



# Kristu Jayanti College

AUTONOMOUS Bengaluru

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## **Energy saving by usage of LED Lights (Excerpts from Energy Audit Reports of 5 years)**

2019

Table 7: Lighting Load Calculations

Sl.No	Particulars	Nos	Gross Watt	Load in kW
1	Tube Lights Main Block	378	44	16.64
2	CFL Lights Main Block	0	22	0
3	LED Lights Main Block	405	22	8.91
4	Tube Lights PG Block	304	44	13.38
5	CFL Lights PG Block	152	22	3.35
6	LED Lights PG Block	197	22	4.34
7	Tube Lights Admin Block	44	44	1.94
8	CFL Lights Admin Block	0	22	0
9	LED Lights Admin Block	1588	22	34.94
10	Tube Lights CMI Ashram	19	44	0.84
11	CFL Lights CMI Ashram	9	22	0.2
12	LED Lights CMI Ashram	107	22	2.36
13	Tube Lights Guest House	0	44	0
14	CFL Lights Guest House	0	22	0
15	LED Lights Guest House	137	22	3.02
16	Street Lights	18	31	0.56
	Total Power		44	90.48

2019

### 11.2. Lighting load - Energy Saving Potential

Table 9: Energy Saving potential from replacement of Fluorescent lamps

Replacement of Fluorescent lamps with LED fixtures / tubes								
SL. No	Location of installation	Nos	Load in KW	Power consumption /day - kWh	Power consumption / Month - kWh	Load in KW with LED fixtures	Power consumption / Day with LED fixtures - kWh	Power consumption / Month with LED fixtures - kWh
1	Tube Lights Main Block	378	17	133	3459	8	60.48	1572.48
2	Tube Lights PG Block	304	13	134	3478	6	60.8	1580.8
3	Tube Lights Admin Block	44	2	15	403	1	7.04	183.04
4	Tube Lights CMI Ashram	19	1	7	174	0.4	3.04	79.04
	<b>Total</b>	<b>745</b>	<b>33</b>	<b>289</b>	<b>7514</b>	<b>15</b>	<b>131</b>	<b>3415</b>

2019



Table 10: Cost saving analysis lighting load

Power cost / Month with Fluorescent tubes @ average unit Rate of ₹ 9.60	₹ 72132/-
Power cost / Month - ₹ with LED fixtures	₹ 32787/-
Savings / Month	₹ 39,345/-
Savings / Year	₹ 4,72,139/-
Proposed investment for LED fixtures.	₹ 372500/-
Return on investment - Years	0.8

2018

Table 4: Lighting Load Calculations

Sl.No	Particulars	Nos	Gross Watt	Load in kW
1	Tube Lights Main Block	483	44	21.26
2	CFL Lights Main Block	0	22	0
3	LED Lights Main Block	300	22	6.6
4	Tube Lights PG Block	311	44	13.69
5	CFL Lights PG Block	152	22	3.35
6	LED Lights PG Block	190	22	4.18
7	Tube Lights Admin Block	44	44	1.94
8	CFL Lights Admin Block	0	22	0
9	LED Lights Admin Block	800	22	17.6
10	Tube Lights CMI Ashram	40	44	1.76
11	CFL Lights CMI Ashram	9	22	0.2
12	LED Lights CMI Ashram	86	22	1.9
13	Tube Lights Guest House	0	44	0
14	CFL Lights Guest House	0	22	0
15	LED Lights Guest House	137	22	3.02
16	Street Lights	18	31	0.56
	Total Power		44	76.06

# 2018

## 11.2 Lighting load - Energy Saving Potential

Table 6: Energy Saving potential from replacement of Fluorescent lamps

Replacement of Fluorescent lamps with LED fixtures / tubes								
SL. No	Location of installation	Nos	Load in KW	Power consumption /day - kWh	Power consumption / Month - kWh	Load in KW with LED fixtures	Power consumption / Day with LED fixtures - kWh	Power consumption / Month with LED fixtures - kWh
1	Tube Lights Main Block	483	21	170	4420	10	77.28	2009.28
2	Tube Lights PG Block	311	14	137	3558	6	62.2	1617.2
3	Tube Lights Admin Block	44	2	15	403	1	7.04	183.04
4	Tube Lights CMI Ashram	40	2	14	366	0.8	6.4	166.4
	<b>Total</b>	<b>878</b>	<b>39</b>	<b>336</b>	<b>8747</b>	<b>18</b>	<b>153</b>	<b>3976</b>

2018

**Table 7: Cost saving analysis lighting load**

Power cost / Month with Fluorescent tubes @ average unit Rate of ₹ 9.60	₹ 83971/-
Power cost / Month - ₹ with LED fixtures	₹ 38168/-
Savings / Month	₹ 45803/-
Savings / Year	₹ 549631/-
Proposed investment for LED fixtures.	₹ 439000/-
Return on investment - Years	0.8



*Pranjal*

# 2017

## 11.1. Lighting loads

Detailed list of lighting loads at various buildings in as per the detailed given below.

**Table 4: Lighting Load Calculations**

Sl.No	Particulars	Nos	Gross Watt	Load in kW
1	Tube Lights Main Block	305	44	13.42
2	CFL Lights Main Block	0	22	0
3	LED Lights Main Block	278	22	6.12
4	Tube Lights PG Block	311	44	13.69
5	CFL Lights PG Block	152	22	3.35
6	LED Lights PG Block	190	22	4.18
7	Tube Lights Admin Block	0	44	0
8	CFL Lights Admin Block	0	22	0
9	LED Lights Admin Block	0	22	0
10	Tube Lights CMI Ashram	48	44	2.12
11	CFL Lights CMI Ashram	9	22	0.2
12	LED Lights CMI Ashram	78	22	1.72
13	Tube Lights Guest House	0	44	0
14	CFL Lights Guest House	0	22	0
15	LED Lights Guest House	137	22	3.02
16	Street Lights	18	31	0.56
	Total Power		2	48.38



# 2017

## 11.2. Lighting load - Energy Saving Potential

Table 6: Energy Saving potential from replacement of Fluorescent lamps

Replacement of Fluorescent lamps with LED fixtures / tubes								
SL. No	Location of installation	Nos	Load in KW	Power consumption /day - kWh	Power consumption / Month - kWh	Load in KW with LED fixtures	Power consumption / Day with LED fixtures - kWh	Power consumption / Month with LED fixtures - kWh
1	Tube Lights Main Block	305	13	107	2791	6	48.8	1268.8
2	Tube Lights PG Block	311	14	137	3558	6	62.2	1617.2
3	Tube Lights Admin Block	48	2	17	439	1	7.68	199.68

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*Pranjal*



4	Tube Lights CMI Ashram	0	0	0	0	0.0	0	0
<b>Total</b>		<b>664</b>	<b>29</b>	<b>261</b>	<b>6788</b>	<b>13</b>	<b>119</b>	<b>3086</b>

2017

**Table 7: Cost saving analysis lighting load**

Power cost / Month with Fluorescent tubes @ average unit Rate of ₹ 9.60	₹ 65169/-
Power cost / Month - ₹ with LED fixtures	₹ 29622/-
Savings / Month	₹ 35547/-
Savings / Year	₹ 426564/-
Proposed investment for LED fixtures.	₹ 332000/-
Return on investment - Years	0.8

# 2016

Table 4: Lighting Load Calculations

Sl.No	Particulars	Nos	Gross Watt	Load in kW
1	Tube Lights Main Block	700	44	30.8
2	CFL Lights Main Block	0	22	0
3	LED Lights Main Block	118	22	2.6
4	Tube Lights PG Block	385	44	16.94

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5	CFL Lights PG Block	152	22	3.35
6	LED Lights PG Block	110	22	2.42
7	Tube Lights Admin Block	0	44	0
8	CFL Lights Admin Block	0	22	0
9	LED Lights Admin Block	0	22	0
10	Tube Lights CMI Ashram	60	44	2.64
11	CFL Lights CMI Ashram	9	22	0.2
12	LED Lights CMI Ashram	66	22	1.46
13	Tube Lights Guest House	0	44	0
14	CFL Lights Guest House	0	22	0
15	LED Lights Guest House	0	22	0
16	Street Lights	18	31	0.56
	<b>Total Power</b>		<b>2</b>	<b>60.97</b>

# 2016

## 11.2. Lighting load - Energy Saving Potential

Table 6: Energy Saving potential from replacement of Fluorescent lamps

Replacement of Fluorescent lamps with LED fixtures / tubes

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Sl. No	Location of installation	Nos	Load in KW	Power consumption /day - kWh	Power consumption / Month - kWh	Load in KW with LED fixtures	Power consumption / Day with LED fixtures - kWh	Power consumption / Month with LED fixtures - kWh
1	Tube Lights Main Block	700	31	246	6406	14	112	2912
2	Tube Lights PG Block	385	17	169	4404	8	77	2002
3	Tube Lights Admin Block	60	3	21	549	1	9.6	249.6
4	Tube Lights CMI Ashram	0	0	0	0	0.0	0	0
	<b>Total</b>	<b>1145</b>	<b>50</b>	<b>437</b>	<b>11360</b>	<b>23</b>	<b>199</b>	<b>5164</b>

2016

**Table 7: Cost saving analysis lighting load**

Power cost / Month with Fluorescent tubes @ average unit Rate of ₹ 9.60	₹ 109055/-
Power cost / Month - ₹ with LED fixtures	₹ 49570/-
Savings / Month	₹ 594857/-
Savings / Year	₹ 713816/-
Proposed investment for LED fixtures.	₹ 572500/-
Return on investment - Years	0.8

# 2015

Table 4: Lighting Load Calculations

Sl.No	Particulars	Nos	Gross Watt	Load in kW
1	Tube Lights Main Block	720	44	31.68
2	CFL Lights Main Block	0	22	0
3	LED Lights Main Block	100	22	2.2
4	Tube Lights PG Block	400	44	17.6

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5	CFL Lights PG Block	152	22	3.35
6	LED Lights PG Block	90	22	1.98
7	Tube Lights Admin Block	0	44	0
8	CFL Lights Admin Block	0	22	0
9	LED Lights Admin Block	0	22	0
10	Tube Lights CMI Ashram	99	44	4.36
11	CFL Lights CMI Ashram	9	22	0.2
12	LED Lights CMI Ashram	27	22	0.6
13	Tube Lights Guest House	0	44	0
14	CFL Lights Guest House	0	22	0
15	LED Lights Guest House	0	22	0
16	Street Lights	18	31	0.56
	Total Power		2	62.53

# 2015



## 11.2. Lighting load - Energy Saving Potential

Table 6: Energy Saving potential from replacement of Fluorescent lamps

Replacement of Fluorescent lamps with LED fixtures / tubes								
SL. No	Location of installation	Nos	Load in KW	Power consumption /day - kWh	Power consumption / Month - kWh	Load in KW with LED fixtures	Power consumption / Day with LED fixtures - kWh	Power consumption / Month with LED fixtures - kWh
1	Tube Lights Main Block	720	32	253	6589	14	115.2	2995.2
2	Tube Lights PG Block	400	18	176	4576	8	80	2080
3	Tube Lights Admin Block	0	0	0	0	0	0	0
4	Tube Lights CMI Ashram	99	4	35	906	2.0	15.84	411.84
	<b>Total</b>	1219	0	464	12071	24	211	5487

2015

**Table 7: Cost saving analysis lighting load**

Power cost / Month with Fluorescent tubes @ average unit Rate of ₹ 9.60	₹ 115886/-
Power cost / Month - ₹ with LED fixtures	₹ 52675/-
Savings / Month	₹ 63211/-
Savings / Year	₹ 758528/-
Proposed investment for LED fixtures.	₹ 609500/-
Return on investment - Years	0.8