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NIRMALA
ARTS & SCIENCE COLLEGE
MULANTHURUTHY
Affiliated to MG University, Kottayam

ENERGY AUDIT REPORT



ENERGY AUDIT REPORT 2021-22

**NIRMALA ARTS & SCIENCE COLLEGE
MULANTHURUTHY**

ENERGY AUDIT REPORT

Introduction

The Nirmala Arts & Science College, Mulanthuruthy is an institution, which rely on sustainability and focuses on green energy protocol. It is in par with the governmental guidelines in maintaining standards in all its concealed and exterior insulations. Stringent measures are taken in order to attain proper functioning of the heating installation, the hot water system and the ventilation system. The proper use of various pieces of equipment such as thermostats, thermostatic valves, etc. are verified every now and then by a group of authorised electricians. Several initiatives helped to achieve the same in the past five years. It included several student initiatives, especially under the wing of NSS unit. The IQAC team of the college had a big role in monitoring and training the incoming students for handling the electrical devices in the institutions. With the support of the college management, the institution is almost free from heating filament/older type bulbs and other electric equipments.

Objectives

- To prepare a document on the Energy Audit for the campus
- To study the infrastructure facilities and power related and electric related facilities
- To prepare a document on green energy options and green energy initiatives in the campus

Observations

Each and every class room is provided with sufficiently rich number of ceiling fans, power plugs, LED lights and provision for upgrading into smart classrooms. This is a rare feature when compared to many other colleges.

All the facilities available in the class rooms, student amenity centres, auditoriums, staff rooms, office rooms etc. are tabulated and are given in tables 1 to 10.

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All the facilities available in the class rooms, student amenity centres, auditoriums, staff rooms, office rooms etc. are tabulated and are given in tables 1 to 10.

Table 1. Class Rooms In Old Building

			FAN	LED TUBE	OLD TUBE	PLUG	POWER PLUG	PROJECTOR	CAMERA	TV	LIGHT POINTS	COMP & LAB	
CLASS ROOM	OLD BUILDING	GROUND	I B.Com(TAX)	3 (80W)	2 (20W)	X	X	X	1	1	X	X	X
			I B.Com(CA)	3	1	1 (40W)	1	X	X	1	X	X	X
			CLASS I	2	1	X	1	X	X	X	X	X	X
			CLASS II	2	2	X	2	X	1	X	X	X	X
		CLASS I	2	X	X	1	X	X	X	X	X	2	X
		CLASS II	2	X	1	1	X	X	X	X	1 (40")	1	X
		CLASS III	X	1	X	2	X	1	X	X	X	1	X
		III B.Com (TAX)	3	1	1	1	X	X	X	X	X	X	X
		III B.Com (CA)	3	1	1	1	X	X	X	X	X	X	X
		II B.Com (CA)	3	X	2	2	X	X	X	X	X	X	X
		II B.Com (TAX)	3	1	1	2	X	1 (10 A)	X	X	X	X	X
		I BBA	2	1	X	2	X	X	X	X	X	2	X
		II BBA	2	X	1	2	X	X	X	X	X	3	X
		III BBA	2	1	X	1	X	X	X	X	X	3	X
		III BCA	2	X	X	1	X	X	X	X	X	2	X

		II M.Com OR II BCA(FIN)	2	X	X	1	X	X	X	X	2	X
		I BCA	2	X	X	4 (IN TER)	X	X	X	X	2	1 & 1
		CLASS I	2	X	X	1	X	X	X	X	2	X
TOTAL		18	40	12	8	26	0	4	2	1	20	2

Table 2. Class Rooms In New Building

			FAN	LED TUBE	OLD TUBE	PLUG	POWER PLUG	PROJECTO R	CAMERA	TV	LIGHT POINTS	FAN POINTS
CLASS ROOM NEW BUILDING	FIRST	II BBA	5	2	X	4	X	1	X	X	4	X
		ROOM 3	4	2	X	3	X	X	X	X	2	X
		I BBA	4	2	X	3	X	X	X	X	2	X
		ROOM 4	3	X	X	X	X	X	X	X	3	6
	GROUND	ROOM 5	4	4	X	3	X	X	X	X	X	X
		ROOM 6	2	2	X	1	X	X	X	X	X	X
		B.Sc PSYCO III	2	2	X	4(INTE R)	X	X	X	X	X	X
		B.Sc. PSYCO II	2	2	X	8	1	X	X	X	X	X
		B.Sc. PSYCO I	4	2	X	8	3	1	X	X	X	X
TOTAL	9	30	18	0	34	4	2	0	0	11	6	

Table 3. Facilities in Laboratory

TOTAL	LAB		PSYCHO LAB NEW LAB 1	COMPUTER LAB ON SECOND FLOOR OLD		FAN	LED	OLD TUBE	PLUG	POWER PLUG	PROJECTOR	CAMERA	COMPUTER	SPEAKER	AC	MCB	ELCB	LAN BOX	UPS	BATTERY
	LAB 1	LAB 2		LAB 1	LAB 2															
	3	4		4	3															
7	X	X	X	X	4															
4	X	X	X	X	X															
4	X	1	X	3	3															
189	9	96+1	9	80+3	80+3															
9	4	2 FOR AC +1	4	2 FOR AC +1	2 FOR AC +1															
1	X	1	X	X	X															
4	X	2	X	1 & IPOINT	1 & IPOINT															
72	X	32	X	40	40															
2	X	2	X	X	X															
4	X	2	X	2	2															
1	X	FROM UPS	X	1 OF UPS C10-12	1 OF UPS C10-12															
1	X	X	X	1	1															
1	X	1	X	X	X															
1	1	?	1	?	?															
4	4	X	4	X	X															

Table 4. Facilities in Common Rooms

		FAN	PEDESTAL FAN	LED TUBE	OLD TUBE	PLUG	POWER PLUG	PROJECTOR	CAMERA	SPEAKER	AC	LIGHT POINTS	FAN POINTS
SEMINAR HALL	OLD BUILDING	6	X	2	2	3	X	1	4	1 (150W) 2 SMALL 1 PODIUM WITH SPEAKER	X	X	X
	NEW BUILDING	5	X	2 CEILING TUBES	X	1	2	1	X	X	2	X	X
TOTAL		11		4	2	4	2	2	4	3	2	0	0
EXAM HALL	OLD BUILDING SECOND FLOOR	7	2	4	2	X	X	X	4	X	X	1	5
SICK ROOM		1	X	2 CEILING BULB (5W)	X	1	X	X	X	X	X	X	X

Table 5. Electrical options in Washrooms for Students and Staff

			LED TUBE	WASH TAP	WASH BASIN WITH TAP	INDIAN COMMOD E	EUROPEAN	COLOR TAPS IN TOILET	URINALS WITH FLESHTA P	URINALS	
WASHROOM	GIRLS	GROUND 1	X	4	X	2	X	2	X	X	
		GROUND 2	X	5	X	5	X	5	X	X	
		FIRST FLOOR	2 (5W)	4	X	6	X	6	X	X	
		BESIDE AUDITORIUM	X	X	2	4	X	X	X	X	
	BOYS	GROUND	X	1	X	1	X	X	X	X	
		OUTSIDE	X	5	X	2	X	2	13	X	
		BESIDE AUDITORIUM	1	X	1	2	X	2	X	7	
		BESIDE AUDITORIUM	X	23	X	X	X	X	X	X	
	TOTAL		6	3	37	3	17	0	12	13	7
	WASHROOM BESIDE CANTEEN			X	1	X	X	3	X	X	3
WASH ROOM FOR STAFFS			X	X	X	1	X	1	X	X	

Table 6. Canteen facilities

	FAN	LED BULB	PLUG	POWER PLUG	SINKS	TAP OUTSIDE
CANTEEN	3	8	3	2	1	4

Table 7. Electrical facilities in Staffrooms and common rooms for faculty

		FAN	LED BULB	LED TUBES	PLUG	POWER PLUG	COMPUTER	PRINTER	LAN BOX	WASH BASIN	ATTACHED WASHROOM WITH EROP. COMMOD	LED BULB	WASH	TAP	FAUCET	SHOWER
OLD BUILDING	GROUND	I	5	5	X	3 & UPS PLUG 2	X	2	1	X	1	1 (9 W)	1	1	1	X
		II	2	X	2	2	X	X	X	X	X	1	1	X	X	X
		HOD ROOM	WALL FAN 1	3 CEALING	X	3	X	X	1	X	1	X	X	X	X	X
	FIRST FLOOR	I	X	X	1	4	X	1 UPS	X	X	1	X	X	X	X	X

		II	1	X	1	4	X	X	X	X	1	X	X	X	X	X
NEW BUILDING	UP		2 & 2 POINTS	X	3	5	1	X	X	1	X	1	1	1	1	X
	DOWN		2	X	2	4	X	X	X	X	X	1	1	1	1	1
DINING ROOM GROUND FLOOR(OLD)		2	5(5W) CEALIN G	X	2(6 ohm) & 1(16 ohm)	X	X	X	X	1	X	X	X	X	X	X
TOTAL		15	13	9	30	1	3	2	1	5	4	4	4	3	3	1

Table 8. Foyer Side facilities

		MC	DB	ELE. BELL	PLUG	LIGHT	OLD TUBE	WATER FILTER	COOLER	WiFi MODEM	LAN BOX	FIRE EXTINGUISHER	CC	SPEAKER HORN	GENERATOR MCB	FAN	FILTER MOTOR
OLD BUILDING	GROUND	1 (30aM) C6-6 C10-4 C16-6 C20-1	1 C6-6 C20-2	1	3	1(30W) +1	1	1	1 (300W)	4	X	2	5	1	2 (C40)	2	ONE (1/2 HP)
	FIRST FLOOR	1(40A) B16-9 B6-6	X	1	X	1	X	X	X	3	1	X	3	2	X	X	X
	SECOND FLOOR	X	1 C10-7 C20-4	1	P.PLUG FOR FILTER	X	1	1(20 W)	X	3	1	X	3	2	X	2	X
NEW BUILDING	UP	1 C10-9 C20-3	X	1	X	POINTS GIVEN	X	X	X	X	X	X	X	2	X	X	X
	GROUND	X	X	1	X	4 (15W) CEALIN G LED	X	1	1	X	X	X	X	2	X	X	X
TOTAL		3	1	5	3+1	7	2	3	2	10	2	2	11	9	2	4	1

Table 9. Facilities in the Auditorium

	Fan	Pedestal Fan	Led Tube	Old Tube	Cealing Led	Plug	Power Plug	Camera	Speaker
In	32	1	7	X	X	6	4	8	2 (160w) & 3 Vertical Speakers
Out	X	X	9	5	16	X	X	X	X
Total	32	1	16	5	16	6	4	8	5

Table 10. Electrical facilities in Other Rooms

	FAN	LED TUBE	PLUG	UPS PLUG	POWER PLUG	AC	CC	TV	UPS BATTERY	ATTACHED WASHROOM WITH EROP. COMMODE	WASH	TAP & FAUCET
PRINCIPAL ROOM	2 + 2 WALL FAN	9 CEALING LED(5W)	5	X	1 FOR AC	1	X	1	X	1	1	1+1
GUEST ROOM	1	2 CEALING LED(5W)	1	X	X	X	X	X	X	X	X	X
OFFICE ROOM	3	X	2 (60ohm)	7	X	X	X	X	20	X	X	X
MANAGER ROOM	1	4CEALING LED	1	X	X	X	X	X	X	X	X	X
SECURITY ROOM	1	2	1	X	X	X	1	X	X	X		X
STORE ROOM	X	1	X	X	X	X	X	X	X	X	X	X
TOTAL	10	18	10	7	1	1	1	1	20	1	1	2

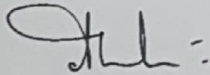
The data in the tables 1 to 10 actually gives a virtual tour on the facilities of the college to run the institution remarkably good. Even though there are all these facilities the actual bill amount to the State electricity Board bill on a regular basis is comparatively

very low since the installation of the solar power plant and switching over to LED lights and other power saving mechanisms.

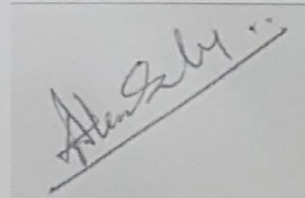
Recommendations

- Some of the points still have old type tubes (very few number), which are to be replaced with LED lights
- Management should consider increasing the wattage of Solar Power
- Approach the Kerala State Electricity Board for Grid connectivity

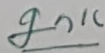
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