



Navgan Shikshan Sanstha Rajuri's(N)  
**MRS.KESHARBAI SONAJIRAO KSHIRSAGAR ALIAS KAKU**  
Arts, Science And Commerce College, Beed.

NAAC reaccredited with 'A' grade (3.18 CGPA as per new RAF) & ISO 9001-2015 certified



**Criterion VII: Institutional Values and social Responsibilities**

**7.1.2 (1) - Facilities for the alternate energy sources and energy**

NavganShikshanSanstha Rajuri (N)

**Mrs.KesharbaiSonajirao Kshirsagar Alias Kaku  
Arts, Science & Commerce College, Beed-431122**

Principal-Dr. S.V. Kshirsagar



NAAC reaccredited -A Grade ISO- 21001:2018 Green audit

[ 3.18 CGPA as per New RAF]

Website-kskcollegebeed.com E-mail-kskbeed123@rediffmail.com Ph.(02442)222641 Fax-02442)230197

**The institution has many facilities for the alternate energy sources and energy conservation measures.**

- Regularly annual energy audit by the external certified agency is done
- College has a full fledged plan to save electrical energy.
- Electric Maintenance committee is constituted to look after the the maintainance and minimum use of electricity.
- Solar energy panel of 20KW capacity is installed on roof top of the college. Purchase value is around 20 lakhs.
- Save energy boards have been displayed all over the college campus perticularly where there are switch on/off boards.
- Separate main switch off board is installed for every individual section of the college like hostel, library, administration block and various departments.

  
Co-Ordinator  
Internal Quality Assurance Cell  
Mrs. K.S.K. College, Beed, (M.S.)



  
Principal  
N.S.S.R.(N.) Mrs.Kesharbai  
Sonajirao Kshirsagar Alias Kaku  
Arts, Science and Commerce  
College, Beed.

Regularly annual energy audit by the external certified agency is done

# ISO 50001:2018 Energy Management System

## ISO 50001:2018 Certificate Of Registration

Geotek Global Certification Pvt. Ltd.

hereby certify that the organization

Navgan Shikshan Sanstha, Rajuri (N.)  
**Mrs. Kesharbai Sonajirao Kshirsagar**  
Alias Kaku Arts, Science & Commerce College, Beed  
Address : Beed 431122, Maharashtra, India

has implemented and maintains an **Energy Management System** for

### Scope :

To Evolve and Impart Comprehensive Higher Education to the Students of Under Graduation, Post-Graduation, Diploma Courses, Certificate Courses & Doctoral Degrees in Arts, Commerce & Science.

An audit was performed and proof has been furnished that the management system fulfils the requirements of international standard detailed below ...

Standard : ISO 50001:2018  
Certificate No. : 21.GGCS.IN.500135  
Certification Date : 31<sup>st</sup> January 2022  
Cert. Expiry Date : 30<sup>th</sup> January 2025



Reg. No. IN/EnMS10/0523

**Chief Executive Officer**

Geotek Global Certification Pvt. Ltd.  
102, Raj Legacy, Near Bramband Phase 5, Off. GB Road,  
Thane (West), Pin 400607, Maharashtra, India

Geotek Global Certification Pvt. Ltd. is accredited by International Management Accreditation Board (Singapore)  
51, Goldhill Plaza, #07-10/11, Singapore 308900

The continual validity of the certificate is conditional to compliance with the terms and the conditions of Geotek Global Certification Pvt. Ltd. - Certification Scheme Regulation. Validity of the certificate may be verified on following websites : [www.geotek.co.in](http://www.geotek.co.in) and accreditation body's website : [www.imab.com](http://www.imab.com)

**Special committee for the maintenance of light and electricity devises.**

Navgan Shikshan Sanstha Rajuri (N)  
**Mrs.Kesharbai Sonajirao Kshirsagar Alias Kaku**  
**Arts, Science & Commerce college, Beed-431122.**

Principal-Dr.D.B.Kshirsagar  
NAAC reaccredited -A Grade [3.18 CGPA as per New RAF] ISO- 9001:2015 Green audit

Website-kskcollegebeed.com E-mail-kskbeed123@rediffmail.com Ph.(02442)222641 Fax-02442)230197

Ref: kskcb/2020-2021/ Date 14 /09/ 2020

**OFFICIAL ORDER**

Shri. Salunke P.A. Jr.Lect.in Physics this is to inform you that you are appointed as the Chairman of **Light Committee** from the academic year 2020-2021 .The following members are appointed to assist you. You are supposed to fulfill your assigned tasks with the help of appointed members of the committee. You are expected to update and report the status time to time to the office.

It is your responsibility to take the charge along with the previous record from the former Chairman. Copy of this document should be provided to the members.

*[Signature]*  
**Principal.**  
Mrs. K.S.K. Art's, Sci.Comm  
College. Beed-431122

**Light Committee**

Shri.Salunke P.A.	Chairman	<i>[Signature]</i>
Shri.Gonde J.D.	Member	<i>[Signature]</i>
Dr.Sanap B.M.	Member	<i>[Signature]</i>
Shri.Wanjare V.S	Member	<i>[Signature]</i>
Shri.Jadhav A.D.	Member	<i>[Signature]</i>
Shri.Gange A.H.	Lab.Att.	<i>[Signature]</i>
Shri. Yadav G.B.	Lab.Att.	<i>[Signature]</i>

  
**Beed, Maharashtra, India**  
XQP2+H3X, Datta Nagar, Beed, Maharashtra  
431122, India  
Lat N 18° 59' 10.0284"  
Long E 75° 45' 1.5156"  
17/01/22 11:09 AM Page No. 30



Solar energy panel of 20KW capacity is installed on roof top of the college. Purchase value is around 20 lakhs.





# Solar panel Purchase bill

**Tax Invoice** UHL 82

<b>HALFCIRCLE SOLAR PRIVATE LTD.</b> Kausar Plaza, Bashir Gunj Chowk Beed GSTIN/UIN: 27AAECH2988K1Z1 State Name : Maharashtra, Code : 27		Invoice No.	Dated	
		<b>022</b>	<b>18-Feb-2022</b>	
Buyer <b>Mrs. KSK Alias Kaku Arts, Science &amp; Comm. College</b> Beed State Name : Maharashtra, Code : 27		Delivery Note	Mode/Terms of Payment	
		Supplier's Ref.	Other Reference(s)	
		Buyer's Order No.	Dated	
		Despatch Document No.	Delivery Note Date	
		Despatched through	Destination	
		Terms of Delivery		

SI No.	Description of Goods and Services	HSN/SAC	Quantity	Rate	per	Amount
1	20.14 Kw 3 Phase on Grid Solar System	8541	1 nos	7,30,711.92	nos	7,30,711.92
	<i>Installation Charges @ 18%</i>	9987				3,13,162.25
	<i>CGST</i>					72,027.32
	<i>SGST</i>					72,027.32
	<i>Round Off</i>					0.19
Total			1 nos			₹ 11,87,929.00

*E. & O E*

Amount Chargeable (in words)  
**INR Eleven Lakh Eighty Seven Thousand Nine Hundred Twenty Nine Only**

HSN/SAC	Taxable Value	Central Tax		State Tax		Total Tax Amount
		Rate	Amount	Rate	Amount	
8541	7,30,711.92	6%	43,842.72	6%	43,842.72	87,685.44
9987	3,13,162.25	9%	28,184.60	9%	28,184.60	56,369.20
Total			72,027.32		72,027.32	1,44,054.64

Tax Amount (in words) : **INR One Lakh Forty Four Thousand Fifty Four and Sixty Four paise Only**

Company's PAN : **AAECH2988K**

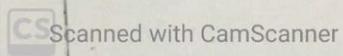
**Declaration**  
 We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct.

Company's Bank Details  
 Bank Name : Union Bank of India - C/A 567501010050417  
 A/c No. : 567501010050417  
 Branch & IFS Code: **Barshi Road, Beed & UBIN0556751**  
 for HALFCIRCLE SOLAR PRIVATE LTD.

Authorized Signatory

This is a Computer Generated Invoice





VUC (82)

**Bank of Maharashtra**

(A Government of India Undertaking)

**Mahabank NEFT / RTGS Funds Transfer Application Form  
Acknowledgement**

Date: 05/3/2022

Received From: Principal Mrs. K. S. K. College

A/c No.: 20092700051

A/c Type: CURRENT A/C

Amount Rs.: 1187929/-

Charges Rs.: \_\_\_\_\_

Total Rs.: 1187929/-

Amount in Words: Eleven lakh eighty seven

**Details of NEFT / RTGS on centre & Beneficiary as under :**

1. Beneficiary Name: HALFTROLL

2. Bank Name: Union Bank of India

3. Branch Name: Barshi Road, Beed.

4. Account Type & No. 567501010050417

5. IFSC No. UBI0556757

6. City: Beed.

7. Other Information \_\_\_\_\_

Mobile No.: 9561529191

I Confirm that beneficiary's account No. ....

..... is correct.

Branch Seal & Sign: \_\_\_\_\_

Remittance would be effected as per RBI's Rule \_\_\_\_\_

Beed - 431122

Principal

Mrs. K. S. K. College, Beed - 431122

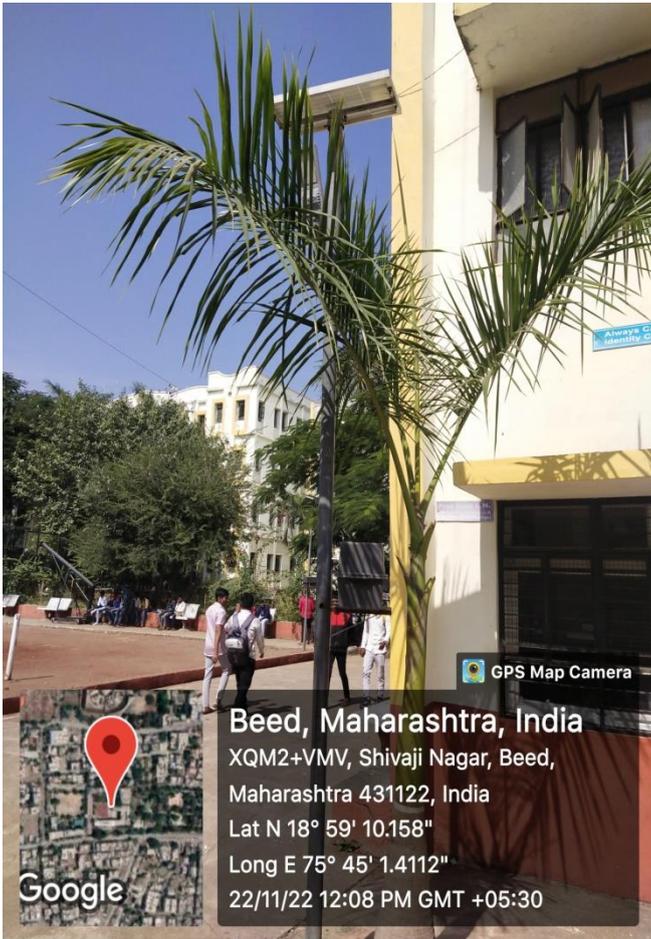
MAUBR52022031011596459

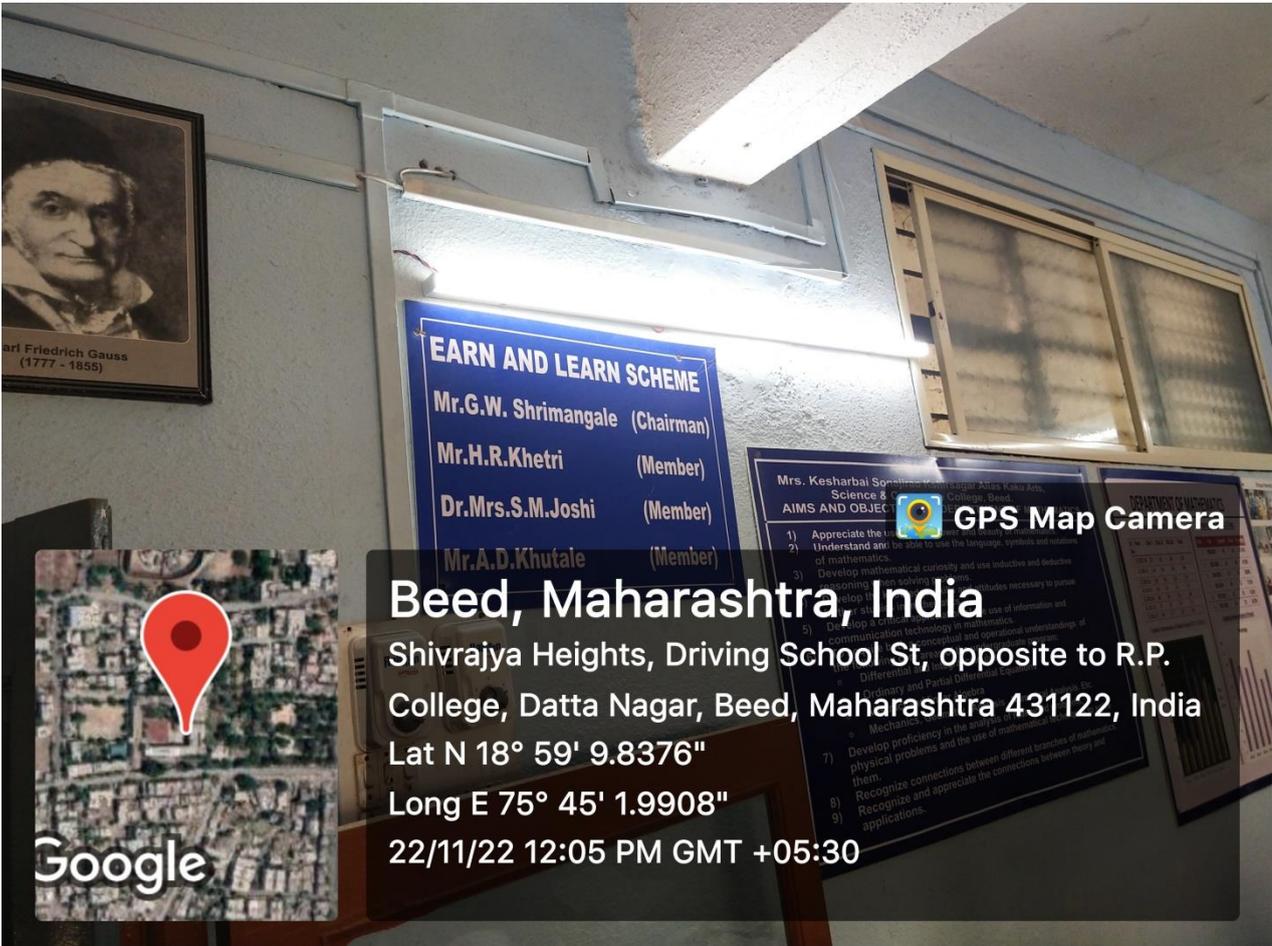
**Please Sign. Overleaf also**

Company's  
Declaration  
We declare  
goods desc  
correct.

## Solar Light Panels in the college campus:







**EARN AND LEARN SCHEME**  
Mr.G.W. Shrimangale (Chairman)  
Mr.H.R.Khetri (Member)  
Dr.Mrs.S.M.Joshi (Member)  
Mr.A.D.Khutale (Member)

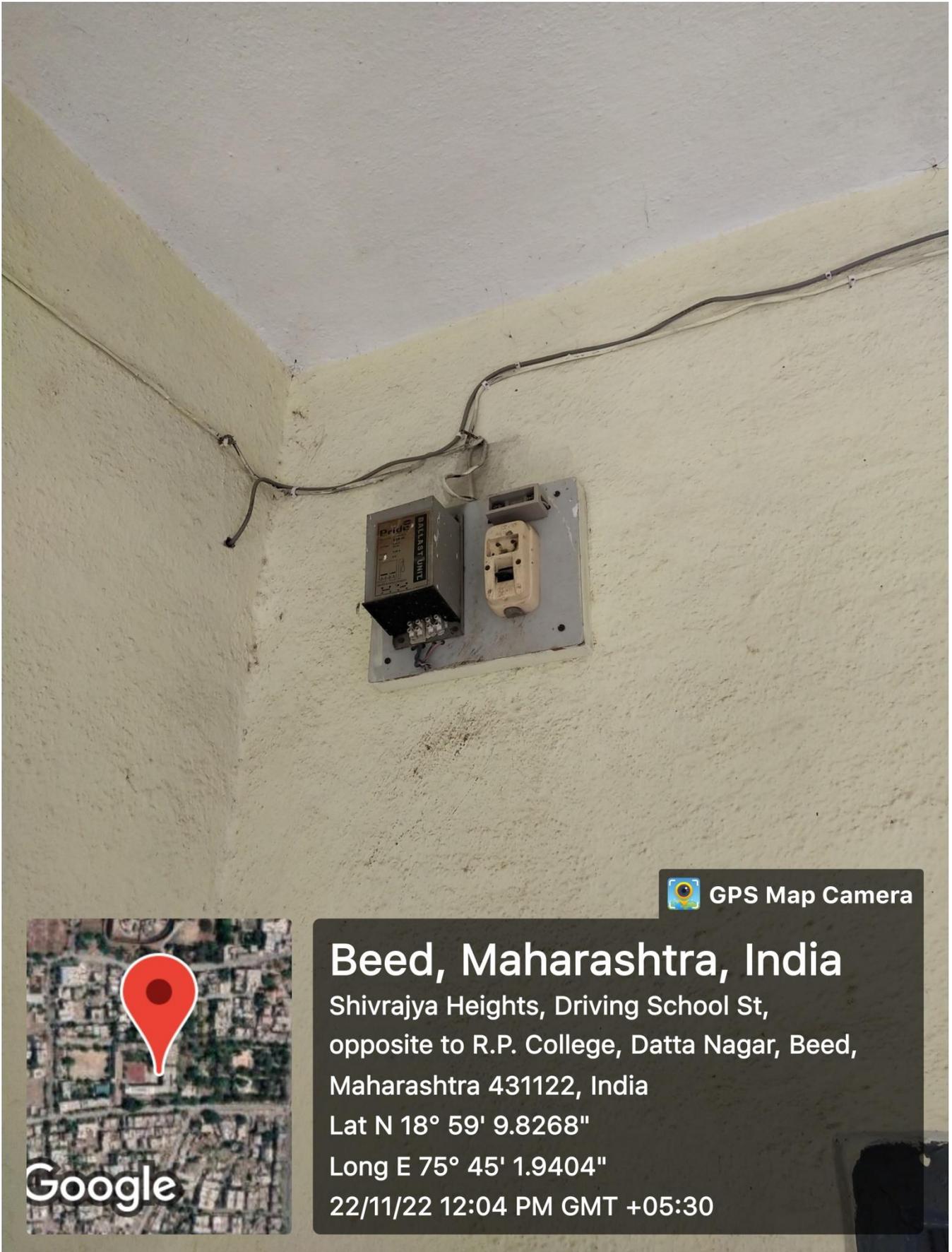
Mrs. Kesharbal Sonpatil, Headmistress, A.P. Kadam Auto,  
Science & Mathematics Department, College, Beed.  
**AIMS AND OBJECTIVES**

- 1) Appreciate the beauty and utility of mathematics.
- 2) Understand and be able to use the language, symbols and notation of mathematics.
- 3) Develop mathematical curiosity and use inductive and deductive reasoning in solving problems. Includes necessary to pursue the study of mathematics.
- 4) Develop a critical, logical and operational understanding of communication, understanding in mathematics.
- 5) Develop a conceptual and operational understanding of the following topics: **Differential and Partial Differentiation, Matrices, Vectors, Functions and Partial Derivatives, Probability, Statistics, Mechanics and Optics.**
- 6) Develop proficiency in the use of mathematical tools in solving physical problems and the use of mathematics in other branches of science.
- 7) Recognize connections between different branches of mathematics.
- 8) Recognize and appreciate the connections between theory and applications.
- 9) Recognize and appreciate the connections between theory and applications.

 **GPS Map Camera**

**Beed, Maharashtra, India**  
Shivraja Heights, Driving School St, opposite to R.P.  
College, Datta Nagar, Beed, Maharashtra 431122, India  
Lat N 18° 59' 9.8376"  
Long E 75° 45' 1.9908"  
22/11/22 12:05 PM GMT +05:30





 GPS Map Camera



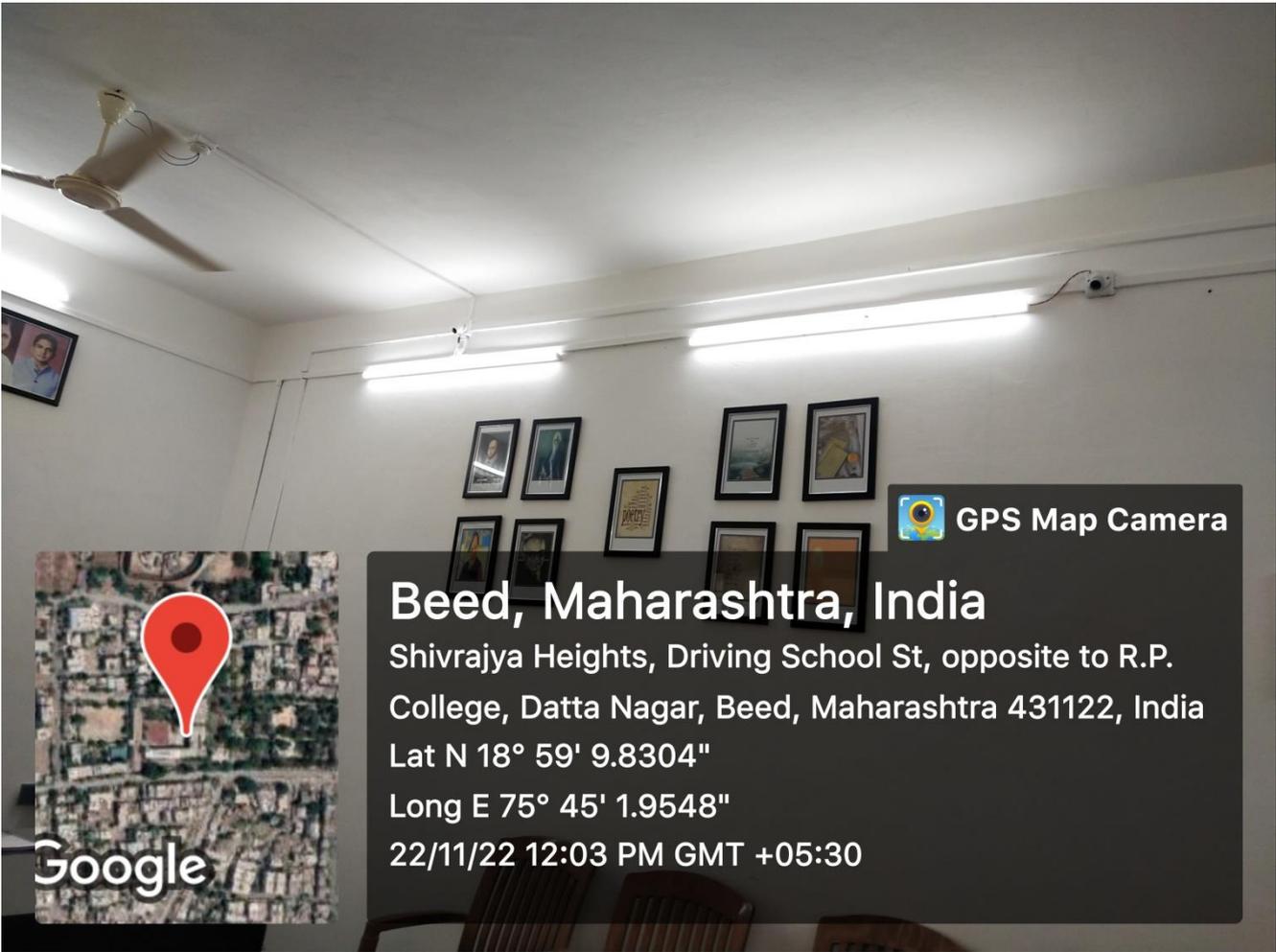
## Beed, Maharashtra, India

Shivrajya Heights, Driving School St,  
opposite to R.P. College, Datta Nagar, Beed,  
Maharashtra 431122, India

Lat N 18° 59' 9.8268"

Long E 75° 45' 1.9404"

22/11/22 12:04 PM GMT +05:30



 GPS Map Camera



## Beed, Maharashtra, India

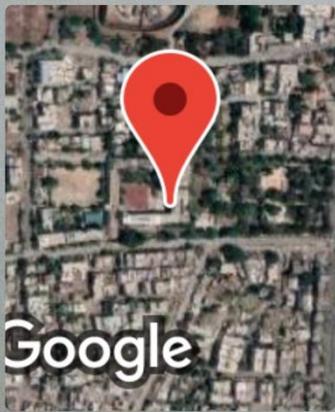
Shivrajya Heights, Driving School St, opposite to R.P. College, Datta Nagar, Beed, Maharashtra 431122, India  
Lat N 18° 59' 9.8304"

Long E 75° 45' 1.9548"  
22/11/22 12:03 PM GMT +05:30

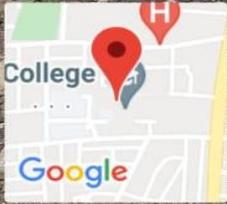
**SAVE ELECTRICITY**

SR	Quantity
01	01
02	01
03	01
04	01
05	01
06	01
07	01
08	01
09	01
10	01
11	01
12	01
13	01
14	01
15	01
16	01
17	01
18	01
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38	01
39	01
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41	01
42	01
43	01
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45	01
46	01
47	01
48	01
49	01
50	01

 **GPS Map Camera**



**Beed, Maharashtra, India**  
Shivrajya Heights, Driving School St, opposite to R.P. College, Datta Nagar, Beed, Maharashtra 431122, India  
Lat N 18° 59' 9.5748"  
Long E 75° 45' 2.0628"  
22/11/22 11:58 AM GMT +05:30



**Beed, Maharashtra, India**  
Unnamed Road, Datta Nagar, Beed, Maharashtra 431122,  
India  
Lat 18.986377°  
Long 75.75037°  
31/12/21 12:42 PM

GPS Map Camera



Beed, Maharashtra, India

XQP2+C3M, Datta Nagar, Beed, Maharashtra 431122, India

Lat 18.986129°

Long 75.750343°

31/12/21 12:42 PM

GPS Map Camera





**Beed, Maharashtra, India**  
Unnamed Road, Datta Nagar, Beed, Maharashtra 431122,  
India  
Lat 18.986378°  
Long 75.750302°  
31/12/21 12:43 PM

GPS Map Camera

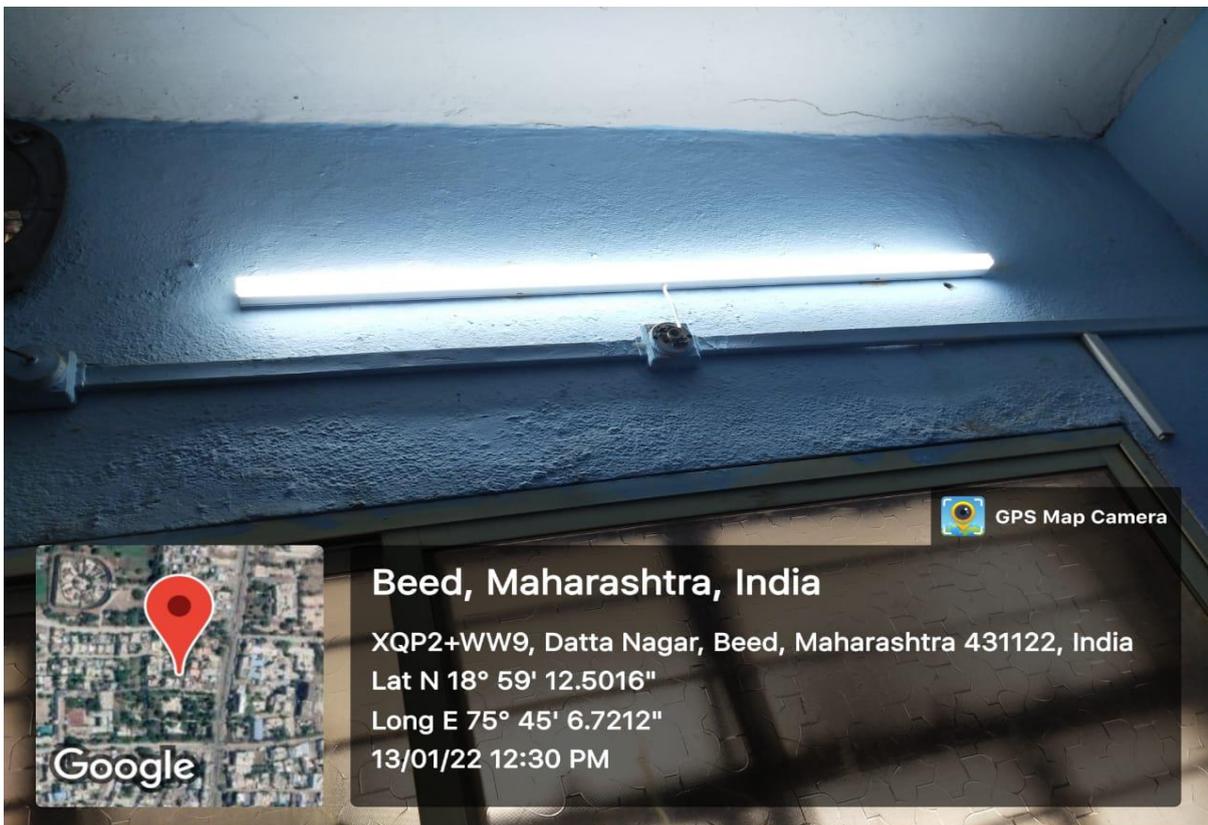
**Solar Water Heaters in girls hostel in college premises:**

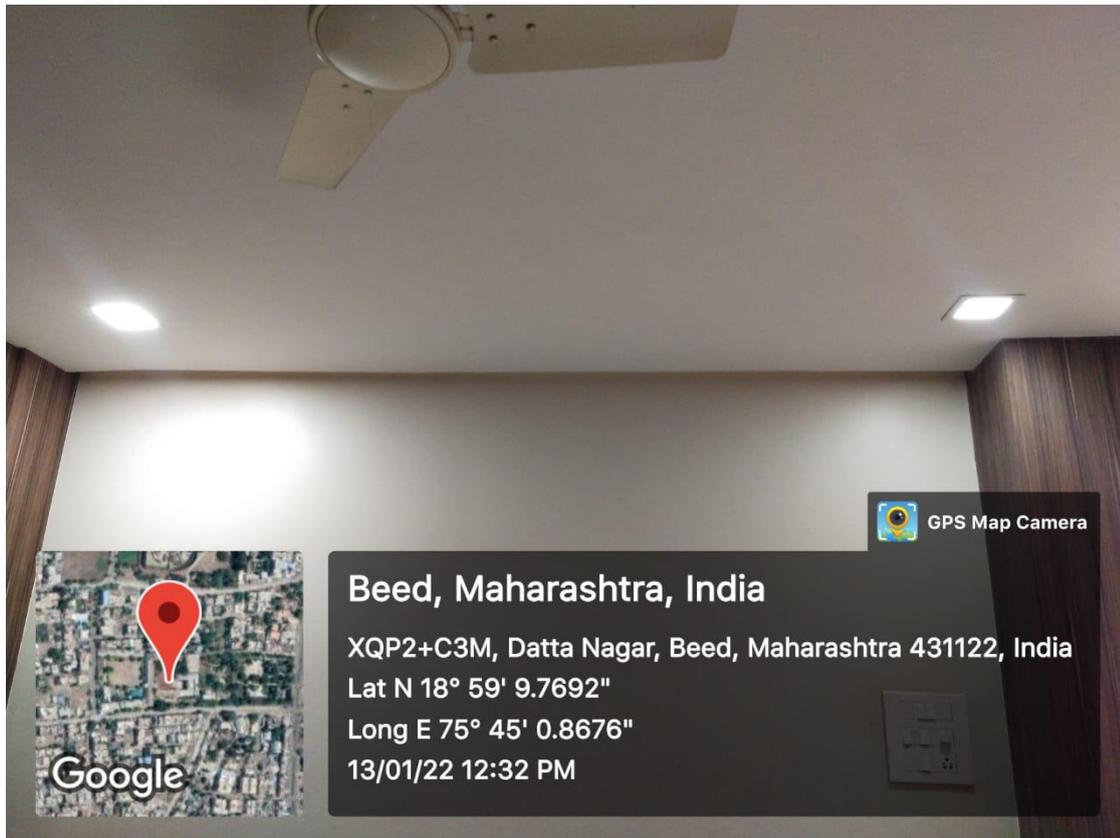




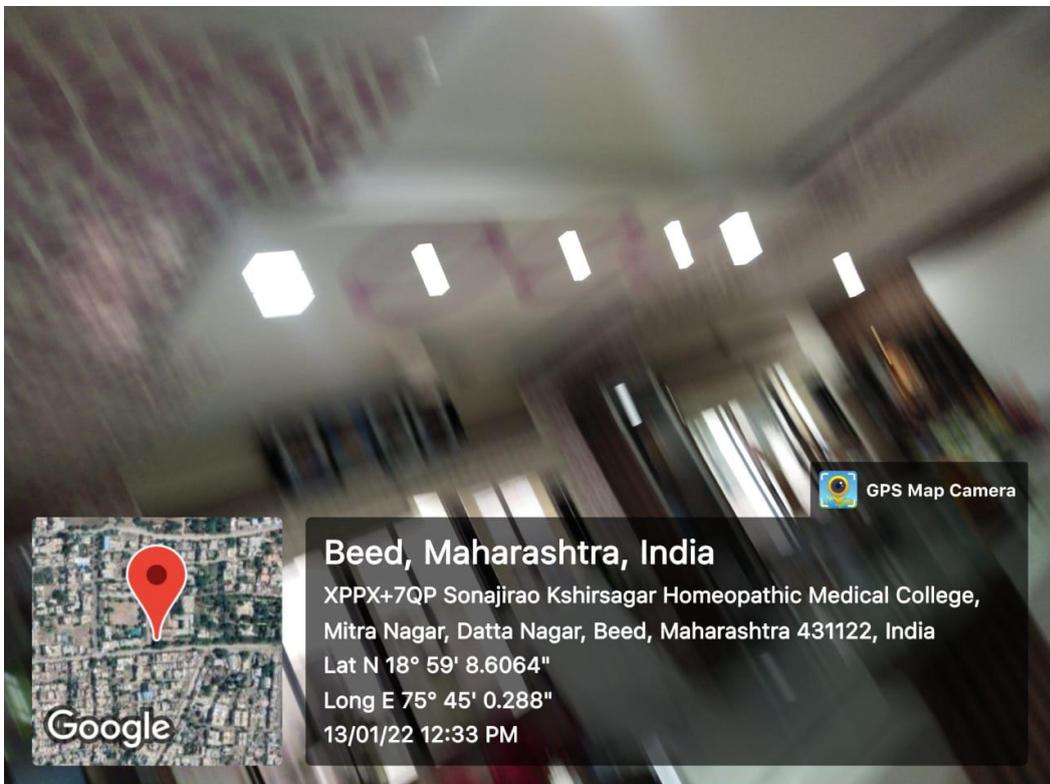
- College has a full fledged plan to save electrical energy.
- Electric Maintenance committee is constituted to look after the maintenance and minimum use of electricity.
- Save energy boards have been displayed all over the college campus particularly where there are switch on/off boards.
- Separate main switch off board is installed for every individual section of the college like hostel, library, administration block and various departments.

\* All the traditional bulbs have been replaced by LED Bulbs:

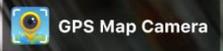




**Beed, Maharashtra, India**  
XQP2+C3M, Datta Nagar, Beed, Maharashtra 431122, India  
Lat N 18° 59' 9.7692"  
Long E 75° 45' 0.8676"  
13/01/22 12:32 PM



**Beed, Maharashtra, India**  
XPPX+7QP Sonajirao Kshirsagar Homeopathic Medical College,  
Mitra Nagar, Datta Nagar, Beed, Maharashtra 431122, India  
Lat N 18° 59' 8.6064"  
Long E 75° 45' 0.288"  
13/01/22 12:33 PM





# SAVE ELECTRICITY



GPS Map Camera



## Beed, Maharashtra, India

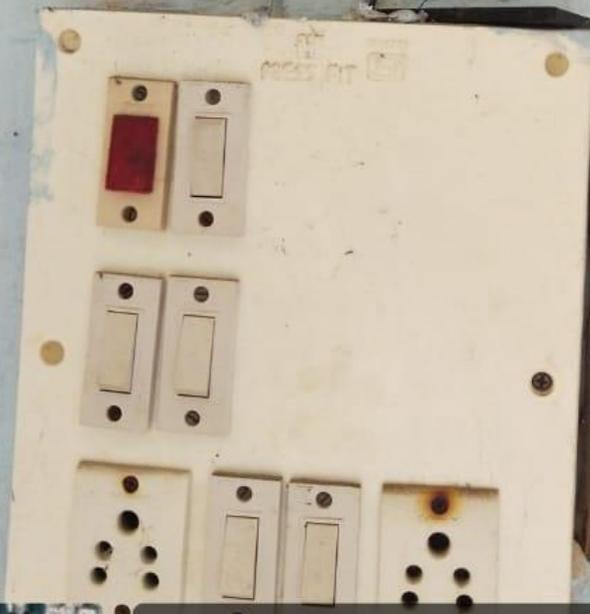
Shivrajya Heights, Driving School St, opposite to R.P. College, Datta Nagar, Beed, Maharashtra 431122, India

Lat N 18° 59' 9.8592"

Long E 75° 45' 1.5228"

17/01/22 11:04 AM

**SAVE ELECTRICITY**



 GPS Map Camera



## Beed, Maharashtra, India

Shivrajya Heights, Driving School St, opposite to R.P. College, Datta Nagar, Beed, Maharashtra 431122, India

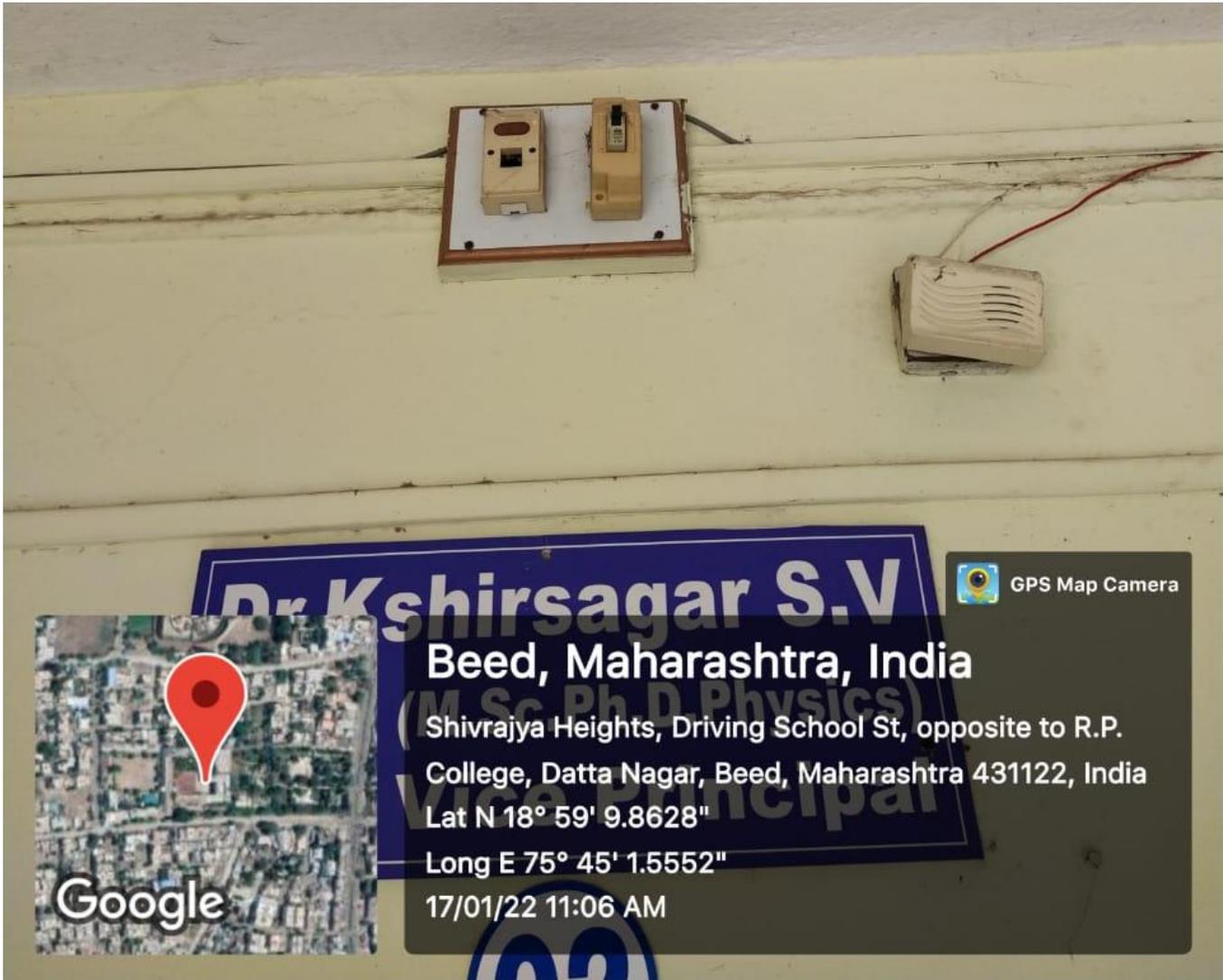
Lat N 18° 59' 9.8592"

Long E 75° 45' 1.5228"

17/01/22 11:04 AM

Main switch buttons for various sections to switch off total electricity supply for the section





**Dr. Kshirsagar S.V.**  
**Beed, Maharashtra, India**  
(M.Sc. Ph.D. Physics)  
Vice Principal  
Shivrajya Heights, Driving School St, opposite to R.P.  
College, Datta Nagar, Beed, Maharashtra 431122, India  
Lat N 18° 59' 9.8628"  
Long E 75° 45' 1.5552"

 GPS Map Camera



Google

17/01/22 11:06 AM



GPS Map Camera



## Beed, Maharashtra, India

XQP2+H3X, Datta Nagar, Beed, Maharashtra  
431122, India

Lat N 18° 59' 10.0248"

Long E 75° 45' 1.5372"

17/01/22 11:07 AM

Save Energy



GPS Map Camera



**Beed, Maharashtra, India**

Shivrajya Heights, Driving School St, opposite to R.P. College,  
Datta Nagar, Beed, Maharashtra 431122, India

Lat N 18° 59' 9.8736"

Long E 75° 45' 1.6236"

17/01/22 11:11 AM



GPS Map Camera



## Beed, Maharashtra, India

Shivrajya Heights, Driving School St, opposite to R.P. College, Datta Nagar, Beed, Maharashtra 431122, India

Lat N 18° 59' 9.5748"

Long E 75° 45' 1.6344"

17/01/22 11:11 AM

**SAVE ELECTRICITY**



GPS Map Camera



Google

**Beed, Maharashtra, India**

XQP2+H3X, Datta Nagar, Beed, Maharashtra 431122, India

Lat N 18° 59' 10.0644"

Long E 75° 45' 1.4976"

17/01/22 11:03 AM



Navgan Shikshan Sanstha Rajuri (N)

MRS.KESHARBAISONAJIRAOKSHIRSAGARALIAS KAKU ART,  
SCIENCE & COMMERCE COLLEGE BEED -431122

ENERGY AUDIT  
MANUAL 2022-  
2023

## INDEX

- 1. Introduction** **1.**
- 2. Committee formation** **2.**
- 3. Objective** **3.**
  1. To study present level of Energy Consumption
  2. Analysis of Connected Load in Campus Other Than Motive Power
  3. Analysis of connected load of motive power
  4. Identified Energy saving opportunity
  - 5.
- 4. Methodology**
  1. Study of connected load
  2. Study of Electrical Energy Consumption pattern
  3. Analysis of Connected Load in Campus Other Than Motive Power
  4. Analysis of connected load of motive power
- 5. Suggestion**
  1. To install motion sensor at Principal Office ,Seminar Hall, Sport Hall
  2. Replace Electric pump by Solar pump
- 6. Future plan.**
  1. All light cover by solar light next 5 years
  2. Old light consuming replaced by light efficient appliances
  3. Electric pump replaced by solar pump

## **Introduction**

Mrs. Kesharbai Sonajirao Kshirsagar Alias Kaku Art, Science & Commerce College Beed in Maharashtra state. This college is affiliated with Dr. Babasaheb Ambedkar Marathwada University Aurangabad. This college is established in 1971 which has been imparting higher education up to UG level in Art, science & Commerce faculty. College campus consists of buildings named as Main Building- A, Library - B, Sport Hall –C, Hostel- E, Canteen-F in which administrative office , various HOD cabins ,staff rooms , classrooms , various laboratory like Physics, chemistry, botany, micro biology as well as Music and Drama departments are functioning with basic motto to impart quality , employment, entrepreneur and Agro oriented higher education to mostly rural as well as marginal urban student. This college also provides gymkhana facility to student undergoing through various type of physical education. There is also beautiful library building Block- D where student studying in various branches have facility to refer books. The college developed garden & teak wood plantation in campus.

### **Electrical Maintains Committee**

- |                       |          |
|-----------------------|----------|
| 1. Shri. Gonde G.D.   | Chairman |
| 2. Shri. Vanjare V.S. | Member   |
| 3. Dr. Jamdade Deepak | Member   |
| 4. Shri. Jadhav A.D.  | Member   |
| 5. Shri. Gange A.H.   | Member   |

## **Acknowledgement**

Department of Physics Navgan Shikshan Sanstha Rajuri (N)

Mrs. Kesharbai Sonajirao Kshirsagar Alias Kaku Art ,Science & Commerce College Beed is very much thankful to Vice President Dr.D.B. Kshirsagar and Principal Dr.S.V. Kshirsagar for motivating us for energy audit

## 1. To study present level of Energy Consumption

Hal I No.	Department	CFL/ Panal	Tube	LED Tube	LED Bulb	Fan	Inver ter	Comput er	Print er	Freez	A. C	Xer ox	Focus	Exort	Oven	T.V.	Pump
0	Principal Office	52	4	3		12				1	3					1	
1	Office	2	2		9	6		9	8								
2	Vice Principal	1	3		1	2	3	1						1			
3	Chemistry		1		5	3				1							
4	Chemistry Lab			15	5	7								8			
5	Exam Section		1	3	1	1								1			
6	Inward, outward		1		3	1	1	1	1								
7	Economics Dept				3	2	1	1									
8	Physics Lab		4		1	1											
9	Zoology lab		1	1	2	2											
10	Zoology Dept		2			1		1	1	1							
11	Zoology lab		1	3	3	1									2		
12	Zoology lab		3			1											
13	Physics Lab		3		1	1											
14	Physics Dept.		4		2	2		1	1					1			
15	IQAC		4		3	4	1	1	1					1			
16	Xerox Centre		1	1		1						2					
17	Seminar Hall		8		1	5	1										
18	Reader scribe		2		2	1											
19	Health care		1		2	1											
20	MCVC		1	2		2		2									
21	Computer		4		2	4	1	19	1								
22	Theory Hall		3			1											
23	commerce		1	1		2											
24	commerce Dept		2	3		2	1	10	1								
25	Home sci.		4			2		1									
26	Home sci. Dept		4	2		2		1	1								
27	Microbiology lab		5	1		2									1		
28	Microbiology lab		1	3		2	1	2	1								
29	Botany Dept.		1			2											
30	Botany Lab.	2		5		5		1	1	1							
31	Botany Lab.		4	2		2				1							
32	Microbiology			2	4	2									1		

	lab																
33	English Dept.	1	4			3	1	18		1							
34	Geography	1	1			3											
36	Geography Dept.		2	3		3	1										
37	Mathematics		3		1	2		1	1								
38	Physical Dept.	2	2			1		1									
39	Music Dept.		1	6		3		1	1								
40	Music Dept.																
41	Theory Hall			3													
42	Theory Hall			4		2											
43	Political Science		1	1		1		1									
44	Sociology		1	1	2	1		1									
45	History		1	1	2	1		1									
46	Urdu			2		1		1									
47	Marathi			2		1		1									
48	Hindi			2		1		1									
49	Theory Hall			2		1		1									
50	Theory Hall			2		1											
51	Theory Hall		2			1											
52	Vocational		2	2		2											
53	Theory Hall																
54	Theory Hall		1	3	4	1		1	1								
55	Theory Hall		1	3		1											

56	Theory Hall		2	1		1												
57	Theory Hall		1	2		1												
58	Theory Hall		3	1		1												
59	Theory Hall			3		1												
60	Theory Hall		1	2		1												
61	Theory Hall		2	1		1												
61	Theory Hall		2	1		1												
	Hostel			8	150	60	1											
	Sport Hall				20	12		1	1									1
	Record Room	2	6			3												
	YCMU		1		2	2	1	2	1									
	Canteen				10	5												
	Porch												8					2
	Total	17	32	103	251	221	15	113	23	6	3	2	8	12	4	2		3

<b>2. Electrical Devices Wise Load</b>			
<b>Electrical Devices</b>	<b>Total No.</b>	<b>Watt</b>	<b>Total Watt</b>
<b>LED PANAL</b>	<b>52</b>	<b>12</b>	<b>624</b>
<b>CFL</b>	<b>17</b>	<b>15</b>	<b>255</b>
<b>LED Bulb</b>	<b>251</b>	<b>9</b>	<b>2259</b>
<b>Fluorescent TUBE</b>	<b>132</b>	<b>40</b>	<b>5280</b>
<b>LED TUBE</b>	<b>103</b>	<b>20</b>	<b>2060</b>
<b>FAN</b>	<b>221</b>	<b>90</b>	<b>19890</b>
<b>COMPUTER</b>	<b>113</b>	<b>60</b>	<b>6780</b>
<b>PRINTER</b>	<b>23</b>	<b>250</b>	<b>5750</b>
<b>A.C.</b>	<b>3</b>	<b>1440</b>	<b>4320</b>
<b>INVERTER</b>	<b>15</b>	<b>325</b>	<b>4875</b>
<b>Exhaust FAN</b>	<b>12</b>	<b>45</b>	<b>540</b>
<b>FREEZ</b>	<b>6</b>	<b>100</b>	<b>600</b>
<b>OVEN</b>	<b>4</b>	<b>1860</b>	<b>7440</b>

<b>T.V.</b>	<b>2</b>	<b>110</b>	<b>220</b>
<b>FOCUS</b>	<b>8</b>	<b>100</b>	<b>800</b>
<b>XEROX</b>	<b>2</b>	<b>1250</b>	<b>2500</b>
		<b>Total</b>	<b>64193</b>

<b>PUMP 5HP</b>	<b>1</b>	<b>746</b>	<b>3750</b>
<b>MOTOR2HP</b>	<b>1</b>	<b>746</b>	<b>1492</b>
<b>MOTOR 1 HP</b>	<b>1</b>	<b>746</b>	<b>746</b>
		<b>Total</b>	<b>5988</b>

<b>Total Watt</b>	<b>70181</b>
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<b>Total KWH</b>	<b>70.181</b>
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**Total Load =70KWH**

## STUDY OF ELECTRICAL ENERGY CONSUMPTION

### Electrical Bill Analysis- 2020-2021

There is Five number of various type of electricity connection being power supplied by MSEDCL. Monthly electricity bill is served by MSEDCL against electricity used & is paid by college

**A cost of power is worked out by summing up total KWH of all connections & their amount over the year 2021-2022. By dividing total amount by total KWH works out average cost of power per KWH.**

Month	Connection No & Tariff category									
	LT con. No- 576010168766		LT con. No- 576010542943		LT con. No- 576010048302		LT con. No- 576017460276		LT con. No- 576017460268	
	Tariff- LT VII B	Load KVA-1	Tariff- LT II COMM	Load KVA- 1.43	Tariff- LTVII B I	Load KVA-3	Tariff- LT VII B	Load KVA-1	Tariff- LT VII B	Load KVA-1
	KWH	Bill amount Rs	KWH	Bill amount Rs	KWH	Bill amount Rs	KWH	Bill amount Rs	KWH	Bill amount Rs
June-22	267	4050	386	6990	602	4780	163	2250	271	3000
July	267	2460	179	2390	522	4200	45	790	292	2650
Aug	267	2460	533	6080	677	5330	55	870	334	2960
Sep	808	500	366	4360	906	6970	103	1220	375	3270
Oct	202	1960	0	-3590	1099	15420	30	660	311	2750
Nov	202	1970	0	-3180	1897	14130	63	270	340	3010
Dec	202	1980	366	1180	1971	14670	63	920	340	3010
Jan-23	202	1970	366	4360	0	0	63	20	340	3010
<b>Total</b>	<b>2417</b>	<b>17350</b>	<b>18590</b>	<b>18590</b>	<b>7674</b>	<b>65500</b>	<b>585</b>	<b>7000</b>	<b>2603</b>	<b>23660</b>

$$132100/ 15475=8.534$$

**Average cost of power per KWH works out to be Rs- 8.54/KWH**

## Analysis of Connected Load in Campus Other Than Motive Power :-

As Viewed from below table, it understands that lighting & fan load has dominance in total load mix & shares more electrical consumption. This load has most potential to identify energy saving opportunity.

Type	No	Total KW	% Load
Lighting Load	557	11.498	17.91
Fan Load	233	20.430	31.82
Computer Load	113	6.780	10.56
AC & Freeze	9	4.920	7.66
Inverter	15	4.75	7.39
Printer & Xerox	25	8.250	12.85
Oven	4	7.440	11.58
<b>Total</b>	<b>956</b>	<b>64.068</b>	<b>99.77</b>

Analysis of connected load of motive power

<b>PUMP 5HP</b>	<b>1</b>	<b>746</b>	<b>3750</b>
<b>MOTOR2HP</b>	<b>1</b>	<b>746</b>	<b>1492</b>
<b>MOTOR 1 HP</b>	<b>1</b>	<b>746</b>	<b>746</b>
		<b>Total</b>	<b>5988</b>

**Total power consumed for motive power =5.988 KWH**

## Identified Energy Saving opportunity

- A) Energy Saving Opportunity Details – There is major load of lighting & fan in college campus. Hence it is focused for identification of energy saving opportunity. Energy saving & conservation opportunities are identified which are mentioned below with cost benefit analysis based on revised average cost of power. Lowest pay back option shall be implemented on priority.

Existing equipment details				Proposed replacement with				Saving in		Capital investment in Rs	Pay back period in years
Equipment	No	Watt per No	Total Watts	Equipme nt	No	Watt per No	Total Watts	KWH per year	cost Rs		
Fluorescent TUBE	132	40	5280	LED Tube	132	20	2640	4752	38016	39600	1
CFL	17	15	255	LED Bulb	17	9	153	183.6	1468.8	2550	1.5
Ceiling FAN	221	90	19890	Atom berg ceiling fans	221	28	6188	24663	197304	66300	3
<b>Total</b>	<b>370</b>	<b>145</b>	<b>25425</b>		<b>370</b>	<b>57</b>	<b>8981</b>	<b>29598.6</b>	<b>236788.8</b>	<b>108450</b>	<b>5.5</b>

## Energy Savings from Motion Sensor Proposal

To install motion sensor at Principal Office ,Seminar Hall, Sport Hall

Energy saving	
Total Lighting & Fan load of Principal Office ,Seminar Hall, Sport Hall kW)	2.000
Existing operating Hours per day	4
Assumed operating hours After installing motion Sensor per day	3
Total annual Existing Energy Consumption in kWh/ Annum for 300 working days	2400
Total annual Proposed Energy Consumption in kWh/ Annum for 300 working days	1800
Total annual Existing Energy Consumption in Rs for 300 working days and taking ( 9.0 Rs /kWh)	21600
Total annual Proposed Energy Consumption in Rs for 300 working days and taking ( 9.0 Rs /kWh)	16200
Total annual energy Saving by using motion sensor in kWh	600
Total annual energy Saving by using motion sensor in Rs	5400
Total Amount of investment for 1 no. of Motion Sensor in Rs. ( Rs 1000}	3000
Payback Period in months only	7
Estimated Life of proposed system in year	3

The information mentioned above is true and hence certified.

  
**Co-Ordinator**  
Internal Quality Assurance Cell  
Mrs. K.S.K. College, Beed, (M.S.)



  
**Principal**  
N.S.S.R.(N.) Mrs.Kesharbai  
Sonajirao Kshirsagar Alias Kaku  
Arts, Science and Commerce .  
College, Beed.

