



Chakan Shikshan Mandal's

# Arts & Commerce College, Chakan

Agarwadi Road, A/P. Chakan, Tal. Khed, Dist. Pune - 410 501



**3rd Cycle**

**Assesment and Accreditation**

**Criterion- VII**

**Institutional Values and Best Practices**

**KI :7.1.3 Institutional Values and Social Responsibilities**



CHAKAN SHIKSHAN MANDAL'S

## Arts & Commerce College, Chakan

Agarwadi Road, A/P. Chakan, Tal. Khed, Dist. Pune - 410 501

Affiliated to Savitribai Phule Pune University, (I. D. No. PU/PN/075-1989)

Website : www.csmaccc.com | Phone : 8087767451 | Email : csmaccc@rediffmail.com

Ref. No. CSMACCC / 214 /2022-23

Date : 20 / 06 /2023

### DECLARATION

This is to declare that the information, reports, true copies of the supporting documents, numerical data etc. submitted/presented in this file is verified by Internal Quality Assurance Cell ( IQAC) and is correct as per the records. This declaration is for purpose of NAAC accreditation of HEI for 3<sup>rd</sup> cycle period 2017-18 to 2021-22.

Date: 20 June 2023

Place: Chakan

  
Prof. Vikas Deshmukh  
Coordinator  
I.Q.A.C.  
Arts & Commerce College  
Chakan, Tal-Khed, Dist-Pune.



  
Dr. Rajesh Latane  
Principal  
C.S.M.'s Arts & Commerce College  
Chakan, Tal-Khed, Dist-Pune.

Principal,

**Dr. Rajesh Latane**

M. A. (English), SET, Ph.D.

Mob. : 9423327281, 7972698175

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7.1.3: Quality audits on environment and energy regularly undertaken by the Institution. The institutional environment and energy initiatives are confirmed through the following

## Energy Audit Report

### ENERGY AUDIT REPORT

Chakan Shikshan Mandal's  
**Arts and Commerce College Chakan,**  
Chakan, Tal- Khed, Dist- Pune Pin-410501



Respected by,  
K.K.Electrical Works,  
Plot No. 42, S.B. Patil College  
Ravet, Laxminagar, Pune-411044.  
Email- [sunilkashid110@gmail.com](mailto:sunilkashid110@gmail.com)





**ENERGY AUDIT REPORT**

Conducted by,

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*Principal*  
Principal  
C.S.M.'s Arts & Commerce College  
Chakan, Tal-Khed, Dist-Pune.

- **K.K. Electrical works, Pune** has been entrusted with the task of conducting the Energy Audit and Energy Management Study for the CSM's Arts and Commerce College, Chakan.. The field work and data collection were carried out in May 2023.
- This study encompassed the examination of the existing pattern of energy use in the college and identification of areas where energy and monetary savings could be achieved by employing suitable technique and economic measures.
- The report gives the details of observations of the team along with appropriate recommendations and supporting calculations. We hope that findings of the team will supplement the first of the management in bringing the energy consumption of the office to the lowest possible level.
- This report based on the present operating status of the office. The recommendations are based on various operational parameters examined by the team and the information supplied to the team by the management of the college.

**B. EXECUTIVE SUMMARY**

Assignment was conducted and the following areas have been covered in the study.

1. Electricity Bill
2. Distribution Network
3. DG Sets
4. Lights
5. Air Conditioning Load
6. Solar Power etc.

The summary of the observations and recommendations evolved out of the Energy Management Study of the College Building is given below:-

1. The Running Maximum Demand of the college varies is from 5KVA to 25 KVA.

As there are no inductive appliances the power factor is good which is varies from 0.92 to 0.99.

2. Lux level in the classroom at the entrance as well as in the classroom is well. LED tubes are used for lighting purpose.



*[Handwritten Signature]*

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3. 3 Motors are used for water supply.

- A. 2HP. 1no.
- B. 1HP 1 no.
- C. 2HP 1no
- D. 0.5HP 1no

**C1. STATUS OF THE COLLEGE BUILDING**

CSMs Arts and Commerce College is established in the year 1987. It imparts higher education in the field of Arts and Commerce. It is located at Agarwadi Road, Chakan, Tal-Khed. Dist-Pune. The college admits students from all social milieus and empowers them through intensive mentoring and counseling to face the challenges of life and become responsible and sincere sensitized citizens of the Nation.

**C2. Energy sources-**

Electricity is the major energy sources of the college. Electricity supplied by Maharashtra State Electricity Distribution Company Ltd. Diesel generators, invertors, Solar Plant for Power Generation during power cut.

**C3. Energy consumption-**

For the unit/College the applicable BSES electrical tariff is 73LT-VII B I. in two part i. e a fixed cost (Demand Charges) and unit (1100KVAH) rate. The average monthly unit consumption of the College.

**C5. DG Sets-**

There is one DG set of capacity 20 KVA installed in the college. There is hardly any power cut off so the running hour of DG set is very less.

**C. 6 Air Conditioning-**

In the college, there are three AIR conditioners to maintain comfort temperature in the office.

5×1.5Ton capacity split Airconditioners of Three star (MEPC)rating.



*Jal*  
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**SECTION 1 Electrical supply and Billings**

**1.1 Electrical Supply**

The college is getting electrical supply by the Maharashtra State Electricity Distribution Company Ltd. There is one 3 phase energy meter installed in the premises.

**Also One more meter is installed one single phase old energy meter which is not necessary. It should be disconnected.**

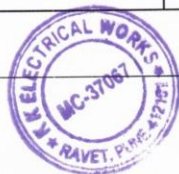
**1.2 Solar Net Meter (NET METERING)** of capacity 10.00KW is installed in the college premises.

Connection type: LT Connection, 3 phase 440 V, 50 HZ

For the purpose of voltage regulation **PARAM** make stablizer is installed in the college premises to get correct operating voltage to the electrical equipment.

The energy bill and unit consumption of electricity for last year is as below:

Moths	Contract Demand KVA	Sanctioned Load KW	Energy consumption KWH Units	Bill Amount
April 2023	2.00	12.00	167	1979.14
Mar 2023			339	3326.69
Feb 2023			767	6940.12
Jan 2023			1673	14589.11
<b>Dec 2023</b>			<b>1480</b>	<b>37399.69</b>
Nov 2022			1149	10165.19
Oct 2022			1237	10908.13
Sep 2022			1503	12622.14
Aug 2022			1416	11917.31
Jul 2022			1387	11682.35
Jun 2022			1442	12127.95
May 2022			557	4473.44



*[Signature]*  
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Total Units (KWH)=13112

**Average monthly Consumption=1093.083 say 1100 Units(KWH).**

Total Amount paid during the year

=Rupees **1,38,131.26**

The electrical connection for the college is LT, 3 phase, 440 V, 50HZ

The location of college .

**1.3 DISTRIBUTION NETWORK**

There is main electrical panel installed near the office. All the main distribution cables are going from the panel to the Buildings, Submersible Pump, Street lights etc.

Sub panels are installed in the buildings. There is a tapping on each floor from the raising mains.

During the study, it is observed that the conductor size is good according to ampere load. No any conductor was found over heated or its insulation burnt.

Adequate size of conductor is going to feed the utility area. So the distribution losses are within limits.

**1.4 DG SETS**

There is a DG set available in the college of capacity **20 KVA** for the generation of electricity.

As the power supply is very good in the area so the running hour of DG set is very less.

Start Time	Off time	Diesel Consumption	Unit Generated	Loading R Y B	KW Loading R Y B	Voltage	KWH/litre



*Principal*

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The operator may record the operating parameters of the set in the above manner in future.

From the above data management may calculate the units generated by the DG set in an hour and total diesel consumption. The units generated per litre of diesel consumed can hence be calculated on an hourly basis. Thereafter, the monthly figures can be calculated in the similar fashion.

**Section 2 Lights Air condition and Solar PV**

**2.1 Lighting**

The total lighting (luminary) load of the college is about 3 KW which includes fluorescent tubes 36w/40w, LED lights /20W/36W etc.

The LED lights is good from Energy efficiency point of view.

LED tube lights are also available in the market which is also good from Energy efficiency point of view. There are 10 numbers of street lights working on electrical supply but this should be connected with solar power and battery. These lights are switched on in the night with the help of timer.

During the study, tube lights were ON in the classroom and it was observed that lux level (240-320) was good.

**2.2. Air Conditioning Load**

In the unit, there are five number of ACs of capacity 1.5 tons of split type, 3 star rated units (MEPC) To maintain comfort temperature in the office.

It is recommended that whenever new split AC are being installed they should be of 5 star rating.

Energy consumption in star rated split type ACs is given as below:

S. No	Type of AC	Rated TR	Star	KW
1	Split	1.5	***	1.65-1.74
2	Split	1.5	***	1.65-1.74
3	Split	1.5	***	1.65-1.74
4	Split	1.5	***	1.65-1.74
5	Split	1.5	***	1.65-1.74



*[Signature]*  
Principal  
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Total connected load maximum demand of the college is calculated as under:

Sr. No	Equipment's	Capacity	Nos.	Total KW
1.	Tube LED, Bulb (Lighting)	20w each	61	1.22
2.	Fans	75 w each	47	3.525
3	Computers and laptops	200 w each	72	14.400
4	Printers	30 w each	10	0.300
5	Xerox Machine	100 w each	2	0.200
6	Street Lights	80 w each	10	0.800
7	Borewell Pump A . 2hp B. 1 hp C. 2 hp Submersible D.0.5hp		1 no. 1 no. 1 no.	Total 5.5hp= 5.5×0.746 =4.103KW  4.103
			Total	24.548 KW

Total maximum connected load demand=24.548KW

Maximum Load Demand = 25KVA (Power Factor assumed to be 0.9)

All load is supplied Maharashtra State Electricity Distribution Company Ltd and SOLAR PV system.

#### SOLAR POWER GENERATION

There is a solar photovoltaic (SPV) unit for power generation with capacity 12 KVA (10KW).

The SPV is connected with the LT supply with some relay /sensor which keeps sensus of electrical supply. When there is no electrical supply, the SPV will generate electricity. When there is electrical supply the SPV will not generate electricity also SPV will not generate electricity when there is electrical supply of DG set.



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The best use of **SPV** is to put all lighting, exhaust fan load, fan load etc. on it. Some intelligent relay/ sensor need to install for better management. The energy metre should also be calibrated by third party once in a year or 2 years. This way the **SPV** will continue supply even there is utility supply available or not and it will also help in saving a substantial amount in the electricity bill. It was also observed that electrical data like daily, weekly, monthly units generated by **SPV** are not recorded in the register or in a soft copy. College has installed **Net Metre**

**Advantages of net metering:**

**1. Financial benefit for the system owner**

Since the system owner is charged for the net energy consumed from the utility grid, the owner gets financial benefits.

Eg. If energy generation < energy consumed: owner pays just for the net amount.

If if energy generation is greater than energy consumed : the owner gets credit for excess generation.

**2. Avoid the use of batteries**

In the grid connected solar PV system any excess energy generated can be fed back to the local utility grid and can be taken back at later stage when required.

Thus, there is no need to store the surplus energy in batteries for later use, thus avoiding the heavy costs of batteries. Also since batteries are eliminated, the maintenance cost of the system also reduce to great extent batteries may be required only when there is frequent power fluctuations/ outtages.

**3. Produce more today, use that tomorrow**

If there is a surplus of power generation than the consumption, the surplus can be fed into grid system and if consumption increases, it can be taken from the grid.



  
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Principal  
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For K. K. Electrical Works



Proprietor



## K.K.ELECTRICALS WORKS

Reg. No. MC37067

S R No.110/3, Behind SB Patil, School Plot 42, Rawet Pune 412101 Mob. 7875244200 / 9850661524

Ref :

Date : 10/05/2023

### CERTIFICATE

This is to certify that we have conducted Energy Audit at Chakan Shikshan Mandal's Arts and Commerce College, Chakan, Tal.- Khed, Dist.- Pune.

The College has adopted following Energy Efficient practices:

- Usage of Energy Efficient LED Fittings.
- Usage of Energy Efficient Multi Brand equipment.
- Maximum usage of Day Lighting

Installation of 10 KWP Roof Top Solar PV Plant

We appreciate the support of Management, involvement of students in the process of making the Campus Energy Efficient. Date on 10<sup>th</sup> May 2023.

For

K.K.Electrical Works,  
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For K. K. Electrical Works  
*Kashid*  
Proprietor





## K.K.ELECTRICALS WORKS

Reg. No. MC37067

S R No.110/3, Behind SB Patil, School Plot 42, Rawet Pune 412101 Mob. 7875244200 / 9850661524

Ref :

Date : 10/05/2023

### ACKNOWLEDGEMENT

We **K.K. Electrical Works Pune** express our sincere gratitude to the Management of Chakan Shikshan Mandal's Arts and Commerce College, Chakan, Tal.-Khed, Dist.-Pune for awarding us the assignment of Energy Audit of their Campus for the Year 2022-23

We are thankful to The Management Members and all Staff Members of the college for helping us during the field Study.



K.K.Electrical Works,  
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Ravet, Laxminagar, Pune-411044.  
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For K. K. Electrical Works

*Sunilkashid*  
Proprietor

(सा.म.मु.) इंडो २०४० (५,०००-२-२०१७)

[सा.नि.सा.बा.वि.क्र. ६४०-२७, दि. १५-११-१९३४]

[विशेष-परि. ८ अ]

अनुज्ञप्ती क्र. म. ठे. ३००६०



सत्यमेव जयते

महाराष्ट्र शासन

उद्योग, ऊर्जा व कामगार विभाग

अनुज्ञापक मंडळ

## विद्युत ठेकेदारांना अनुज्ञप्ती

(शासन निर्णय, उद्योग, ऊर्जा व कामगार विभाग, क्र. सी सी आर-२०१५/प्र.क्र.३५१/ऊर्जा-२, दिनांक २४ जुलै २०१५ अन्वये प्राधिकृत.)

सर्वश्री/श्री./मे. ~~के.के. इलेक्ट्रीकल वर्क्स, पुणे~~ यांना शासन निर्णयानुसार उद्योग, ऊर्जा व कामगार विभाग, क्र. सी सी आर-२०१५/प्र.क्र.३५१/ऊर्जा-२, दिनांक २४ जुलै २०१५ खाली महाराष्ट्र शासनाने प्रसिद्ध केलेल्या नियमातील शर्तीच्या अधीन राहून महाराष्ट्र राज्यात विद्युत संचमांडणीचे काम करण्याकरिता याद्वारे प्राधिकृत करण्यात येत आहे.

विद्युत निरीक्षक यांचे कार्यालय  
(सचिव, अनुज्ञापक मंडळ व उद्वाहन निरीक्षक)  
उद्योग, ऊर्जा व कामगार विभाग, प्रशासकीय इमारत,  
तिसरा मजला, रामकृष्ण चेंबुरकर मार्ग,  
चेंबूर (पूर्व), मुंबई ४०० ०७१.  
दिनांक : १८/०८/२०१८

अध्यक्ष,  
अनुज्ञापक मंडळ.

सचिव,  
अनुज्ञापक मंडळ.

नुतनीकरण दिनांक	समाप्ती दिनांक	सचिवांची आद्याक्षरी	नुतनीकरण दिनांक	समाप्ती दिनांक	सचिवांची आद्याक्षरी
१८/०८/२०१८	१७/०८/२०२१		/ /२०	/ /२०	
१८/०८/२०२१	१७/०८/२०२४		/ /२०	/ /२०	
/ /२०	/ /२०		/ /२०	/ /२०	
/ /२०	/ /२०		/ /२०	/ /२०	

For K. K. Electrical Works

Proprietor



Principal  
C.S.M.'s Arts & Commerce College  
Chakan, Tal-Khed, Dist-Pune.



(शा.म.मू.) इंडो १८५३ (५,०००-११-२०१५)  
शा.नि.सा.वां.वि.क्र. ६६०-२७ दि. १५-११-१९३४

सूट विलेख

विद्यार्थ-पॉर ६ मू

प्रमाणपत्र क्र. म. प. ५५००२



सत्यमेव जयते

महाराष्ट्र शासन

उद्योग, ऊर्जा व कामगार विभाग

अनुज्ञापक मंडळ

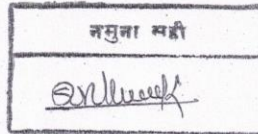
## विद्युत पर्यवेक्षकाचे क्षमता प्रमाणपत्र

( शासन निर्णय, उद्योग, ऊर्जा व कामगार विभाग, क्र. सीसीआर-२०१५/प्र.क्र. ३५१/ऊर्जा-२  
दिनांक २४ जुलै २०१५ अन्वये प्राधिकृत )

श्री. सुनिल तानाजी काशिद  
हे त्यांच्या अर्हतांच्या आधारे पर्यवेक्षकांची विहित परीक्षा देण्यापासून सूट मिळविण्यास पात्र आहेत याविषयी अनुज्ञापक मंडळाचे समाधान झाल्यावरून त्यांना याद्वारे हे क्षमता प्रमाणपत्र देण्यात येत आहे.

अनुज्ञापक मंडळ  
उद्योग, ऊर्जा व कामगार विभाग  
सार्वजनिक बांधकाम  
प्रशासकीय इमारत, ३ रा मजला  
रामकृष्ण चेंबूरकर मार्ग, चेंबूर (पूर्व),  
मुंबई ४०० ०७१  
दूरध्वनी क्र. ०२२-२५२८ ५९६७

दिनांक : १०/५/२०१६



अध्यक्ष,  
अनुज्ञापक मंडळ

सचिव,  
अनुज्ञापक मंडळ.

For K. K. Electrical Works


Proprietor




Principal  
C.S.M.'s Arts & Commerce College  
Chakan, Tal-Khed, Dist-Pune.



Environment Audit Report



स्वातंत्र्याचा अमृत महोत्सव  
"वृक्षवल्ली आम्हा सोयरे वनचरे"  
Email ID: rforajgurunagarmap@gmail.com



महाराष्ट्र शासन  
वनविभाग

वनपरिक्षेत्र अधिकारी राजगुरुनगर (भवका)  
स्थित चाकण यांचे कार्यालय  
माणिक चौक, चाकण - शिक्रापुर रोड, चाकण,  
ता. खेड, जि. पुणे - 410501.

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जावक क्र./आखात 2082 सन 2022-23, चाकण 410501 दिनांक - 17/10/2023

**Environmental Audit**  
**Green Audit Report**  
CSM's, Arts and Commerce College, Chakan  
2022-23

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**Introduction**

It is advisable to get green audit of a place before starting any particular activity on that place. The effect of such activity can be of many folds and may be positive or negative in terms of environmental health. For example, release of toxic gases can have hazardous effects on surrounding flora and fauna. The plantation on the site can help restoring degrading ecosystem. Any teaching institute by enlarge has less environmental impact as compared to a manufacturing industry. Any human activity has some impacts on its biotic and abiotic environment. It also modifies social and cultural environment through its various projects and activities. This impact can be negative or positive. Environmental Audit takes into consideration historical aspects of biotic, abiotic, social and cultural environment. The Impacts of the activity on this land, in short, affects the land. Depending on reports of environmental audit, measures can be taken to reduce negative impacts and proactive measures to maintain existing biodiversity, soil quality and quantity, rain water harvesting and maintaining healthy social and cultural environment.

**Historical Perspective**

CSM's Arts and Commerce College, Chakan is established in 1986 on an arid scrub land ecosystem by constructing few RCC buildings and clearing a land patch to make playground. It has few medium sized trees, few shrubs, annual herbs and climbers. There are patches of large boulders with associated herpetofauna. This plot is surrounded by agricultural land. There is significant gradient to this plot with free run-off of rain water carrying top soil into a canal. No cultural resources like temple, monument or archaeological site are identified on this land.

**Land use change**

The college acquired this plot and constructed few RCC structures like offices, classrooms, playgrounds and a canteen. For the construction activity local stones are used. The playground is levelled with removal of boulders and a little harm to existing ecosystem.

**Benefits of Green Audit:**

If Green Audit is enforced in an effective way then there are many advantages. It gives us detailed information of available flora and fauna, historical data about biodiversity, any impact of the activity carried on the campus on biodiversity and if this impact is negative then possible remedial measures can be taken to correct it. It may be recognized the cost saving methods through waste minimizing and managing. It way point out the prevailing and forthcoming complications authenticate conformity with the implemented laws, empower the organizations to frame a better environmental performance. It portrays a good image of a the institute which helps building better relationships with the group of stakeholders.

The team of experts: Visited the site on 17/10/2023 and noted the details as follows.

**Description:**

**A) Area**

- 1. Total area of the campus: 5.25 Acres
- 2. Build up area: 17920 Sq. Ft.

**B) People**

- 1. Number of Student: 729 Students
- 2. Number of Permanent Staff: 11
- 3. Number of Temporary Staff: 04

**C) Water Audit**

1. Sources: Nagarpanchayat water connection, three bore wells, rainwater-harvesting [5000+3000sq feet roof area on two main buildings]. Run off this water is used for bore well recharge. Water purification plant is erected and is operational. No pollutants are released in drain water from the college campus.

2. Month wise consumption in Litters: 25,000 litres. to 35,000 litres. [Approximately]

3. Purpose wise-consumption per month:  
 Drinking: 10,000 litres.  
 Gardening: 8,000 litres.  
 Toilet: 12,000 litres.

4. Total storage capacity: 35,000 litres.

5. Purification methods: Water Purification Plant (5 Outlets)

6. Water quality testing reports: Attached

7. Methods used for rain water harvesting: Collection of roof water and refilling the bore wells, Conservation of water by building bund.

8. Practices followed to save water: Campaigning among the staff and students for the awareness regarding conservation of water, storing available rain water and recycling of used water. During the visit no inadvertent losses of water through leaking pipes, faulty taps or evaporation loss of stored water was noticed. Covered potable water is not discarded every day. Maintenance of pipes and taps is done. Dual mode flush tanks are used.

**D) Air**

There are no polluting industries, traffic (bus, train hubs) nearby. There is no unpleasant odour / smog in the air. No dust or any apparent particles in air are hampering the visibility on the campus. Air quality testing on the site is not done, however we observed presence of LICJHENS on tree trunks (epiphytes) and on the rocks [lithophytes] which are good indicators of no or minimal air pollution.

**E) Soil**

Soil testing for physical nature and chemical composition has not been done. Good amount of top soil is seen on the area under study. Tree plantation with different species was observed. Existing trees and shrubs were kept undisturbed. except for the construction area. Boulders are used to construct a bund at lower slopes to prevent soil erosion. More bundings are also proposed at different levels.

**F) Waste Disposal Audit**

Being an Arts and Commerce college there is no biological chemical waste from laboratories. No hazardous waste is generated.

Biodegradable waste is collected and processed in a bio-composting pit of 12x10x8 feet. Mainly leaf litter is disposed in this pit. Compost is used as manure for the plants. Paper is a major source of waste. The waste papers are given to paper scrap dealer for recycling. Non-degradable waste like plastic, rubber, thermocol, glass, metals etc. are given to scrap dealer for recycling. A well-equipped computer lab is setup in the college. An MoU has been signed with an authorised e-waste management company. Good awareness of use of all papers before disposing was noted among the staff. One Sided blank



papers are used to take print outs for office use. No tissue papers or toilet papers are being used on the campus.

**G) Energy Audit:**

College activity is mainly dependent of electricity as source of energy. All classrooms are well lit with natural light. They are well ventilated, minimizing use of artificial lighting and fans.

As an alternative source of energy solar system, diesel generator, battery inverters are used.

Methods and practices used for electrical energy conservation by the college are: Switch off unwanted electrical appliances

Installed only necessary electrical lights and gadgets

Use of energy efficient appliances like LED lights

No use of artificial lighting during the day

There is use of natural light and wind in classrooms and office spaces, sufficient natural light and ventilation in classrooms. Solar Energy Plant of the capacity of 10KVA is installed for the generation of electricity.

**H) Natural Environment**

**Flora:**

Dry deciduous trees, patches of conglomeration of large boulders, scrubs and rocky outcrops with associated flora and fauna is the overall composition of ecosystem. It was not possible to enumerate faunal species during one visit, however, those encountered during this visit and few from the observations of accompanying members of the staff are enlisted. Similarly ephemeral (short live% seasonal) plant species could not be recorded during this visit, from previous available data; approximately 360 species of plants are recorded on the campus.

Plant species (trees, shrubs, climbers and non-flowering plants) recorded during site visit are as follows:

- Ziziphus mauritiana (Bor)
- Holoptelia integrifolia (Wawal)
- Ailanthus excelsa (Maharukh)
- Wattakaka volubilis ( Harandudi)
- Limonia acidissima (Kavath)
- Opuntia sp (Fadya nivdung)
- Abrus precatorius (Gunj)
- Dalbergia lanceolaria ( Phansfi)
- Santalum album (Chandn)
- Phoenix sylvestris (Shindi)
- Ziziphus caracutta (Ghatbor)
- Cadaba fruticosa (Kadaba)
- Cassia auriculata (Tarwd)
- Capparis grandis (Pachunda)
- Casuarina equisetifolia (Khadasherni)
- Polyalthia longifolia (Asupalav)
- Emblica officinalis (Awqla)
- Artocarpus heterophyllus (Fanas)
- Azadirachta indica (Kadulimb)
- Cassia siairieâIKâShid)
- Plumeria rubra (Chafa)
- Mangifera indica (Amba)
- Terminalia catappa (Khota Badam)
- Tamarindus indica (Chinch)
- Melia azadirachta (Bakan nimb)



Flueggea leucopyrus (Pandharphali)  
 Araucaria heterophylla (Christmas tree)  
 Ricinus communis (Erand)  
 Michelia champaca (Sonchafa)  
 Neolamarckia cadamba (Kadamb)  
 Bauhinia variegata (Kanchan)  
 Ficus benghalensis (Wad)  
 Ficus religiosa (Pimpal)  
 Delonix regia (Gulmohar)  
 Inga dulce (Vilayati chinch)

Multiple shrubs, herbs, climbers and few grasses were recorded. Lichen was seen on tree trunks and rocks, mainly in the undisturbed patches in the campus, Invasive species like Parthenium histeroforus (Congress grass), Lantana camara and Eupatorium triplinerve were recorded in mixed patches of undergrowth.

**Fauna:**

A large portion of the land is kept undisturbed, without any construction human activity. Reference ecosystem fauna are richly represented by herpetofauna, avifauna, Insects and arachnids. Small mammals like rodents are naturally found on the campus. There are projects to attract birds, butterflies and other insects like installing artificial bird's nests, and insect and bird friendly plantations. List of animals visiting or resident in the campus e.g. dogs, cats, cattle, cobra, russell viper, rat snake, monitor Skink, common civet, and termites. Birds like crow, house sparrow, common drongo, white throated kingfisher, purple sunbird , common shrike, black kite, magpie robin Indian robin, common myna, small green bee eater, spotted dove, red vented bulbuls, red whiskered bulbul and iora were spotted during the site visit.

**I) Environment Education & Awareness**

Environmental education is a part of the syllabus. Environment awareness programmes are also conducted in the college to sensitize staff as well as students about nature conservation and conservation of natural resources. The College has a nature club and trekker's club, which is run by the staff and students.

**1) Carbon Accounting:**

CO<sub>2</sub> or CO production on the campus and CO<sub>2</sub> sequestered by the plants should be equal for ideal environmental condition. Other than burning of confidential papers, there is no major source of CO<sub>2</sub> production on the campus. There is sufficient vegetation on the plot to sequester this CO<sub>2</sub>.

**Socio-Cultural Environment Audit:**

There are several social and cultural events organised by the college for the staff members and students like Sports, street plays, Film screenings, literature fests At least two events are organised per month. This helps in building social and cultural bonding which boosts positive working atmosphere among the participants.

There are different sports events take place on the college ground which build team spirit and maintain physical fitness of the students.

No tobacco zone is strictly followed on the campus

**Suggestions/Remedial measures**

Few observations during site the visit compelled give certain suggestions which will help in maintaining and improving environmental health of your Institute.

1. The trees which are planted are mainly like Ashok (Asupalav) , Suru (Khadsherani), Kashid, Gulmohur, Vilayati chinch. However few indigenous plant species like Kadamb, Kanchan and few ficus species have been planted
2. Bunding with local boulders should be done as early as possible to stop top soil erosion by rain water runoff from higher gradient to lower gradient. Two locations for this bunding were identified during the site visit.
3. Instead of burning, confidential papers can be shredded in the machine and then given for recycling.
4. Awareness about good diet and nutrition can be increased by lectures by the experts which can help the students to get rid of malnourishment and related ailments.
5. Environment awareness can be increased by organising seminars and talk by experts on the campus.
7. More boards displaying tobacco should be placed as the law.
8. This can be achieved by less CO<sub>2</sub> production by not burning any organic waste in the campus and planting maximum possible plants. Broad leaved plants have mote capacity absorb polluting gases and produce more oxygen during photosynthesis. Lawns consume lot of water and produce relatively less Oxygen.
9. Trees in the campus can have name plates with brief information to create awareness and interest about flora

### Conclusion

The Green Audit (Environmental Audit) of CSM's Arts and Commerce College, Chakan was conducted on the site on 17/02/2023 as per the request of Prin. Dr. Rajesh Latane. Mr. Yogeshji Mahajan Sir, RFO, Rajgurunagar (MAP), carried out the audit. Mr. Atul Savakhande Sir, Prin. Dr. Rajesh Latane, Prof. Dr. Shivaji Shelke, Prof. Vikas Deshmukh, Prof. Dr. Rajendra Rasal, Mr. Aniket Kadam and the trustee of CSM Hon. Shri. Motilalji Sankla Sir and Dr. Avinashji Argade Sir accompanied the team and gave valuable inputs.

By and large teaching institutes have less negative environmental impact of their overall activities and positive cultural and social impact.

As the college is constructed on rural and agricultural land we found quite rich floral and faunal diversity with few rare plant species. Part of the plot has original vegetation representing reference ecosystem. It is also rich in herpetofauna as evident from rat snake sighting during our visit.

Large area of the college plot is without any construction or manmade activity with minimum impact on existing ecosystem.

Many cultural, social, sports activities are conducted in the college. There are regular awareness programmes on nature and environment awareness are organised in the college.

With few changes in the existing operational practices CSM's Arts & Commerce College, Chakan, can be an ideal role model for any educational institute.



Signature and seal

Mr. Yogesh S. Mahajan  
Range Forest Officer  
Rajgurunagar (MAP) at Chakan  
Dist.- Pune Maharashtra 410501





स्वातंत्र्याचा अमृत महोत्सव  
"वृक्षवल्ली आम्हा सोयरे वनचरे"

Email ID: rforajgurunagarmap@gmail.com



महाराष्ट्र शासन  
वनविभाग

वनपरिक्षेत्र अधिकारी राजगुरुनगर (भवका)  
स्थित चाकण यांचे कार्यालय  
माणिक चौक, चाकण - शिक्रापुर रोड, चाकण,  
ता. खेड, जि. पुणे - 410501.

जावक क्र./अक्षय 2081 / सन 2022-23,

चाकण 410501 दिनांक - 17/02/2023

Memorandum of Understanding

Between

Chakan Shikshan Mandal's  
Arts and Commerce College Chakan Tal- Khed Dist- Pune Pin- 410 501  
(Hereafter mentioned as the College)

And

Range Forest Office  
Government of Maharashtra  
Chakan - Shikrapur Road, Manik Chowk,  
Chakan Tal- Khed Dist-Pune Pin 410501

This Memorandum of Understanding is signed between the above two parties with the following objectives.

Objectives

- To create awareness about environment protection among the students and citizens by organising various activities
- To organise activities like tree plantation within the college campus and outside the college campus.
- To create awareness regarding Leopard-Man conflict among the students and the Staff.
- To create awareness regarding the safety of the students from the reptiles like poisonous snakes, non-poisonous snakes and other hazardous elements.
- To create awareness among the students regarding controlling air pollution, water pollution and soil pollution.
- To acquaint the students with their duties and responsibilities regarding forest laws
- To conduct environment audit of the college campus and make the stakeholders aware of the shortcomings if any.
- To organise activities, like poster making, essay writing, elocution, debating street play etc. regarding the environment protection and its awareness.

Plan of action

The two parties signed this Memorandum of Understanding are bound to fulfil the objectives mentioned above by organising seminars, lectures, workshops and the activities like poster making, essay writing, elocution, debating, street play, etc.

For the conduct of environment audit, the Range Forest Office, Chakan will take an initiative and visit the college campus with the expert team. They will make the analysis and interpretation of the information they get on the site. They will give the suggestions for the betterment of environment and ecology in the campus.

This memorandum of understanding shall be in effect from 17/2/23 up to the duration of Six years since the date of signing it.

Prin. Dr. Rajesh Latane  
CSM's Arts and Commerce College,  
Chakan, Tal.- Khed,  
Dist.-Pune 410501



Mr. Yogesh S. Mahajan  
Range Forest Officer  
Rajgurunagar (MAP) at Chakan  
Dist.- Pune Maharashtra 410501

Witness

- Sawakhaude A.B. [Signature]
- Dr. Shirgji Shelake [Signature]