**	**LED**	**Tubelight**	**CFL**	**Filament Light**	**Celling**	**Exhaust**
		20	20	12		147	
23		9	20	12		30	4
11		9	20			8	1
			20			3	
			20			4	
		9	20			3	
12		9	20			38	
			20			5	
		9	20			10	
		9	20			2	
			20			3	
			20			2	
		9	20			4	
		20					
			20			2	
			20			5	
		9				2	
		9				4	
			20			1	
		9	20			2	
		9	20			5	
	14	20	20		40	19	
		9	20			4	
		15					

	Fan Wattage		AC Nos.	AC Tonnage	AC Wattage	Hours the space is used per day	Days the space is used in a year
Wall	Celling	Exhaust					
						6 Hours	
	80	60	9	1.5	1200	6 Hours	
	80	60	2	1	1000	6 Hours	
	80					6 Hours	
	80					6 Hours	
	80					6 Hours	
	80		1	1	1000	6 Hours	
	80					6 Hours	
	80					6 Hours	
	80					6 Hours	
	80					9 Hours	
	80					9 Hours	
	80					6 Hours	
			2	1	1000	6 Hours	
	80					9 Hours	
	80					9 Hours	
	80					6 Hours	
	80		3	1.5	1200	6 Hours	
	80					6 Hours	
	80					9 Hours	
	80					9 Hours	
	80		4+8	1+4	1500	9 Hours	
	60		1	1	1500	9 Hours	
			2	1	1200	9 Hours	
						6 Hours	

2024-25

List of equipment in premises		
S. No.	**Name**	**Nos.**
1	Aquaguard	6
2	CCTV Camera	164
3	Deep Freezer	5
4	Desktop computer	380
5	Emergency alarm (Lifts)	1
6	Note Counting Machine	1
7	PA System	2
8	Photocopy Machine	6
9	Printer	45
10	Projector	35
11	Refrigerator	6
12	Sanitary Vending Machine	1
13	Server	6
14	Submersible Motor pump (Connected to well/ borewell)	2
15	Non-LED TV	2
16	Water Cooler	4
17	Digital Dislay	5
18	Microwave Oven	5
19	Batteries	28
20	Gas cylinders	5
21	Induction stove	1
22	Solar panels	120
23	Electrical Kettle	8
24	Face Detector	1
25	Lift	1
26	LED Video wall	1
27	Interactive Panels	32
28	UPS	8

Electricity bills analysis							
S. No.	**Month**	**Year**	**Amount**	**(A) Total units consumed**	**(B) Solar units generated**	**(C = A-B) Gross units consumed after deduction**
Academic year 1						
1	Throughout the Year	2024-25	740948	72177	17091	55,086.00