



# CENTRAL SANSKRIT UNIVERSITY



# ENERGY AUDIT REPORT

PREPARED BY  
EHS ALLIANCE SERVICES



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# CERTIFICATE



# CERTIFICATE

PRESENTED TO

## CENTRAL SANSKRIT UNIVERSITY

Headquarter Office at 56-57, Institutional Area, Janakpuri,  
New Delhi-110058

Has been assessed by EHS Alliance Services for the comprehensive study of Energy Audit on institutional working framework to fulfill the requirement of

## ENERGY AUDIT

The energy-saving initiatives carried out by the College have been verified in the report submitted and were found to be satisfactory.

The efforts taken by management and faculty towards all types of energy used in the College and sustainability are highly appreciated and noteworthy.

SIGNATURE



12.07.2022 - 30.07.2022

DATE OF AUDIT

EHS ALLIANCE SERVICES, PLOT A-72, SURYA VIHAR, GURUGRAM, 122001  
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We would also like to thank **Dr. Pramod Kumar Butolia**, and **Dr. Vijay Kumar Dadhich** Audit Coordinator, CSU for his continuous support and guidance, without which the completion of the project would not have been possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

We are also thankful to

Name Of The Director	Campus Details
<b>Prof. Lalit Kumar Tripathi</b>	<i>Ganganath Jha Campus</i>
<b>Prof. Madan Mohan Jha</b>	<i>Shri Ranbir Campus</i>
<b>Prof. Khageshwar Mishra</b>	<i>Shri Sadashiv Campus</i>
<b>Prof. Lalit Kumar Sahoo</b>	<i>Guruvayoor Campus</i>
<b>Prof. Bhagwati Sudesh</b>	<i>Jaipur Campus</i>
<b>Prof. S.N. Jha</b>	<i>Lucknow Campus</i>
<b>Prof. C.S.S.N. Murthy</b>	<i>Shri Rajiv Gandhi Campus</i>
<b>Prof. Madan Mohan Pathak</b>	<i>Vedavyas Campus</i>
<b>Prof. Ramakant Pandey</b>	<i>Bhopal Campus</i>
<b>Prof. L.N. Pandey</b>	<i>K. J. Somaiya Campus</i>
<b>Prof. S.K. Senapati</b>	<i>Ekalavya Campus</i>
<b>Prof. M. Chandra Sekhar</b>	<i>Shri Raghunath Kirti Campus</i>



## DISCLAIMER

EHS Alliance Services Energy Audit Team has prepared this Energy Audit Report for CSU based on input data submitted by the representatives of University complemented with the best judgment capacity of the expert team.

While all reasonable care has been taken in its preparation, details contained in this report have been compiled in good faith based on information gathered.

It is further informed that the conclusions are arrived following best estimates and no representation, warranty or undertaking, express or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

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**Vijay Singh**  
Lead Auditor EMS & Energy



**Dr. Uday Pratap**  
Co-Auditor EMS & Energy



## **ABBREVIATION**

<b>A</b>	<b>Amps</b>
<b>AC</b>	<b>Air Conditioner</b>
<b>AC</b>	<b>Alternating Current</b>
<b>AMET</b>	<b>Academy of Maritime Education and Training</b>
<b>CFL</b>	<b>Compact fluorescent lamp</b>
<b>CIP</b>	<b>Comprehensive Inspection Programme</b>
<b>DC</b>	<b>Direct Current</b>
<b>HSD</b>	<b>High Speed Diesel</b>
<b>Hz</b>	<b>Hertz</b>
<b>kg</b>	<b>Kilogram</b>
<b>kVA</b>	<b>kilo-volt-ampere</b>
<b>kW</b>	<b>kilo Watts</b>
<b>kWh</b>	<b>kilowatt hour</b>
<b>kWp</b>	<b>Kilowatt peak</b>
<b>LED</b>	<b>Light Emitting Diode</b>
<b>LPG</b>	<b>Liquefied Petroleum Gas</b>
<b>MMS</b>	<b>Module mounting structure</b>
<b>MPPT</b>	<b>Maximum Power Point Tracker</b>
<b>NAAC</b>	<b>The National Assessment and Accreditation Council</b>
<b>SEC</b>	<b>Specific Energy Consumption</b>
<b>SPV</b>	<b>Solar Photovoltaic</b>
<b>STC</b>	<b>Standard Test Condition</b>
<b>TV</b>	<b>Television</b>
<b>V</b>	<b>Volts</b>
<b>W</b>	<b>Watts</b>
<b>W/m<sup>2</sup></b>	<b>watt per square meter</b>



## INTRODUCTION OF UNIVERSITY

The Sansthan was established in 15th October, 1970 as an autonomous organisation registered under the Societies Registration Act, 1860 (Act XXI of 1860) for the development and promotion of Sanskrit all over the country. It is fully funded by Government of India. It functions as an apex body for propagation and development of Sanskrit and assists the Ministry of Human Resource Development in formulating and implementing various plans and schemes for the development of Sanskrit studies. It has assumed the role of a nodal body for the effective implementation of various recommendations made by the Sanskrit Commission set up by the Government of India, Ministry of Education in 1956 to consider the propagation and development of Sanskrit language and education in all its aspects.



Sanskrit has played a vital role in the development of all Indian languages and in the preservation of the cultural heritage of India. No Indian language can flourish without the help of Sanskrit. Sanskrit also provides the theoretical foundation of ancient sciences. Hence, it becomes essential to preserve and propagate Sanskrit for all-round development of India. Fully conscious of this responsibility, the Govt. of India, in pursuance of the recommendations of the Sanskrit Commission (1956-57) constituted a Central Sanskrit Board, which recommended the establishment of a Rashtriya Sanskrit Sansthan. Accordingly, the Rashtriya Sanskrit Sansthan was established in October 1970 as an autonomous organisation registered under the Societies Registration Act, 1860 for the development, preservation and promotion of Sanskrit learning all over the country and abroad. The Sansthan is fully financed by the Government of India and works as a vital agency of the Central Government.



The major objectives of the Rashtriya Sanskrit Sansthan are to propagate, develop and encourage Sanskrit learning and research. This also serves as central, administrative and coordinating machinery for the management of all Campuses. The Government of India has formulated various schemes and programmes for the development of Sanskrit education and is implementing these through Rashtriya Sanskrit Sansthan and other agencies.

For fulfillment of its objectives and execution of the schemes/programs of the Government, the Sansthan undertakes the following activities:

- Establishment of Campuses in different states.
- Conducting the teaching of Sanskrit on traditional lines at secondary,
- Under-Graduate, Graduate, Post-Graduate and Doctorate level.
- Imparting Sanskrit teacher\'s training at Graduate, Post-Graduate level i.e. B.Ed.,M.Ed.
- Coordination of research works in various disciplines of Sanskrit learning.
- Implementation of the schemes of the Ministry of Human Resource Development for promotion of Sanskrit.
- Establishing Sanskrit libraries, manuscripts collection centers and editing as well as publishing the rare manuscripts and books of importance.
- Running Correspondence Courses for learning Sanskrit. The most valuable investment any educational institution can make is "Nurturing Future Leaders". With the continuous rise in expectation of essential leadership standards, CSU torch bearers have taken a responsibility for this investment to nurture the Next-Gen leaders with a vision to bridge the existing skill gap. With a firm step forward to attain an academic excellence, several Centers of Excellence, laboratories, incubation cell and industry-academia associations have been setup at the CSU in association with global leaders.

The Sansthan is running 12 Campuses namely:





Ganganath Jha Campus, Allahabad

Shri Sadashiv Campus, Puri(Orissa).

Shri Ranbir Campus, Jammu (J & K).

Guruvayoor Campus, Trichur (Kerala).

Jaipur Campus, Jaipur (Rajasthan).

Lucknow Campus, Lucknow

Rajiv Gandhi Campus, Sringeri (Karnataka).

Shri Vedvyas Campus, Balahar (H.P.).

Bhopal Campus, Bhopal (M.P.).

K.J. Somaiya Campus, Mumbai (Maharashtra)

Eklavya Campus, Agartala (West Tripura)

Shri Raghunath Kirti Campus, Devapryag (Uttarakhand)

In addition to these ten constituent Vidyapeethas, Sansthan\'s two other Kendriya Sanskrit Vidyapeethas namely Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyapeetha at New Delhi and Rashtriya Sanskrit Vidyapeetha at Tirupati, formerly constituent Vidyapeethas of Sansthan have been converted into deemed Universities.

In addition to ten constituent Campuses there are twenty three Adarsh Sanskrit Mahavidyalayas, Shodh-Sansthans and about 84 Sanskrit Institutions managed by voluntary organisations and affiliated to the Sansthan.

These Institutions have the provision of imparting instructions for the following courses:



COURSES	EQUIVALENT TO
<i>Prathama</i>	Middle
<i>Purva-Madhyama</i>	Secondary
<i>Uttara-Madhyama / Prak-shastri</i>	Sr. Secondary
<i>Shastri</i>	B.A.
<i>Acharya</i>	M.A.
<i>Shiksha Shastri</i>	B. Ed.
<i>Shiksha Acharya</i>	M.Ed.
<i>Vidya Varidhi</i>	Ph. D.
<i>Vidyavachaspati</i>	D. Litt.

The teaching is imparted to the students in all the Campuses (except Allahabad) upto Acharya in the departments of Sahitya, Nyaya, Vyakarana, Dharmasastra, Purana, Advaita Vedanta, Jaina – Darshan, Navya – Nyaya, Sankhya – Yoga, Mimamsa and Jyotish. Besides, the modern languages and subjects, Vidyapeethas offer research facilities to aspiring scholars to produce brilliant research works leading to the award of Vidya- varidhi degrees.

## Campus



### Headquarter Office

At present Delhi Campus is being run in the office building of Headquarter of Central Sanskrit University situated at 56-57, Institutional Area Janakpuri, New Delhi-58. Correspondence Courses and Distance Education Programmes are conducted by Delhi Campus. This Campus has a library, publication division and research centre etc.\* This campus has the following activities- Non Formal Sanskrit Education, Correspondence Course,



### Ganganath Jha Campus

Formerly Ganganath Jha Research Institute situated at Allahabad was taken over by the Rashtriya Sanskrit Sansthan on 1st April, 1971 as its constituent



Distance Education programmes through Delhi Swadhyaya Kendra of Mukta Swadhyaya Peetham, Organizing Seminars/workshops etc, Conducting special short term study programmes through M.S.P. as per the need of target groups, Undertaking research activities. Organizing the following events: Sanskrit Saptah, Sthapana Diwas, National Conference, Yuva Mahotsava, Kaumudi Mahotsava and Akhila Bharateeya Shastriya Spardha



## Shri Ranbir Campus

The erstwhile Shri Raghunath Sanskrit Mahavidyalaya established by the former Ruler of the Jammu & Kashmir was taken over as one of the constituent Vidyapeetha by the Sansthan on 1st April, 1971 and was named as Shri Ranbir Kendriya Sanskrit Vidyapeetha. On declaration of the Sansthan as Deemed to be University, the Vidyapeetha was renamed as Shri Ranbir Campus. It functions with eight Departments of Veda, Vyakarana, Jyotisha (Phalita & Siddhanta), Darshana, Sahitya, Shiksha Shastra, Kashmir Shaiva Darshana and Mukta Svadhyaya Kendra (Centre for Distance Education). Shastric education is imparted by well versed teachers studied Shastras in traditional and modern lines of different disciplines to the

Vidyapeetha named Ganganath Jha Kendriya Sanskrit Vidyapeetha which was later renamed as Ganganath Jha Campus, Allahabad of the Deemed University. This campus is a recognized research centre exclusively devoted to research work on various disciplines Sanskrit Literature. A number of research scholars are registered to carry out research work for the award of Vidyavaridhi (Ph.D.) degree of the Rashtriya Sanskrit Sansthan (Deemed University). The use of the Library and Manuscripts Section is not only limited to the staff and registered scholars of the campus but also open to all scholars as reference library. It invites scholars and researchers interested in Sanskrit and ancient Indian culture from all walks of life to make use of its library subject to its capacity.



## Shri Sadashiv Campus

The erstwhile Sadashiva Sanskrit College, Puri functioning under the State Govt. of Odisha and known for its long involvement in the study of Sanskrit in traditional system, was taken over by the Rashtriya Sanskrit Sansthan, New Delhi on 15th August, 1971. Consequent to the transfer of management, the old Sadashiva Sanskrit College was renamed as Shri Sadashiva Kendriya Sanskrit Vidyapeetha.



Students of Prak Shastri (Higher Secondary) to Acharya (M.A.) level. Shiksha Shastri (B.Ed.) Course was started in 1979 for the training of Sanskrit teachers. Shiksha Acharya (M.Ed) course is also offered in this Campus. Languages Hindi, Dogri, and English are taught and subjects like Political Science, History, Physical Education, Computer Science, and Environmental Science are also taught along with traditional subjects up to Shastri (B.A.) level.

As a result of grant of the status of Deemed University to the Rashtriya Sanskrit Sansthan, it is now known as Rashtriya Sanskrit Sansthan (Deemed University), Shri Sadashiva Campus, Puri. The Campus is located on a piece of land with an area of 15.30 acres on which the buildings admeasuring about 8338 sq. mtrs. were constructed. Apart from the main building, this Campus also has Library building, Girls Hostel(40 rooms),4 units of Staff Quarters and an Auditorium. The campus has got another piece of land about 12 acres in area. It is proposed to construct Stadium, Boys Hostels and Gym on this site.

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## Jaipur Campus



It was founded by the Chief Minister of Rajasthan on the advice of education Minister Government of India, In may 1983 as Kendriya Sanskirt Vidyapeeth.

It is re-named as Rastriya Sanskirt Sansthan, Deemed University, Jaipur Campus. The campus has total area of 7.27 acres of land. Which is allotted by Jaipur Development Authority in 2003. Finally, It has taken shape in such a grand and attractive building at Triveni Nagar





constructed. Apart from the main building, this Campus also has Library building, Girls Hostel(40 rooms),4 units of Staff Quarters and an Auditorium. The campus has got another piece of land about 12 acres in area. It is proposed to construct Stadium, Boys Hostels and Gym on this site.

## Lucknow Campus



This Campus is located at Vishal Khand, Gomati Nagar, Lucknow. It was established in the year 1986. It is located on a piece of land admeasuring 10 acres on which the buildings with built up area of about 7964 sq. mtr. are constructed. In addition to the main building, this campus also has Boys' Hostel with 58 rooms, Girls' Hostel having 19 rooms and also 9 units of Staff Quarters. It offers research programme leading to the degree of Vidyavaridhi (Ph.D.), professional programme Shiksha-Shastri(B.Ed.) and runs courses in Vyakarana, Sahitya, Bauddh Darshan, Jyotisha ,Ved at Acharya(PG), Shastri (UG) and Prak Shastri (Intermediate) levels. Modern subjects such as Hindi, English, Political Science, Economics and Computer Education are also taught along with the traditional subjects in Prak Shastri and Shastri courses.

Gopalpura bypass Jaipur. It is about 12 km from Jaipur railway station.

The constructed area of the building is about 8692 sq/mtr. Adjoining the main building Girls and Boys Hostel are also located. There are 58 rooms for the boys, 19 rooms for the girls and 9 Staff quarters. There is an auditorium for the various cultural and academic activities.

## Shri Rajiv Gandhi Campus



The Rashtriya Sanskrit Sansthan established Rajiv Gandhi Kendriya Sanskrit Vidyapeetha as its constituent unit at Sringeri (Karnataka) on 13th January, 1992. The foundation stone for this Vidyapeetha was laid by His Holiness Jagadguru Sri Sri Bharati Teertha Mahaswamiji in the presence of His Excellency Sh. R. Venkataraman, the then President of India and Sri Arjun Singh, the then Minister of Human Resource Development, Govt. of India. In 2002, when Rashtriya Sanskrit Sansthan was declared as Deemed University, this Vidyapeetha has been considered as the Campus of Rashtriya Sanskrit Sansthan. This Campus is situated at Sringeri, Karnataka. Sringeri is holly place graced by the sages Vibhandaka Maharshi , Rushyashruna Maharshi and also famous for Sri Sharada Peetham established by Sri





## Vedvyas Campus

During the Golden Jubilee Year of India's Independence, the Rashtriya Sanskrit Sansthan established Kendriya Sanskrit Vidyapeetha at Garli in the State of Himachal Pradesh. It is now renamed as the Garli Campus of Rashtriya Sanskrit Sansthan ( Deemed University ). The campus is presently ocated in a rented building. However, the Government of Himachal Pradesh has allotted a suitable piece of land admeasuring 2-63-18 hectares at Village-Balahar, near Pragpur, Tehsil-Dehra, District – Kangra (H.P.). The first phase of constructions over this site, including administrative block, classroom and library will be completed by the end of this financial year 2010-2011. Students from all sections of society are imparted instructions of Prak Shastri at Interme-diate level and in the subjects of Sahitya, Jyotisha and Vyakarana at Shastri and Acharya levels. Research programme leading to the degree of Vidyavaridhi (Ph.D) is also offered. The subjects like Computer Education, Environmental Studies, Hindi, English and Histry are also taught as a part of the course.

Shankara Bhagavatpada. This campus got a piece of land 10.2 acres from Government of Karnataka which is 370 K.M. far away from Bengaluru, 110 K.M. far away from Mangaluru, 85 K.M. far away from Udupi, 110 K.M. far away from Shivamogga



## Bhopal Campus

The foundation stone of the main administrative building was laid by the then minister of MHRD Honorable Shri Arjun Singh ji on the date 19th September 2005 for the further development of the Campus. Then in the presence of then VC Prof. Radhavallabh Tripathi the newly built main building was named as the Vatsaraja Bhavan on the date 24.03.2010 i.e. Wednesday Ramnavami and all the campus activities were started in this Vatsaraja Bhavan from that day. At present in this Vatsaraja main building all the classes , laboratories , non formal classes , departmental libraries , correspondent open education centre , Natya shastra research centre, meeting hall and fully equipped auditorium are available. Along with these a systematic Vararuchi Grathagar (Central Library) and an air-conditioned Bhavabhuti Prekshagar (Auditorium) fully equipped with audio visual facilities too are available. In this buiding the guest room, teachers' room and rooms for the HODs are also given as per the rules. Apart from these a boys' hostel for 333 students, girls' hostel for 108 students, guest house, principal and employees residence have been provided in the campus.



## K.J. Somaiya Campus

K J SOMAIYA SANSKRIT VIDYAPEETHA is one of the Campuses of Rashtriya Sanskrit Sansthan (DU) which is located at Financial Capital Town, Mumbai. With rapid change and growth in Western culture and tradition here, the people are eager and wish to study Sanskrit for their 'Personality Development' and 'Mental Health' and for 'Peace cum Integration'. Especially, the scientific study of "Science in Sanskrit" with collaboration of Somaiya Trust, Mumbai University, IIT, Mumbai and BARC is the main motto and aim behind establishment of this campus. With the offer of allotting One Acre of land by SOMAIYA TRUST, Vidya Vihar and with the efforts of Sansthan in concern with Ministry of Human Resource Development, Govt. of India and on the recommendations of the committee vide decision taken on 31-03-2002 the Campus has started functioning on 16th May, 2002 and up to the construction of Campus building, the Somaiya Trust has provided their own accommodation. At present, Three Departments – Jyotisha, Sahitya, Vyakarana are running in this campus from Prak-Shastri (10+2) to Vidya-Varidhi (Ph. D.) level. Also, one Unit of Shiksha-Shastri (B. Ed.) professional course with the approval of NCTE has been running in this campus since the academic year 2006-07.



## Ekalavya Campus

To propagate Sanskrit throughout the nation Ekalavya Campus of Rashtriya Sanskrit Sansthan (Deemed University) is situated in Northeast, Agartala the capital of Tripura. With the blessings of the Supreme Goddess of Tripura Tripurasundari the Ekalavya started its journey in 2070 Bikram Sangbat in the month of Jeistha on the 11th day of fortnight of lunar month i.e. on 4th June, 2013 at Swami Vivekananda Mahavidyalaya, Agartala, Tripura. To promote Sanskrit in the Northeastern region of India this campus is working with bated breath. At present the campus is running its course at Old IASE building at Radhanagar near Bouddha Mandir given by the State Government of Tripura along with Administrative building, Academic block, Library, Girls hostel, Gymnasium, Playground, Psychology Lab and Language Lab. The main building of the Campus is under construction within an area measured 3.25 acre at Lembucherra, Tripura



## Shri Raghunath Kirti Campus

Shri Raghunatha kirti Adarsha Sanskrit Mahavidyalaya (Estd.1908), Devaprayaga, Uttarakhand was taken over by Rashtriya Sanskrit Sansthan on 16th June, 2016 as its 13th constituent Campus. Like the former Mahavidyalaya, the campus is also named after the famous ancient deity Shri Raghunathaji shrined in the ancient Raghunatha temple constructed in the Katyuri style of Katyuri dynasty of the mountains on the holy confluence of two important mythological rivers, namely, Bhagirathi and Alaknanda from where exactly the river Ganga is believed to be originated. The newly established campus now functions with five departments (Vyakarana, Jyotisha, Sahitya, Veda and Nyaya) and it runs in the earlier constructed limited space of the former Mahavidyalaya with around hundred students admitted to different classes of Prak Shastri, Shastri and Acharya level. Here the regular teachings to all the subjects are being imparted to those bonafied Students by fifteen well -versed teachers of different disciplines. Besides, the modern Subjects like Hindi, English, History and computer science etc. are also being taught along with traditional subjects up to graduation (Shastri) level.





# Vision & Mission

## Vision

Development of Central Sanskrit University as a world-class university for establishment of the glory of Sanskrit learning in the global context.

## Mission

All-round development of all the branches of Sanskrit learning and availability of Sanskrit resources through modern systems.

Upliftment of linguistic diversity and cultural plurality while arranging for teaching and research in Sanskrit, Pali and Prakrit in the context of their mutual cultural inter-relationship.

Preservation and upliftment of the philosophical and scientific elements in the knowledge systems of these languages and ensuring their availability through the equipments of information and communication technology while establishing the relationship of these knowledge systems with cultural legacy.



Map location of all campuses





## AUDIT PARTICIPANTS

On behalf of CSU

Name	Location/Campus
<i>Dr. Ramkrishna Pandey, Dr. Shyam Sunder Pandey</i>	<i>GANGANATH JHA CAMPUS</i>
<i>Prof. Satish Kapoor Dr. Yogendra Dixit</i>	<i>SHRI RANBIR CAMPUS</i>
<i>Dr. G. Suryaprasad</i>	<i>SHRI SADASHIV CAMPUS</i>
<i>Dr. Narayan</i>	<i>GURUVAYOOR CAMPUS</i>
<i>Dr. Manoj Shrimal Dr. Ganesh T. Pandit</i>	<i>JAIPUR CAMPUS</i>
<i>Prof. Dhanindra K. Jha</i>	<i>LUCKNOW CAMPUS</i>
<i>Dr. Ch. K. Padmanbham</i>	<i>SHRI RAJIV GANDHI CAMPUS</i>
<i>Dr. P.B. Subramanyam DR. Manish Jugran</i>	<i>VEDAVYAS CAMPUS</i>
<i>Prof. Nilabh Tiwari</i>	<i>BHOPAL CAMPUS</i>
<i>Dr. Kumar</i>	<i>K. J. SOMAIYA CAMPUS</i>
<i>Dr. Shivaramakrishna Simha Dr. G. Narasimhalu</i>	<i>EKALAVYA CAMPUS</i>
<i>Dr. Schidanand Snehi</i>	<i>SHRI RAGHUNATH KIRTI CAMPUS</i>

On behalf of EHS Alliance Services

Name	Position	Qualifications
<i>Dr. Uday Pratap</i>	<i>Lead-Auditor</i>	<i>Ph.D., PDIS, QCI – WASH, Lead Auditor ISO 14001:2015</i>
<i>Mr. Shamsher Kharab</i>	<i>Co-Auditor</i>	<i>M.Sc., M. Tech in Environment Sciences, Field Expert, Post Diploma in Industrial Safety Management</i>







## EXECUTIVE SUMMARY

The purpose of this Energy Audit was to seek opportunities to improve the energy efficiency of the CSU. Reducing the energy consumption despite improving the human comfort, health and safety were of primary concern.

Beyond just identifying the energy consumption pattern, this audit sought to detect and categorize the most energy efficient appliances. Additionally, some daily practices relating common appliances have been shared which may help reducing the energy consumption. Data collection for energy audit of the University was carried out by the EHS Alliance Team. The Energy Audit Report accounts for the energy consumption patterns of the University on actual survey and detailed analysis during the audit.

The work comprehends the area wise consumption traced using suitable equipment. The analysis was carried out by our team with the support of the staff members from CSU. The report provides a list of possible actions to preserve and efficiently access the available source, resources and their saving potential was also identified. We look forward towards optimization that the authorities, students and staff members would follow the recommendations in the best possible way. The report is based on certain generalizations including the approximations wherever necessary. The views conveyed may not reveal the general opinion. They merely represent the opinion of the team guided by the interviews of clients. We are happy to submit this Energy audit report to the CSU.





# ENERGY AUDIT ANALYSIS

## 1. ENERGY CONSUMPTION

To understand the Energy Consumption trends and for analyzing the average monthly consumption we have collected electricity energy bills from April 2021 to March 2022

The details of “**Meter Connection**” at “**CSU**” are as follows-

<b>Campus</b>	<b>Meter Connection Name</b>
<i>Ganganath Jha Campus, Allahabad</i>	<i>Principal – Kendriya Sanskrit Vidyapeeth</i>
<i>Shri Sadashiv Campus, Puri(Orissa).</i>	<i>Principal – Kendriya Sanskrit Vidyapeeth</i>
<i>Shri Ranbir Campus, Jammu (J &amp; K).</i>	<i>Principal – Kendriya Sanskrit Vidyapeeth</i>
<i>Guruvayoor Campus, Trichur (Kerala).</i>	<i>Principal – Kendriya Sanskrit Vidyapeeth</i>
<i>Jaipur Campus, Jaipur (Rajasthan).</i>	<i>Principal – Kendriya Sanskrit Vidyapeeth</i>
<i>Lucknow Campus, Lucknow</i>	<i>Principal – Kendriya Sanskrit Vidyapeeth</i>
<i>Rajiv Gandhi Campus, Sringeri (Karnataka).</i>	<i>Principal – Kendriya Sanskrit Vidyapeeth</i>
<i>Shri Vedvyas Campus, Balahar (H.P.).</i>	<i>Principal – Kendriya Sanskrit Vidyapeeth</i>
<i>Bhopal Campus, Bhopal (M.P.).</i>	<i>Principal – Kendriya Sanskrit Vidyapeeth</i>
<i>K.J. Somaiya Campus, Mumbai (Maharashtra)</i>	<i>Principal – Kendriya Sanskrit Vidyapeeth</i>
<i>Eklavya Campus, Agartala (West Tripura)</i>	<i>Principal – Kendriya Sanskrit Vidyapeeth</i>
<i>Shri Raghunath Kirti Campus, Devapryag *</i>	<i>Principal – Kendriya Sanskrit Vidyapeeth</i>

### 1.1 Summary of Monthly Electricity Consumption and Total Bill Amount

To understand the Energy consumption trend and for developing the baseline parameter we have collected monthly energy bill for the 12 months i.e. from July 2021 to June 2022

#### GANGANATH JHA CAMPUS

<b>Period</b>	<b>Units (KWH)</b>
<i>July</i>	<i>1000</i>
<i>Aug</i>	<i>1411</i>
<i>Sep</i>	<i>1817</i>
<i>Oct</i>	<i>1509</i>
<i>Nov</i>	<i>1828</i>
<i>Dec</i>	<i>227</i>
<i>Jan</i>	<i>227</i>
<i>Feb</i>	<i>1263</i>
<i>Mar</i>	<i>1463</i>
<i>Apr</i>	<i>946</i>
<i>May</i>	<i>2195</i>
<i>Jun</i>	<i>2085</i>
<i>Total</i>	<i>15971</i>

#### SHRI RANBIR CAMPUS



<b>Period</b>	<b>Units (KWH)</b>
<i>July</i>	14670
<i>Aug</i>	10000
<i>Sep</i>	10636
<i>Oct</i>	8436
<i>Nov</i>	6358
<i>Dec</i>	8476
<i>Jan</i>	10000
<i>Feb</i>	10000
<i>Mar</i>	10000
<i>Apr</i>	10000
<i>May</i>	10000
<i>Jun</i>	10000
<b>Total</b>	<b>118576</b>

#### SHRI SADASHIV CAMPUS

<b>Period</b>	<b>Units (KWH)</b>
<i>July</i>	3650
<i>Aug</i>	3650
<i>Sep</i>	3650
<i>Oct</i>	3650
<i>Nov</i>	3650
<i>Dec</i>	3650
<i>Jan</i>	3650
<i>Feb</i>	3650
<i>Mar</i>	3650
<i>Apr</i>	3650
<i>May</i>	3650
<i>Jun</i>	3650
<b>Total</b>	<b>43800</b>

#### GURUVAYOOR CAMPUS

<b>Period</b>	<b>Units (KWH)</b>
<i>July</i>	2809
<i>Aug</i>	4301
<i>Sep</i>	1439
<i>Oct</i>	586
<i>Nov</i>	805
<i>Dec</i>	174
<i>Jan</i>	2000
<i>Feb</i>	2000
<i>Mar</i>	2000
<i>Apr</i>	2000



<i>May</i>	2000
<i>Jun</i>	2000
<b>Total</b>	<b>22114</b>

#### JAIPUR CAMPUS

<b>Period</b>	<b>Units (KWH)</b>
<i>July</i>	6168
<i>Aug</i>	8175
<i>Sep</i>	13071
<i>Oct</i>	8265
<i>Nov</i>	16707
<i>Dec</i>	8479
<i>Jan</i>	9824
<i>Feb</i>	10241
<i>Mar</i>	10278
<i>Apr</i>	7976
<i>May</i>	5885
<i>Jun</i>	5647
<b>Total</b>	<b>110715.8</b>

#### LUCKNOW CAMPUS

<b>Period</b>	<b>Units (KWH)</b>
<i>July</i>	11915
<i>Aug</i>	10815
<i>Sep</i>	11415
<i>Oct</i>	10022
<i>Nov</i>	9332
<i>Dec</i>	11875
<i>Jan</i>	13608
<i>Feb</i>	11605
<i>Mar</i>	5993
<i>Apr</i>	16834
<i>May</i>	15146
<i>Jun</i>	18273
<b>Total</b>	<b>146833</b>

#### SHRI RAJIV GANDHI CAMPUS

<b>Period</b>	<b>Units (KWH)</b>
<i>July</i>	2763
<i>Aug</i>	3115
<i>Sep</i>	3904
<i>Oct</i>	5721
<i>Nov</i>	5401



<i>Dec</i>	4161
<i>Jan</i>	3273
<i>Feb</i>	3274
<i>Mar</i>	3735
<i>Apr</i>	4440
<i>May</i>	6788
<i>Jun</i>	6337
<b>Total</b>	<b>52912</b>

#### VEDAVYAS CAMPUS

<b>Period</b>	<b>Units (KWH)</b>
<i>July</i>	9556
<i>Aug</i>	13809
<i>Sep</i>	13960
<i>Oct</i>	11409
<i>Nov</i>	15657
<i>Dec</i>	6273
<i>Jan</i>	7253
<i>Feb</i>	13930
<i>Mar</i>	6219
<i>Apr</i>	10833
<i>May</i>	14242
<i>Jun</i>	12337
<b>Total</b>	<b>135478</b>

#### BHOPAL CAMPUS

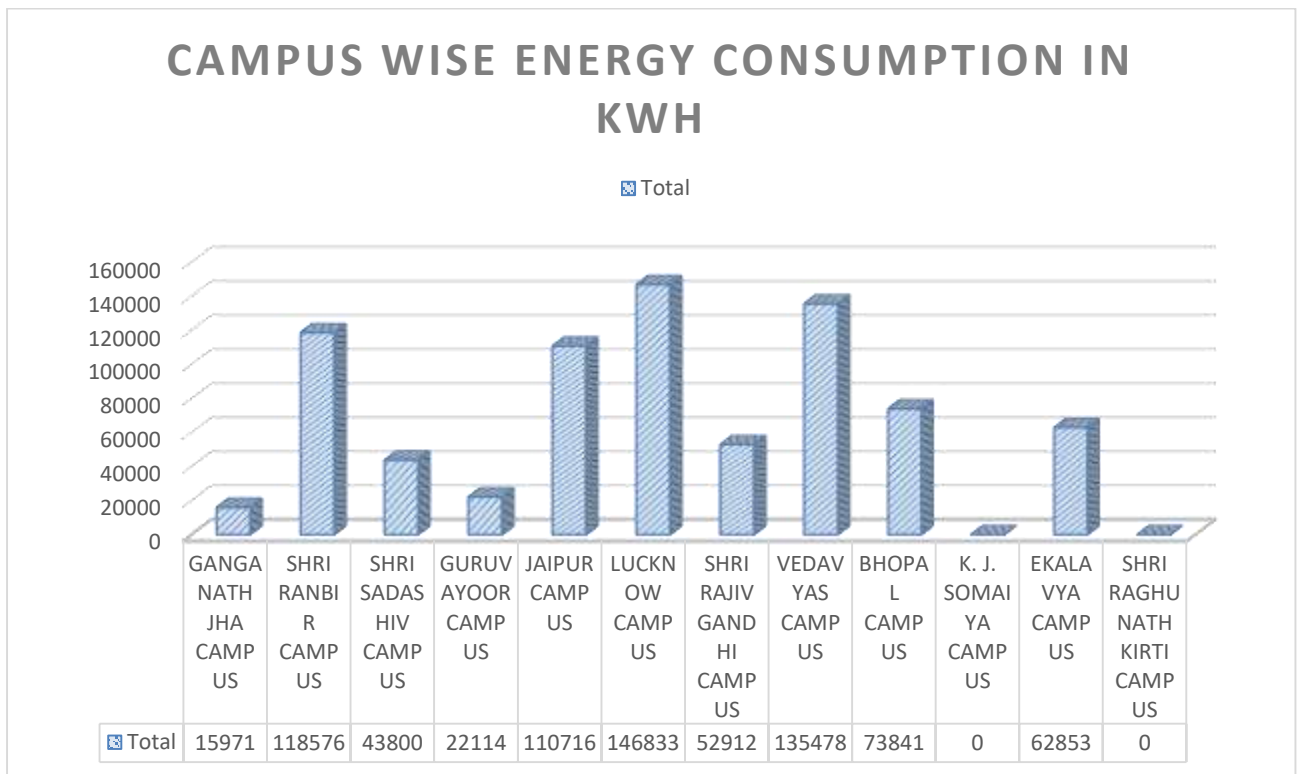
<b>Period</b>	<b>Units (KWH)</b>
<i>July</i>	6208
<i>Aug</i>	6168
<i>Sep</i>	6000
<i>Oct</i>	6049
<i>Nov</i>	6122
<i>Dec</i>	7166
<i>Jan</i>	8188
<i>Feb</i>	5543
<i>Mar</i>	6290
<i>Apr</i>	6300
<i>May</i>	4807
<i>Jun</i>	5000
<b>Total</b>	<b>73841</b>





**EKALAVYA CAMPUS**

<b>Period</b>	<b>Units (KWH)</b>
<b>July</b>	7398
<b>Aug</b>	7398
<b>Sep</b>	7398
<b>Oct</b>	7398
<b>Nov</b>	1260
<b>Dec</b>	1413
<b>Jan</b>	800
<b>Feb</b>	196
<b>Mar</b>	7398
<b>Apr</b>	7398
<b>May</b>	7398
<b>Jun</b>	7398
<b>Total</b>	<b>62853</b>

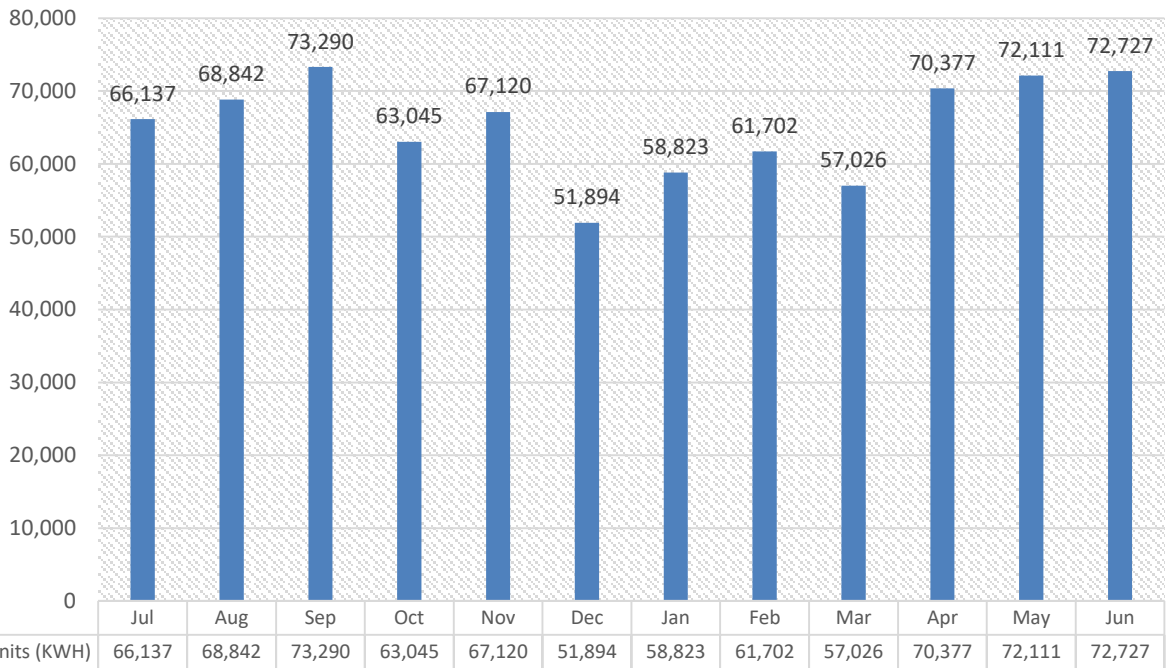


\*Shri Ragghunath Kirti campus is in construction phase, and no physical classes are going on, so data is shown as zero

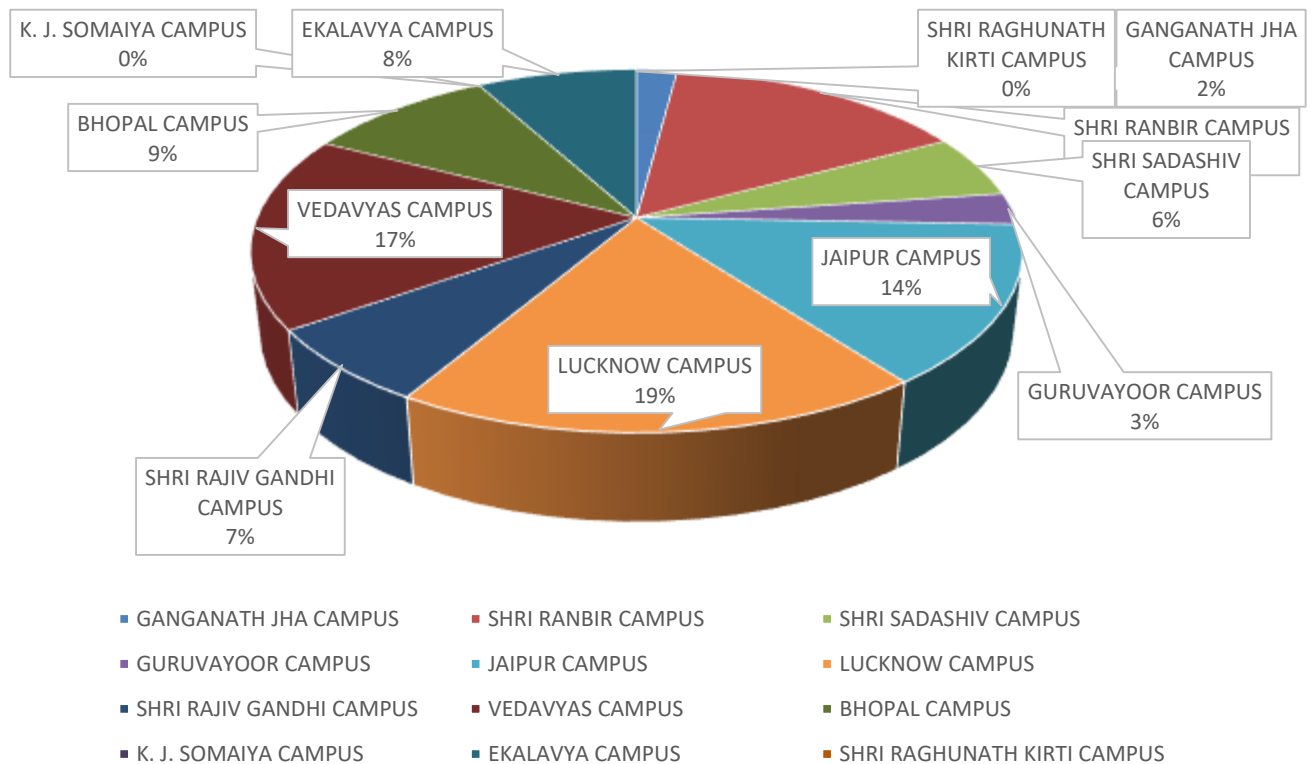
\*\*K. J. Somaiya Campus is sharing campus with other institution, and their electricity is managed by other institution.



## Total Monthly Consumption- July2021 to June2022



### Campus wise energy consumption (KWH)





## 2. DIESEL CONSUMPTION

Below is the diesel consumption details in litres from May 2021 to April 2022.

Period	Diesel consumption (in litres)
<i>Jul</i>	668.12
<i>Aug</i>	664.91
<i>Sep</i>	713.09
<i>Oct</i>	296.57
<i>Nov</i>	251.02
<i>Dec</i>	357.08
<i>Jan</i>	475.44
<i>Feb</i>	348.38
<i>Mar</i>	555.67
<i>Apr</i>	432.99
<i>May</i>	864.44
<i>Jun</i>	785.07
<b>Total</b>	<b>6412.78</b>

### DIESEL CONSUMPTION (LITRES) JUL. 2021 TO JUN. 2022

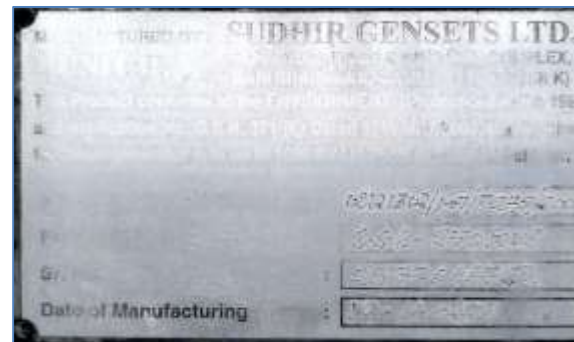
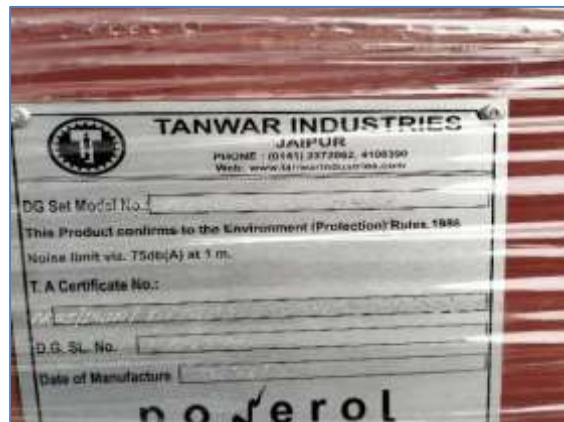




### 3. ANALYSIS OF DG SETS

In the University, there are 13 Diesel Generator (DG) sets for its electrical power needs in case of Grid power failure.

Campus Name	Count of DG Sets	KVA
<b>GANGANATH JHA CAMPUS</b>	1	125
<b>SHRI RANBIR CAMPUS</b>	1	82.5 + 82.5
<b>SHRI SADASHIV CAMPUS</b>	1	250
<b>GURUVAYOOR CAMPUS</b>	1	To be provided
<b>JAIPUR CAMPUS</b>	3	125 + 320 + 320
<b>LUCKNOW CAMPUS</b>	1	62.5
<b>SHRI RAJIV GANDHI CAMPUS</b>	2	62.5 + 62.5
<b>VEDAVYAS CAMPUS</b>	2	250 + 250
<b>BHOPAL CAMPUS</b>	1	125 KVA
<b>K. J. SOMAIYA CAMPUS</b>	0	NA
<b>EKALAVYA CAMPUS</b>	2	125 + 125
<b>SHRI RAGHUNATH KIRTI CAMPUS</b>	NA	NA





**Observation and Suggestions:-** As per the trial taken during the energy audit the average percentage loading of DG set is 66.28% which is ok and specific energy consumption of DG Sets 3.49 KWH/Litre which is satisfactory because as per manufacturer recommendation, best practices for SEC in DG sets range from 3.0 to 3.5 kWh/litre and above.





## 4. AC SYSTEM

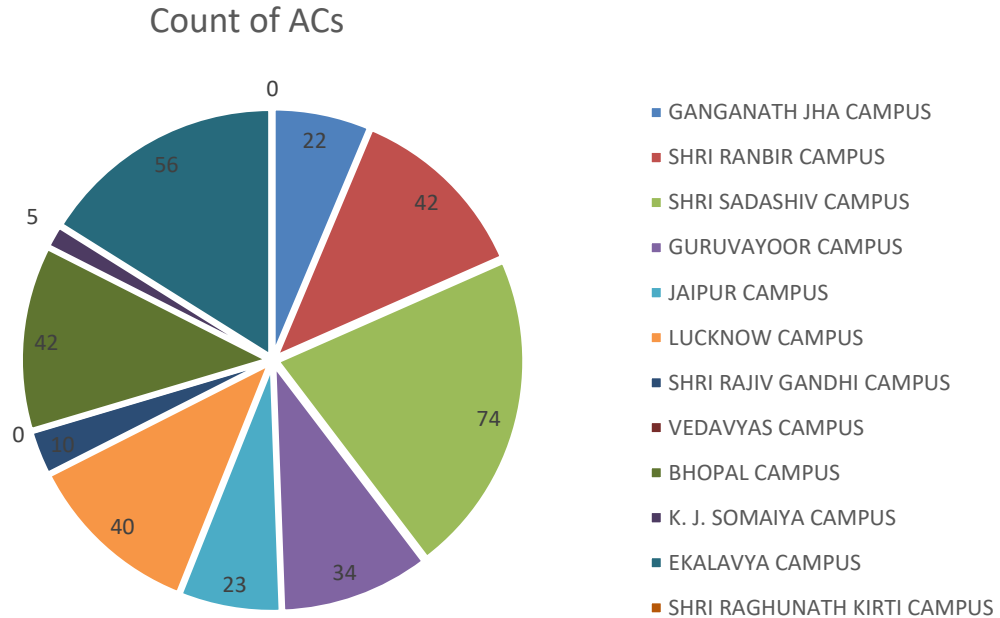
*Energy Efficiency Ratio (EER):* Performance of smaller chillers and rooftop units is frequently measured in EER rather than kW/ton. EER is calculated by dividing a chiller's cooling

Capacity (in Btu/h) by its power input (in watts) at full-load conditions. The higher the EER, the More efficient the unit. The cooling effect produced is quantified as tons of refrigeration (TR). The above TR is also called as air-conditioning tonnage.





There are Split ACs installed in CSU in various areas of various capacity which detail is given below:



Location	1.5 TR(Qty.)	2 TR (Qty.)	3 TR (Qty.)	4 TR (Qty.)	5 TR (Qty.)
<i>GANGANATH JHA CAMPUS</i>	22				
<i>SHRI RANBIR CAMPUS</i>	42				
<i>SHRI SADASHIV CAMPUS</i>	60	14			
<i>GURUVAYOOR CAMPUS</i>	34				
<i>JAIPUR CAMPUS</i>	23				
<i>LUCKNOW CAMPUS</i>	40				
<i>SHRI RAJIV GANDHI CAMPUS</i>	10				
<i>VEDAVYAS CAMPUS</i>					
<i>BHOPAL CAMPUS</i>	26	7	6	3	
<i>K. J. SOMAIYA CAMPUS</i>	5				
<i>EKALAVYA CAMPUS</i>	36	20			
<i>SHRI RAGHUNATH KIRTI CAMPUS</i>	NA	NA	NA	NA	NA

**Remarks:** - We have checked Energy Efficiency Ratio of AC's and EER of AC's is fairly OK. But in future we recommend CSU to purchase 5-Star rated inverter based split AC's because power consumption of Inverter based BEE 5-Star rated AC's is less than non-star rated AC's.



## 5. FAN ANALYSIS

In the CSU, 3368 Ceiling Fans, 104 bracket fan, 36 pedestal fans, and 33 wall fans are installed. The observation and suggestion are given below.

Location/Identification	Ceiling Fan-32W	Ceiling Fan-50W	Ceiling Fan-60W	Ceiling Fan-70W	Pedestal Fan	Bracket Fan	Wall Fan
GANGANATH JHA CAMPUS				38	6		
SHRI RANBIR CAMPUS				424	4	4	
SHRI SADASHIV CAMPUS				757	2		15
GURUVAYOOR CAMPUS		71				1	
JAIPUR CAMPUS		440	13		4		
LUCKNOW CAMPUS	235		93				
SHRI RAJIV GANDHI CAMPUS		313			5	56	
VEDAVYAS CAMPUS				199			
BHOPAL CAMPUS		14	35	478		6	18
K. J. SOMAIYA CAMPUS		36			15	5	
EKALAVYA CAMPUS	326			457		32	
SHRI RAGHUNATH KIRTI CAMPUS	NA	NA	NA	NA	NA	NA	NA
<b>TOTAL</b>	<b>561</b>	<b>874</b>	<b>141</b>	<b>2353</b>	<b>36</b>	<b>104</b>	<b>33</b>

### Observation and Suggestions:-

In the University, the majority of ceiling fans are of 70 W but BEE 5 Star Rated of 30W Ceiling Fans are present in the market. Therefore we suggest CSU to replace with BEE 5 Star rated fans of 30W.



*ECRM-1-Energy saving by replacing 70 W fans with energy efficient 30W ceiling fans*

<i>Total no of Ceiling Fans (70 W)</i>	=	<b>2353</b>	Nos.
<i>Total no of Ceiling Fans (60 W)</i>	=	141	Nos.
<i>Total no of Ceiling Fans (50 W)</i>	=	874	Nos.
<i>Total wattage of BEE 5 Star rated Fans (30W)</i>	=	101040	Watt
<i>Total saving in Wattage after replacement</i>	=	115830	Watt
<i>Operating hours per day</i>	=	8	Hours
<i>Operating days per annum</i>	=	200	Days
<i>Energy charges per unit in Rs.(average price)</i>	=	8	INR
<i>Saving in Rs./annum</i>	=	1482624	INR
<i>Investment INR</i>	=	10104000	INR
<i>Payback period:-</i>	=	6.81	YEARS

Note:- Energy saving will increase or decrease if operating hours of machine /equipment will be increase or decrease and payback period will also increase or decrease if cost of investment(Cost of machine/equipment/accessories of machine) will increase or decrease because cost of investment is taken on tentative basis.



## 6. ANALYSIS OF LIGHTING SYSTEM

### 6.1 Brief description of existing system

For assessing energy efficiency of lighting system, Inventory of the Lighting System has been noted / collected, with the aid of a lux meter, measurement and documentation of the lux levels at various locations at working level has been done.

### 6.2 Inventory of Lighting

Location/Identification	GANGANATH JHA CAMPUS	SHRI RANBIR CAMPUS	SHRI SADASHIV CAMPUS	GURUVAYOOR CAMPUS	JAIPUR CAMPUS	LUCKNOW CAMPUS	SHRI RAJIV GANDHI CAMPUS	VEDAVYAS CAMPUS	BHOPAL CAMPUS	K. J. SOMAIYA CAMPUS	EKALAVYA CAMPUS	SHRI RAGHUNATH KIRTI CAMPUS	TOTAL
200W-LED High Mast				????		505					69	NA	574
190W-LED High Mast					8							NA	8
60W LED										68		NA	68
60W LED Outdoor			12						5			NA	17
10W LED			33		155		117				179	NA	484
18W LED Light			309		365		9		749			NA	1432
12 W LED Round			115						551		627	NA	1293
36W LED (18+18)					853	149			954		315	NA	2271
72W LED			23									NA	23
18W LED Flood					90				4			NA	94
36W LED Flood		498			4		65		222			NA	789
17W LED			204						59			NA	263
20W LED			75						40		61	NA	176
100W-RGP Light			20				1					NA	21
160W-RGP 4 Feet Light		76			15							NA	91
20W LED-FOB Aly Side	172											NA	172
10W LED-FOB BSB Side		14										NA	14
20W LED Glow Shine		3				324						NA	327





10W LED Glow Shine		89									NA	<b>89</b>
160W LED-Shine Board		23									NA	<b>23</b>
150W LED Glow Shine		9									NA	<b>9</b>
100W LED-Shine Board		32									NA	<b>32</b>
9w Fancy Light		55	109		124						NA	<b>288</b>

### 6.3 Lux Measurement

Description	Lux	Remark
<b>Class Rooms</b>	120 to 235	Acceptable
<b>Offices</b>	130 to 240	Acceptable
<b>Corridors</b>	35 to 90	Acceptable
<b>Washrooms</b>	45 to 76	Acceptable
<b>Outdoor</b>	36 to 95	Acceptable
<b>Computer Lab</b>	150 to 289	Acceptable
<b>Parking area</b>	45 to 94	Acceptable
<b>Canteen</b>	69 to 185	Acceptable

### Observation

CSU has implemented LED based lighting solution in the campus. LEDs save energy, the life span is much greater and emit virtually no heat. The University has installed solar lights for street lights in the campus. CSU is doing their bit for the energy conservation.

Table below shows the performance characteristics comparison of all luminaries.

Table - Luminous Performance Characteristics of Commonly Used Luminaries					
Type of Lamp	Lumens/Watt		Colour Rendering Index	Typical Application	Typical Life
	Range	Avg.			



<b>Incandescent</b>	8-18	14	Excellent (100)	Homes, restaurants, general lighting emergency lighting	1000
<b>Fluorescent lamps</b>	46-60	50	Good w.r.t coating (67-77)	Offices, shops, hospitals, homes	5000
<b>Compact fluorescent Lamps (CFL)</b>	40-70	60	Very Good (85)	Hotels, shops, homes, offices	8000-10000
<b>High pressure mercury (HPMV)</b>	44-57	50	Fair (45)	General lighting in factories, garages, car parking. flood lighting	5000
<b>Halogen lamps</b>	18-24	22	Excellent (100)	Display, flood lightening, stadium exhibition grounds, construction areas	2000 - 4000
<b>High pressure sodium (HPSV) SON</b>	67-121	90	Fair (22)	General lighting in ware houses, factories, street lighting	6000 - 12000
<b>Low pressure sodium (LPSV) SOX</b>	101-175	150	Poor (10)	Roadways, tunnels, canals, street lighting	6000 - 12000
<b>Metal halide lamps</b>	75-125	100	Good (70)	Industrial bays, spot lighting, flood lighting, retail stores	8000
<b>LED Lamps</b>	30-50	40	Good (70)	Reading lights, desk lamps, night lights, spotlights, security lights, signage lights, etc.	40000 - 100000

## 7. OTHER POWER CONSUMPTION

<i>Location/Identification</i>	<i>Desktop</i>	<i>Laptop</i>	<i>Printers</i>	<i>Scanners</i>	<i>Servers</i>	<i>Other</i>
<b>GANGANATH JHA CAMPUS</b>	<b>34</b>		<b>10</b>	<b>3</b>	<b>3</b>	
<b>SHRI RANBIR CAMPUS</b>	<b>49</b>	<b>1</b>	<b>16</b>	<b>4</b>	<b>1</b>	
<b>SHRI SADASHIV CAMPUS</b>	<b>78</b>	<b>0</b>	<b>28</b>	<b>0</b>	<b>0</b>	<b>6</b>
<b>GURUVAYOOR CAMPUS</b>						
<b>JAIPUR CAMPUS</b>	<b>95</b>	<b>19</b>	<b>22</b>	<b>8</b>	<b>95</b>	<b>7</b>
<b>LUCKNOW CAMPUS</b>	<b>81</b>		<b>31</b>			<b>13</b>



SHRI RAJIV GANDHI CAMPUS	65	1	22	2	0	4
VEDAVYAS CAMPUS	57	2	5	2	2	3
BHOPAL CAMPUS	110	1	24	8		4
K. J. SOMAIYA CAMPUS	23	2	16	1		
EKALAVYA CAMPUS	71	1	22	2		
SHRI RAGHUNATH KIRTI CAMPUS	NA	NA	NA	NA	NA	NA
TOTAL	553	26	172	22	101	33

## Observation

There should be regular maintenance schedule of equipment like geyser, water coolers, pumps, etc. in order to increase the efficiency of the appliances.

## 8. CAPACITOR BANK

Location/ Identification	Capacity in KVAR
GANGANATH JHA CAMPUS	100
SHRI RANBIR CAMPUS	150
SHRI SADASHIV CAMPUS	515
GURUVAYOOR CAMPUS	200
JAIPUR CAMPUS	200
LUCKNOW CAMPUS	200
SHRI RAJIV GANDHI CAMPUS	210
VEDAVYAS CAMPUS	315
BHOPAL CAMPUS	200
K. J. SOMAIYA CAMPUS	NA
EKALAVYA CAMPUS	330
SHRI RAGHUNATH KIRTI CAMPUS	NA

\*\*\*\*\* END OF THE REPORT \*\*\*\*\*