

Certificate


This is to certify that **Green Audit** was carried out at Lala Lajpat Rai College of Law, Mahalaxmi, Mumbai during the month of June 2019.

The scope, coverage, findings and recommendations are submitted vide our report SCPL-PR-656-290619 dated June 29, 2019.

For **SENERGY CONSULTANTS PVT LTD**



Tushar Kamble
(Project coordinator)


PRINCIPAL
Lala Lajpatrai College of Law
Lala Lajpatrai Marg,
Mumbai - 400 034.

Certificate

This is to certify that **Energy Audit** was carried out at Lala Lajpat Rai College of Law, Mahalaxmi, Mumbai during the month of June 2019.

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Report

On

GREEN, ENERGY & ENVIRONMENT AUDIT

For

Lala Lajpat Rai College of Law
Mahalaxmi, Mumbai

Prepared

By

Senergy Consultants Pvt Ltd
Mumbai

June 2019

Helping You to Conserve Energy

Contents

Sr. No	Description	Page
I	Introduction	3
II	Executive Summary	4
III	Electrical System & Bill	6
IV	Energy Management & Efficiency	7
V	Water Management	13
VI	Waste Generation & Management	15
VII	Infrastructure & Safety	16
VIII	Environmental System	17
IX	Green Culture	19
X	Renewable Energy	20

Helping You to Conserve Energy

I Introduction

Green & Energy Audit was undertaken at Lala Lajpat Rai College of Law, Mahalaxmi, Mumbai, during the month of June 2019.

The organization is very keen to promote green culture wherever possible, as a commitment towards better environment and conservation of energy. To further optimize consumption and identify saving opportunities, M/s Senergy Consultant Private Limited was assigned to carry out Green & Energy Audit of the premises.

This Audit Report presents the analysis of the data collected, observations made at the facility and is governed by the objectives, scope of work, methodology etc. discussed in the ensuing paragraphs.

Team:

The team members of the audit study.

- Mr. Ravindra Datar
- Mr. Nitesh Kharche
- Mr. Tushar Kamble

Instruments:

The following instruments were utilized for measurement during the energy audit study.

1. Power Analyzer
2. Hygro-temp meter
3. Vane Type Anemometer
4. Hot Wire Anemometer
5. Lux meter
6. Environmental meter
7. Measuring Tape

Acknowledgment:

We would like to express our gratitude towards Dr. Smita Karve for given us the opportunity for conducting the study and the support provided during the study.

We are also thankful to the entire team for extending the necessary help and co-operation from their side.

For Senergy Consultants Pvt. Ltd


Authorized Signatory



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II

Executive Summary

The premises were evaluated against the various criteria laid down by the National Assessment and Accreditation Council (NAAC).

The major observations are

1. Lighting & Ventilation
 - a. A few of the light fittings are provided with high efficiency LED lamps. The conventional tube lights operating for longer period should be replaced with energy efficient LED lamps.
 - b. Illumination level is within the norm, but for the few places where it is marginally lower than the standard level.
 - c. The ventilation is adequate, and the carbon dioxide as well as the Volatile Organic Matter contents are within a limit for all the classrooms and other premises.
 - d. The possibility of replacing the fans with high efficiency fans may be ascertained; especially while making new purchases.
 - e. The fans & lights are switched off when not in use.
2. Water Quality & Conservation
 - a. The water supplied by the Municipal Corporation is used for drinking after purification.
 - b. Water Purifier is provided at convenient locations.
 - c. The consumption appears to be on the higher side. It is suggested to recalibrate the meter to validate the data and plan remedial measures as required.
3. Waste Management
 - a. The generation of waste is minimized through use of electronic communication and effective water management system.
 - b. The wastewater is disposed of through Municipal system; this is a common practice in & around Mumbai.
 - c. The solid waste is segregated; while organic waste is converted into manure in a composting pit, the non-organic waste is disposed of through the Municipal system.
4. Infrastructure usage
 - a. Movement on-campus is distributed with multiple entrances.
 - b. The adequate parking space is available and provisions for bike parking are made for staff and students. However, many prefer public transport due proximity to bus stops / station.
 - c. There are adequate fire extinguishers located in key areas.
 - d. The draining system for washrooms is efficient and effective.
 - e. Seepages were not observed in the building premises.
5. Green IT culture
 - a. The Energy efficient computers and monitors have been procured.
 - b. In most of the cases, the computers are switched off, when not in use.
 - c. The electronic communication is encouraged to minimize usage of papers.
 - d. Most of the papers are reused for doubled sided printing.

**Green, Energy & Environment Audit Report
Lala Lajpat Rai College of Law**

6. Environmental & Energy Initiative
 - a. Various awareness programs have been carried out to promote 'Save Environment'.
 - b. People actively participate in Exhibitions, Seminars, Nature's trip organized by the college.

7. Air Conditioning System
 - a. The Air Conditioners are operated as required with manual control. The operation is minimal consequently automation may not be economical.
 - b. Energy efficient air conditioners with higher star rating have been procured during recent purchases.
 - c. The air conditioners are switched off, when not in use.
 - d. The performance of the air conditioners was observed to satisfactory.

8. Renewable Energy
 - a. The possibility of installing Solar Photovoltaic System with NET metering may be assessed to meet part of the electricity consumption.
 - b. The quantity of plate waste (organic waste with higher starch contents) is negligible, consequently, there is no potential for biogas generation.

Potential Saving Area:

- The savings can be achieved by replacing tube-lights with LED lights.

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III

Electrical System & Bill

Electricity Bill

The electricity is supplied by Brihanmumbai Electric Supply & Transport Undertaking (B.E.S.T) low tension (LT) connection. The details of energy consumption with costs are as under.

Consumer Name - Lala Lajpat Rai College, Mahalaxmi							
Consumer No. - 202-002-443*1							
Category - LT II C	Contract Demand- 356.25 kVA						
Meter No.- T111482	Cycle No.- 24						
Description	Unit	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18
Consumption	KWH	29640	32640	24480	23280	28920	31560
Maximum Demand	KVA	176	191	138	127	161	175
Billed Demand	kVA	142.5	142.5	142.5	142.5	142.5	142.5
Power Factor (PF)		0.997	0.998	0.996	0.996	0.999	1.000
PF Penalty/Incentives	Rs	-23814	-24945	-19294	-17245	-19296	-23787
Bill Amount	Rs	394960	414090	320110	286450	321200	394970
Cost	Rs/KWH	13.3	12.7	13.1	12.3	11.1	12.5

Consumer Name - Lala Lajpat Rai College, Mahalaxmi								
Consumer No. - 202-002-443*1								
Category - LT II C	Contract Demand- 356.2500 kVA							
Meter No.- T111482	Cycle No.- 24							
Description	Unit	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Average
Consumption	KWH	34440	45120	26160	19800	18600	20160	27900
Maximum Demand	KVA	185	219	180	165	116	128	163.4
Billed Demand	kVA	142.5	142.5	142.5	142.5	142.5	142.5	142.5
Power Factor (PF)		0.999	1.000	1.000	0.997	0.999	0.999	1.00
PF Penalty/Incentives	Rs	-24365	-14513	-9028	-6792	-6360	-7003	-16370.2
Bill Amount	Rs	410010	498070	309360	197270	217910	211060	331288.33
Cost	Rs/KWH	11.9	11.0	11.8	10.0	11.7	10.5	11.9

The average cost of the power is around Rs 11.9/- per kWh for Consumer No. 202-002-443*1.

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IV

Energy Management & Efficiency

Illumination & Lighting

The illumination level was measured at various locations; the details are as under.

Location	Illumination Level (Lux)		
	Minimum	Maximum	Average
Ground Floor			
Stationery Room	30	320	176
Canteen Worker Room	6	130	70
Auditorium Foyer	250	500	378
First Floor			
Auditorium	10	200	112
Audi Changing Room	85	400	234
Second Floor			
Library	345	1250	772
Stack Room	70	200	130
Librarian Room	210	420	327
Room No 205	150	300	225
Room No 206	150	440	274
Room No 207	70	260	166
Office	160	404	273
Trustee Room	110	200	158
Principal Room	75	470	264
Account Section	150	260	220
Corridor	419	728	612
Fourth Floor			
Room No 401	100	1000	568
Room No 402	150	1100	550
Room No 403	100	1150	586
Room No 404 Staff Room	153	350	254
Room No 404 HOD Room	170	800	493
Room No 404 Exam Room	375	1400	908
Room No 405	200	1000	594
Room No 406	300	1300	846
Room No 407	200	1200	697
Room No 408	100	1100	556
Room No 409 HOD PG	170	250	213
Room No 409 Classroom	40	550	274
Corridor	404	750	615

Observations:

- The illumination level is generally as per the norms; however, illumination level is low at some places.
- The lamps should be strategically located to optimize usage of daylight.
- The use of daylight has been maximized through windows.

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**Green, Energy & Environment Audit Report
Lala Lajpat Rai College of Law**

- The practice of switching off the lamps in the unoccupied areas has been followed.
- It is not economical to provide occupancy sensors for the classrooms due to lesser light fitting and practice of switching off the lamps during the unoccupied area.

Light fittings:

Location	Operation		LED 36W		LED 22W		LED 25W		Tube-light 40W	
	Hr/D	D/M	F	W	F	W	F	W	F	W
Ground Floor										
Stationery Room	6	25	0	0	0	0	0	0	2	2
Canteen Worker Room	16	30	0	0	0	0	0	0	2	1
Auditorium Foyer	4	25	0	0	48	48	0	0	0	0
First Floor										
Auditorium	3	15	0	0	0	0	0	0	35	35
Auditorium Changing Room	4	15	0	0	0	0	0	0	2	2
Second Floor										
Library	6	25	0	0	0	0	0	0	21	19
Stack Room	6	25	0	0	0	0	0	0	28	28
Librarian Room	6	25	0	0	0	0	0	0	2	2
Room No 205	6	25	0	0	0	0	0	0	10	7
Room No 206	6	25	0	0	0	0	0	0	12	6
Room No 207	6	25	0	0	0	0	0	0	9	6
Office	6	25	0	0	8	0	0	0	8	4
Trustee Room	6	25	0	0	4	4	0	0	0	0
Principal Room	6	25	4	4	6	6	0	0	0	0
Account Section	6	25	5	5	0	0	0	0	0	0
Corridor	6	25	0	0	0	0	0	0	8	6
Fourth Floor										
Room No 401	6	25	0	0	0	0	0	0	7	7
Room No 402	6	25	0	0	4	4	0	0	6	6
Room No 403	6	25	0	0	2	2	0	0	7	5
Room No 404 Staff Room	6	25	0	0	0	0	0	0	8	8
Room No 404 HOD Room	6	25	0	0	0	0	0	0	1	1
Room No 404 Exam Room	6	25	0	0	0	0	0	0	3	3
Room No 405	6	25	0	0	0	0	0	0	6	6
Room No 406	6	25	0	0	0	0	0	0	6	4
Room No 407	6	25	0	0	0	0	0	0	3	3
Room No 408	6	25	0	0	0	0	0	0	9	6
Room No 409 HOD PG	6	25	0	0	2	2	0	0	1	1
Room No 409 Classroom	6	25	0	0	0	0	0	0	8	7
Corridor	6	25	0	0	0	0	0	0	8	6

F: fitted

W: Working

A few of the light fittings are provided with high efficiency LED lamps. The conventional tube lights may be replaced with energy efficient LED lamps, which can save 30 to 60% energy of individual lamp.

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Lala Lajpat Rai College of Law

Power Consumption:

The power consumption of some of the gadgets is as under.

Sr No	Description	Operation		Voltage	Current	Power	Power Factor
		Hr/Day	Day/Year	V	A	Kw	
Computers							
Computer Lab Fourth Floor							
1	PC-11	6	280	240.0	0.12	0.02	0.58
2	PC-17	6	280	242.2	0.13	0.02	0.62
3	PC-24	6	280	241.8	0.23	0.04	0.69
4	PC-06	6	280	240.5	0.25	0.05	0.70
5	PC-05	6	280	241.3	0.35	0.06	0.71
6	PC-14	6	280	242.1	0.22	0.04	0.69
7	PC-07	6	280	243.4	0.30	0.05	0.70
8	PC-13	6	280	241.7	0.32	0.05	0.68
Copying Machine							
9	Fourth Floor 407	6	280	231.7	2.14	0.36	0.74
Water Cooler							
10	Second Floor	8	280	239.8	0.29	0.48	0.67
11	Third Floor	8	280	232.8	0.28	0.44	0.68
12	Fifth Floor	8	280	230.7	0.29	0.46	0.67
Air Conditioners							
13	Room No-504	5	280	232.6	7.10	1.63	0.98
14	Room No-505	6	280	231.8	3.48	0.79	0.99
15	Room No-507	4	280	233.5	7.10	1.61	0.98
16	Room No-508	4	280	235.8	7.14	1.66	0.98
17	Room No-409 PG Classroom	5	280	230.1	8.14	1.77	0.95
18	Room No-409 PG HOD	6	280	230.8	4.51	1.03	0.97
19	Office Second Floor	6	280	236.5	5.80	1.57	0.98

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Lala Lajpat Rai College of Law

Fan Fittings:

Location	Rating	Quantity	Operation	
	W	No	Hr/Day	Days/Year
Ground Floor				
Stationery Room	60	2	6	280
Canteen Worker Room	60	1	20	280
Auditorium Foyer	60	5	5	280
First Floor				
Auditorium	60	10	4	150
Auditorium Changing Room	60	2	6	280
Second Floor				
Library	60	13	6	280
Stack Room	60	14	6	280
Librarian Room	60	1	6	280
Room No 205	60	6	6	280
Room No 206	60	3	6	280
Room No 207	60	8	6	280
Office	60	3	6	280
Trustee Room	60	1	6	280
Principal Room	60	1	6	280
Account Section	60	2	6	280
Corridor	60	6	6	280
Fourth Floor				
Room No 401	60	9	6	280
Room No 402	60	6	6	280
Room No 403	60	6	6	280
Room No 404 Staff Room	60	5	6	280
Room No 404 HOD Room	60	1	6	280
Room No 404 Exam Room	60	2	6	280
Room No 405	60	9	6	280
Room No 406	60	7	6	280
Room No 407	60	3	6	280
Room No 408	60	4	6	280
Room No 409 HOD PG	60	1	6	280
Room No 409 Classroom	60	7	6	280
Corridor	60	6	6	280

Opportunity for Conservation of energy:

Energy Efficient Fans:

The possibility of replacing the fans with energy efficient new fans may be evaluated. These fans can save 50 to 60% energy while delivering similar air flows.

The installation of energy efficient fans may be considered for new purchases.

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Green, Energy & Environment Audit Report
Lala Lajpat Rai College of Law

Air Conditioners

Air conditioning system is basically provided to maintain comfortable ambience inside the premises by maintaining the temperature (and relative humidity, at times) at appropriate levels. The performance of human being is optimal at the temperature of $24 \pm 2^\circ\text{C}$ and at relative humidity (RH) of $60 \pm 5\%$.

The warmer and humid air from the premises is drawn and fed to the Air Conditioning System by a circulating fan. This air is chilled in an evaporator by vaporizing the refrigerant and is distributed throughout the conditioned area. The refrigerant is pressurized by a compressor and subsequently cooled and condensed by an air-cooled condenser. The compressor and condenser are placed in an outdoor unit, located on the external side of the premise. While the circulating fan and evaporator are placed in an indoor unit located inside the premises.

Performance:

The performance as well as chilling (or Air Conditioning) effect delivered by the air conditioner (represented as TR – Ton of Refrigeration) is computed by measuring

- Air Velocity along with the cross-sectional area of flow to determine the flow rate and subsequently mass flow rate.
- Temperature and relative humidity of the air at the inlet of the evaporator coil to determine the enthalpy of the air.
- Temperature and relative humidity of the air at the outlet of the evaporator coil to determine the enthalpy of the air.
- Power drawn by the air conditioning unit

The chilling effect can be computed as under,

Flow Rate of Air (kg/hr)
= Average Air velocity (M/s) x Cross sectional area of the air flow (M^2) x Specific Gravity of Air

Chilling or Air Conditioning Effect (TR)
= Air flow rate (kg/hr) x Enthalpy difference between the air at inlet & outlet of the evaporator coil (kJ/kg) / (4.18 x 3024)

Chilling or Air Conditioning Effect (kW)
= Air flow rate (kg/hr) x Enthalpy difference between the air at inlet & outlet of the evaporator coil (kJ/kg) / 3600
= 3.5112 x Chilling Effect (TR)

Specific Power Consumption (kWh/TR) =
Power consumption (kW) / Air Chilling Effect (TR)

Energy Efficiency Ratio – EER (W of cooling / W of input power)
= Power consumption (kW) / Air Chilling Effect (kW)
= 3.5112 / Specific Power consumption (kW/TR)

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Green, Energy & Environment Audit Report
Lala Lajpat Rai College of Law

The performance of a few of the randomly selected air conditioning units (of different make, capacity and age) were carried out as described above.

Description	Unit	Room No. 409 PG Classroom	Room No. 409 PG HOD	Office 2 nd Floor
Design Data				
Make		O general	Panasonic	Voltas
Star Rating		NA	3	3
Rating - AC (Capacity)	TR	NA	0.74	1.37
Energy Efficiency Ratio		NA	3.02	2.91
Power	kW	NA	0.86	1.64
kW/TR			1.16	1.2
Operating parameters				
Operating period	Hr/D	4	6	6
	D/M	25	25	25
Velocity	M/s	5.2	2.9	4.1
Area	M ²	0.04	0.04	0.04
Air flow	M ³ /Sec	0.226	0.124	0.165
	M ³ /hr	812	446	595
Supply air - Temperature	°C	18.5	17.2	14.6
Supply air - RH	%	88	90.3	88.8
Return air - Temperature	°C	29	25.5	27.7
Return air - RH	%	66.6	70.5	56.4
Total Power Consumption	kW	1.77	1.03	1.42
Supply Enthalpy	kJ/kg	48.3	45.3	37.9
Return Enthalpy	kJ/kg	72.1	62.5	61.4
Operating Status				
Cooling Effect	TR	1.85	0.74	1.36
Total Cooling Effect	TR	1.85	0.74	1.36
Specific Power	kWh/TR	0.96	1.4	1.05
Energy Efficiency Ratio		3.68	2.52	3.36
Desired parameters				
Cooling Effect	TR	1.85	0.74	1.36
Specific Power	kWh/TR	1.2	1.2	1.2
Energy Efficiency Ratio		2.93	2.93	2.93
Input Power	kW	2.22	0.89	1.63
Variation	%	-25.60%	14.03%	-14.71%
Hall Temperature				
Maximum	°C	24.7	24.2	25
Minimum	°C	23	21.8	23.3
Average	°C	23.9	23	24.2
Variation - Room	%	7%	10%	7%
Variation - Norm	°C	0.3	0.8	0
	%	1%	3%	0%

Observations:

- The performance of all the AC machines is satisfactory.
- The temperatures are maintained as per the stipulated norms and variation across the room is marginal.

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V

Water Management

Consumption Pattern:

The water supplied by the municipal corporation is used for drinking & other applications like toilets, washing of utensils and other requirements. The incoming water from the municipal corporation is metered.

The consumption pattern was analyzed by the water bills. The details are as under.

Connection No- GS@9300003				
Period	Days	Consumption	Bill Amount	Cost
		KL	Rs	Rs/KL
04/01/18 to 02/04/18	88	3802	31736.00	8.35
02/04/18 to 02/07/18	91	3585	31398.00	8.76
02/07/18 to 01/10/18	91	3359	30270.00	9.01
01/10/18 to 01/01/19	92	3396	29386.00	8.65

Connection No- GS@0002726				
Period	Days	Consumption	Bill Amount	Cost
		KL	Rs	Rs/KL
04/01/18 to 02/04/18	88	83	6936.00	83.57
02/04/18 to 02/07/18	91	88	7847.00	89.17
02/07/18 to 01/10/18	91	98	8963.00	91.46
01/10/18 to 01/01/19	92	99	8582.00	86.69

Connection No- GS@0002740				
Period	Days	Consumption	Bill Amount	Cost
		KL	Rs	Rs/KL
04/01/18 to 02/04/18	88	1251	NA	NA
02/04/18 to 02/07/18	91	1294	NA	NA
02/07/18 to 01/10/18	91	1294	51438.00	39.75
01/10/18 to 01/01/19	92	1308	42883.00	32.79

Connection No- GS@0002738				
Period	Days	Consumption	Bill Amount	Cost
		KL	Rs	Rs/KL
04/01/18 to 02/04/18	88	260	7610.00	29.27
02/04/18 to 02/07/18	91	613	20050.00	32.71
02/07/18 to 01/10/18	91	829	27234.00	32.85
01/10/18 to 01/01/19	92	838	26615.00	31.76

There is considerable variation in the cost of water, which may be remedied.

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Green, Energy & Environment Audit Report
Lala Lajpat Rai College of Law**Specific Water Consumption:**

The specific water consumption details are as under.

Period	Days	Consumption	Total No. Of Person	Water Consumption
		KL		L/Person/Day
04/01/18 to 02/04/18	88	5396	1430	42.88
02/04/18 to 02/07/18	91	5580	1430	42.88
02/07/18 to 01/10/18	91	5580	1430	42.88
01/10/18 to 01/01/19	92	5641	1430	42.88

There are overall 1393 students and 37 teaching & non-teaching staff and other Visitor members in the college.

The specific water consumption is higher than nominal range against the typical values of 6 to 8 Liters per person. However, this need to be checked by getting the meter recalibrated, as the consumption is constant throughout the period.

The possibility of providing low flow taps/flushing system at major locations may also be evaluated.

Water Purifiers:

The water purifiers are installed within the premises floor wise and bottled water is not used in the campus. As such quality of municipal water is quite satisfactory.

Rain Water Harvesting:

The rainwater harvesting is been practiced in the premises.

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VI Waste Generation & Management

Sewage & Waste Water:

The sewage is fed into the municipal drainage. This is a common practice and the municipal corporation which charges less towards the sewage charges.

Solid Waste:

The organic, as well as inorganic waste, is segregated in the college premises. The organic waste is used to generate manure by composting. The non-organic waste is collected in garbage bins and disposed of through Municipal system.

E-Waste:

Electronic waste donation is been implemented for E-waste Management Organization.

VII Infrastructure & Safety

Movement on-campus (Distributed / non-distributed leading to crowds)

The premises are provided with multiple entrances to ensure quick and effective movement in normal as well as emergency conditions.

Parking space:

The adequate parking space is available and provisions for bike parking are made for staff and student. However, many prefer public transport due proximity to bus stops / station.

Fire-fighting & fire escape system:

The fire extinguishers have been installed at various places in the premises; which are checked/refilled as per the stipulated frequency.

The premise is provided with requisite entrances to ensure quick and effective movement in emergency conditions.

Draining system:

The drains from the washrooms are connected to the municipal drainage; which is a common practice in the colleges in Maharashtra.

The municipal corporation charges cess for water disposal.

Seepage in the building:

The premise was visually inspected for seepages.

Seepages were not observed in the building premises.

VIII Environmental System

Ventilation & Air Quality:

The air quality was checked by measuring carbon dioxide & VOC contents at various locations in the classrooms as well as administrative areas. The details are as under.

Location	Carbon Dioxide (PPM)			VOC		
	Minimum	Maximum	Average	Minimum	Maximum	Average
Ground Floor						
Stationery Room	955	970	963	259	270	265
Canteen Worker Room	910	930	920	230	250	240
Auditorium Foyer	860	880	870	220	240	230
First Floor						
Auditorium	895	920	908	240	255	248
Auditorium Changing Room	925	950	938	245	260	253
Second Floor						
Library	620	630	625	190	205	198
Stack Room	575	585	580	140	160	150
Librarian Room	500	515	508	128	136	132
Room No 205	590	603	597	154	168	161
Room No 206	585	600	593	152	163	158
Room No 207	435	455	445	125	128	127
Office	639	655	647	339	180	260
Trustee Room	525	540	533	135	150	143
Principal Room	443	460	452	116	130	123
Account Section	600	620	610	155	170	163
Corridor	675	700	688	270	285	278
Fourth Floor						
Room No 401	619	629	624	155	175	165
Room No 402	692	710	701	179	197	188
Room No 403	643	660	652	168	182	175
Room No 404 Staff Room	750	768	759	200	213	207
Room No 404 HOD Room	514	530	522	134	148	141
Room No 404 Exam Room	677	696	687	185	193	189
Room No 405	659	674	667	171	187	179
Room No 406	567	582	575	147	162	155
Room No 407	628	643	636	163	179	171
Room No 408	440	452	446	122	129	126
Room No 409 HOD PG	531	543	537	138	151	145
Room No 409 Classroom	723	742	733	189	206	198
Corridor	800	819	810	311	320	316

Observations:

- The carbon dioxide and VOC level is within the limit at most of the places. The standard norm is to maintain the carbon dioxide level below 1000 ppm & VOC level below 400 ppb.

Helping You to Conserve Energy

Environmental Awareness:

1. Various awareness programs have been carried out to promote 'Save Environment'.
2. People actively participate in Exhibitions, Seminars, Nature's trip organized by the college.

Helping You to Conserve Energy

IX Green Culture

The power consumption of some of the personal computers is as under

Sr No	Description	Operation		Voltage	Current	Power	Power Factor
		Hr/Day	Day/Year	V	A	Kw	
Computers							
Computer Lab Fourth Floor							
1	PC-11	6	280	240.0	0.12	0.02	0.58
2	PC-17	6	280	242.2	0.13	0.02	0.62
3	PC-24	6	280	241.8	0.23	0.04	0.69
4	PC-06	6	280	240.5	0.25	0.05	0.70
5	PC-05	6	280	241.3	0.35	0.06	0.71
6	PC-14	6	280	242.1	0.22	0.04	0.69
7	PC-07	6	280	243.4	0.30	0.05	0.70
8	PC-13	6	280	241.7	0.32	0.05	0.68

Observations:

1. The LED / LCD monitors have been procured, which are energy efficient.
2. These monitors are not only energy efficient but also generate minimal heat and cut down on air conditioning load.

Recommendations:

The following steps may be initiated to further enhance efficiency of various PCs

1. An efficient power management system may be incorporated to
 - a. Switch off the display if not in use.
 - b. Put the computer in Sleep mode / switching off the machines, if not used for a prolonged period.
2. Optimize the brightness of the screen.
3. Discourage use of screen savers, which have similar power consumption.

Paper-less communication:

The major internal, as well as external communication, is through an electronic medium.

Re-using one sided paper for printing:

It was observed that two side printing/printing on the back side of the used paper in more than 80% of the cases.

Helping You to Conserve Energy

X

Renewable Energy

Solar Photovoltaic:

It is suggested to install rooftop solar panels with net metering for captive usage.

Solar Thermal:

There is no application of solar thermal system and does not find attractive in this case.

Biogas Plant:

There is no possibility of installing biogas plant for cooking as the quantity of plate waste is negligible.

Helping You to Conserve Energy



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Tree Plantation Drive



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Report on Tree Plantation Event

Organized by: Lala Lajpatrai College of Law

Date: 11th July, 2018



Introduction:

Tree plantation at Lala Lajpat Rai College of Law: A green initiative to enhance campus biodiversity and combat climate change. Students and faculty came together to plant a variety of trees, fostering a sustainable environment while promoting eco-awareness among future legal professionals.

Object:

- We want everyone to learn why trees are important for the Earth and how they help us breathe better air.
- We want to show that we can all do something good for our planet by planting trees and taking care of them.
- We want everyone to work together, students, teachers, and the local community, to make our environment greener and more beautiful.



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- We want to encourage people to be more mindful of the environment and take steps to protect it.

Event Outcomes:

- Everyone will understand why trees are crucial for our planet and how they benefit us.
- We'll have more trees in our area, which means better air and a prettier environment.
- The event will bring us closer as a community, and we'll be more united in caring for our environment.
- People will be inspired to take action to protect nature, whether it's by planting more trees or reducing pollution.
- We hope that our event will inspire others to do similar activities and take care of our beautiful planet.

Making our environment healthier and more beautiful by planting trees together.
It's a small step that can make a big difference!


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Beach Cleaning



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REPORT ON BEACHCLEANING EVENT

Organized by: Lala Lajpat Rai College of Law

In Collaboration with: Marine Pollution Let's Tackle It (under UN Programme)

Date: November 21st, 2019

Preface:

Lala Lajpat Rai College of Law is proud to join hands with Marine Pollution Let's Tackle It, a United Nations program, to organize a Beach Cleaning Event. Our planet's oceans and beaches are facing significant pollution challenges, affecting marine life and the environment. This event represents our commitment to environmental conservation and our dedication to actively participate in global initiatives. By cleaning our local beach, we aim to make a tangible contribution to a cleaner, healthier world.

Objectives:

- To raise awareness about the pressing issue of marine pollution and its detrimental effects on the environment and marine ecosystems.
- To engage students, faculty, and the local community in a collective effort to clean and restore our local beach.
- To connect with the United Nations program "Marine Pollution Let's Tackle It" and demonstrate our commitment to global environmental goals.
- To educate participants about the importance of responsible waste disposal and the impact of pollution on marine life and coastal ecosystems.
- To inspire individuals to take proactive steps in reducing pollution and safeguarding the environment.

Programme Outcomes:

- The event will result in a cleaner and more beautiful beach, benefiting the local community and marine life.
- Students will leave with a heightened awareness of the consequences of marine pollution and the importance of responsible environmental stewardship.
- Our collaboration with the United Nations program will demonstrate our commitment to global environmental goals and inspire others to participate.
- Students will gain knowledge about responsible waste disposal and pollution prevention, which they can apply in their daily lives.



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- The event will strengthen the bond between our college and the local community, promoting future collaborations in environmental initiatives.
- Individuals will be encouraged to become advocates for the environment and take concrete actions to reduce pollution in their communities.

On November 21st, 2019, in our mission to clean and protect our local beach and contribute to the global effort to combat marine pollution. Together, we can make a significant impact on the health of our oceans and environment.





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Signature

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Swachch Bharat



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Swachh Bharat Abhiyan

Date: 1/10/2019

Event: Campus Cleaning Drive

Lala Lajpat Rai College of Law, inspired by the Swachh Bharat Abhiyan, took the initiative to organize a cleanliness drive within the college campus, including the garden and its surrounding areas. This effort was undertaken by the college to instill a sense of responsibility and civic duty among its students and contribute to the larger goal of a cleaner and healthier India.





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Objectives:

- The primary objective of organizing the Swachh Bharat Abhiyan within the college campus was to promote cleanliness and hygiene among the students and staff. This helps in creating a more conducive and healthy learning environment.
- Another important goal was to raise awareness about the Swachh Bharat Abhiyan and its significance in achieving a cleaner India. By actively participating in such initiatives, students become advocates for cleanliness in their communities.
- Engaging students in community service fosters a sense of responsibility towards the environment and society. It encourages them to take an active role in making a positive impact on their surroundings.
- The college aimed to showcase leadership in promoting national initiatives by taking concrete steps towards achieving the objectives of the Swachh Bharat Abhiyan.

Outcomes:

- Through the collective efforts of students, faculty, and staff, the college was able to achieve a cleaner and more hygienic campus. This created a more pleasant and conducive atmosphere for learning and activities.
- The initiative helped in raising awareness among the college community about the importance of cleanliness and sanitation. Students became more conscious of their role in maintaining a clean environment.
- By actively participating in cleaning activities, students were more likely to adopt clean habits in their daily lives. This could extend beyond the college campus to their homes and communities.
- The college's efforts aligned with the national goals of the Swachh Bharat Abhiyan, contributing to the broader mission of a cleaner and healthier India.

Conclusion:

The Swachh Bharat Abhiyan organized by Lala Lajpat Rai College of Law within its campus had the objectives of promoting cleanliness, raising awareness, and fostering a sense of responsibility among students. The outcomes included a cleaner campus, increased awareness, behavioural change, and alignment with the national



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cleanliness goals. This initiative not only improved the college environment but also contributed to the larger vision of a Swachh Bharat (Clean India).


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