Shetkari Shikshan Prasarak Mandal's

Krishna Mahavidyalaya, Rethare Bk

IQAC 2019-2020

ACTIVITY REPORT
PHYSICS DEPARTMENT

IQAC ACTIVITY No:

NAME OF THE ACTIVITY: Field Project at "Yashwantrao Mohite Krishna Sahakari Sakhar Karkhana ,Rethare Bk."			
DATE	**FACULTY**	**DEPARTMENT/COMMITTEE**	**COORDINATOR NAME**
08 February 2020	Science	Physics	Dr. Dhanaji S. Dalavi
TIME	**VENUE**	**NUMBER OF PARTICIPANTS**	**NATURE: Outdoor/Indoor**
8.00 to 2: 00 pm	Yashwantrao Mohite krishna Sahakari Sakhar Karkhana ,Rethare Bk.	14 students + 05 faculty	outdoor
SUPPORT/ASSISTANCE:	Nil		

BRIEF INFORMATION ABOUT THE ACTIVITY (**CRITERION NO. -**):

TOPIC/SUBJECT OF THE ACTIVITY	**Field Project at "Yashwantrao Mohite Krishna Sahakari Sakhar Karkhana , Rethare Bk."**
OBJECTIVES	to reinforce experiential and contextual learning and to enhance classroom learning by making real world connections.
METHODOLOGY	Plant visit
OUTCOMES	Students got a great opportunity to get exposure to the details of the sugar manufacturing technology and bagasse-based power generation technology which are not usually visible, by observing the machinery and equipment

PROOFS & DOCUMENTS ATTACHED (Tick mark the proofs attached):

1. Notice & Letters	2. Student list of	**3. Activity report**	**4. Photos**	5. Feedback form
6. **Feedback analysis**	7. News clip with details	8. Certificate	9. Any other	10.

IQAC CELL ACTIVITY NUMBER:

NAME OF TEACHER & SIGNATURE	NAME OF HEAD/ COMMITTEE INCHARGE & SIGNATURE	PRINCIPALS SIGNATURE	IQAC COORDINATOR (SEAL & SIGNATURE)
Dr. Dhanaji S. Dalavi	Dr. Dhanaji S. Dalavi		

HEAD
DEPARTMENT OF PHYSICS
KRISHNA MAHAVIDYALAYA,
Rethare Bk; Shivnagar - 415108

Principal
Krishna Mahavidyalaya, Rethare Bk,
Tal. Karad : 415 108 (MS)

IQAC, Coordinator,
KRISHNA MAHAVIDYALAYA,
Rethare Bk; Shivnagar - 415108
Tal. Karad, Dist. Satara

Shetkari Shikshan Prasarak Mandal's

KRISHNA MAHAVIDYALAYA, RETHARE BK

DEPARTMENT OF PHYSICS

ONE-DAY STUDY TOUR (FIELD VISIT REPORT)

B.Sc. Part-II & III

Date: 8th February 2020

A one-day study tour (field visit) for B.Sc.II & III physics student was arranged on 8th February 2020 to visit Yashwantrao Mohite Krishna Sahakari Sakhar Karkhana, Rethare Bk. Dr. Dhanaji S. Dalavi along with other teachers accompanied the B.Sc. II & III students.

The main purpose of the said visit at the sugarcane factory was to observe the co-generation power plant/electricity from sugarcane bagasse and to achieve practical knowledge of how electricity can be generated from sugarcane bagasse.

As the sugarcane factory is nearby our college campus, we started our journey early in the morning at 8.00 am and reached there at 8.20

Engineers gave detailed information about the co-generation power plant which has a capacity of 16 MW. We had made thorough discussion on the production of power/electricity from sugarcane bagasse through steam. The pressure of steam required to rotate the turbine. The principle and working of the turbine have been explained in detail.

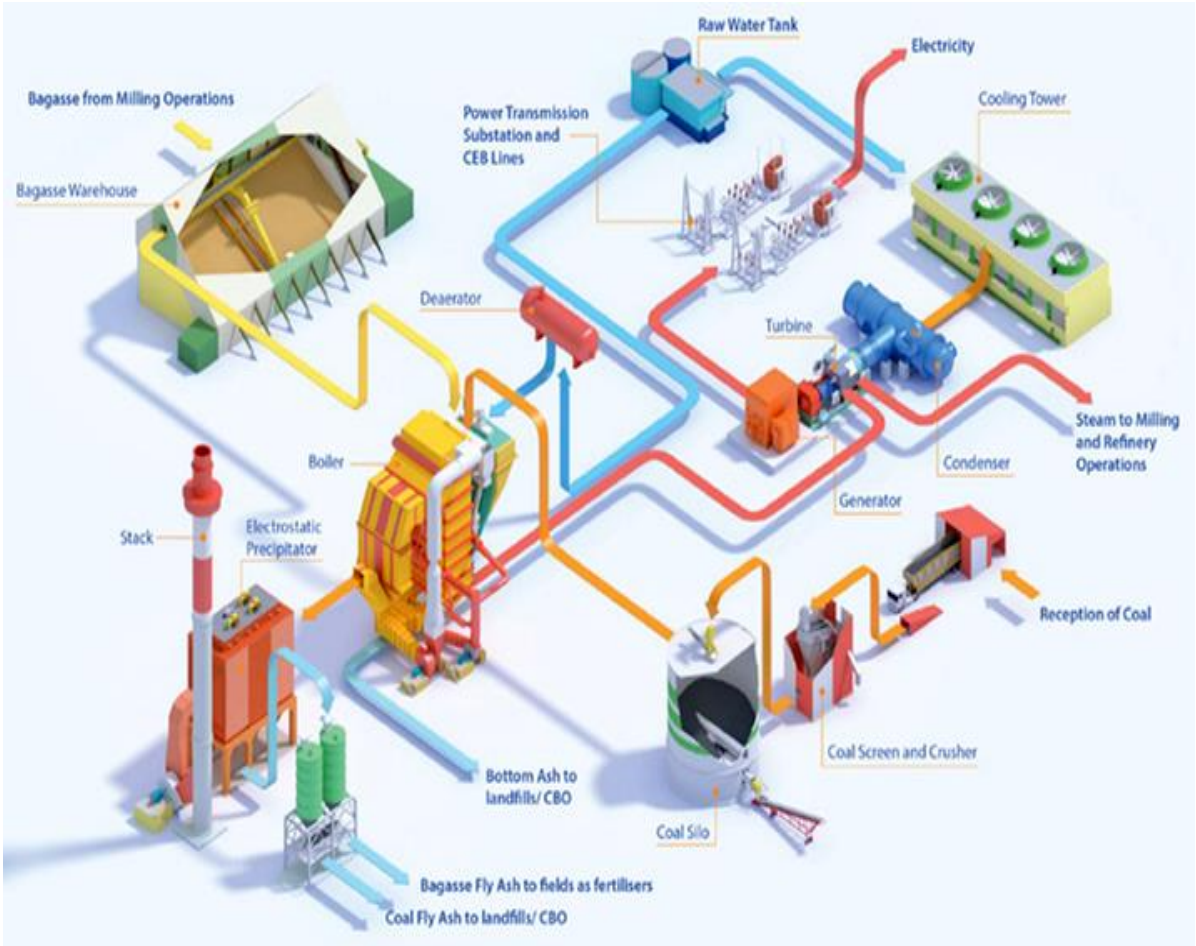
Following are the detail or Co-generation Power Plant

Co-generation Power Plant/Electricity from sugarcane bagasse.

The method is similar to any other power plant only the source of energy is different. Like coal/natural gas in thermal power plants, Uranium in nuclear power plants; the source of energy in a sugarcane-based power plant

is ***Bagasse.*** After the juice has been extracted from the sugarcane for making sugar and other related products, the fibrous waste which remains (called bagasse) is kept for drying. This is how Bagasse looks like:

The dried Bagasse is burnt to produce heat which is used to convert water into steam in boiler. The steam at high pressure is used to rotate a turbine-generator system to produce electricity. The general schematic of any biomass (including bagasse) based power plant is given below:



The power plant at Yashwantrao Mohite Krishna Sahakari Sakhar karkhana is one of the largest bagasse co-generation plants in Maharashtra which has a capacity of 16 MW. It uses bagasse during the sugarcane crop period to generate steam and electricity for the cluster and electricity for the national grid.

The cogeneration plant captures by-product heat from the combustion of bagasse and transforms this heat into useful energy, namely steam, and electricity. This dual-fuel system allows for the non-interrupted production of energy throughout the year. Bagasse recuperated from the milling operations is used during the crop season. This fuel shares its properties that allow the thermal plant to function with both combustibles without mechanical or structural alterations.

After the bagasse is conveyed to the thermal plants, a set of crushers and conveyors prepare and deliver the fuel to the power plant. The fuel is crushed into a fine powder which is blown into large boilers. The boiler walls are lined with pipes that are filled with water. As soon as the fuel enters the boilers, it catches fire instantly and burns with high intensity. This heat rapidly boils the water inside the pipes, changing it into steam. This process steam travels to the sugar complex.

As the bagasse burn, emissions and ash are produced. The gases, together with the lighter ash (fly ash), are vented from the boiler up into the stack. Air filters called electrostatic precipitators remove the majority of the fly ash before it is released into the atmosphere. The heavier ash (bottom ash) collects in the bottom of the boilers and is removed. Fly ash from bagasse combustion is sent to the fields to be used as fertilizers. This type of combustion produces very small amounts of bottom ash. In this case this re-use of fly ash and bottom ash will take place in the Carbon Burn Out plant.

Meanwhile, steam moves at high speed to the turbines. As jets of high-pressure steam emerge from the pipes, they propel the turbine to spin rapidly. A metal shaft connects the turbine to a generator and as the turbine turns, it causes an electro-magnet to turn inside the generator. The spinning magnet puts electrons in motion inside the wires, creating electricity. Part of the electricity travels to the cluster to power the milling and refinery operations. The rest passes through transformers to increase the voltage of the electricity that is generated. Transmission lines then carry the high voltage electricity to substations to be exported to the national grid.

Following are the details of Turbine which has a capacity of 16 MW.

टर्बाइन माहिती

टर्बाइन तपशील

मेक	– सिम्नी निप्पोन मशनरी लि; जपान.
क्षमता	– 16 मे. वॅट
टाईप	– डबल एक्सट्रॅक्शन कंडेन्सींग
फस्ट एक्सट्रॅक्शन प्रेशर	– 8 Ata फ्लो - जास्तीत जास्त 14 मे.टन/तास
सेकंड एक्सट्रॅक्शन प्रेशर	– 2.5 Ata फ्लो - जास्तीत जास्त 58 मे.टन/तास
एक्सॉस्ट प्रेशर	– 0.1 Ata फ्लो - जास्तीत जास्त 46 मे.टन/तास
गर्व्हरनर मेक	– वुडवर्ड मॉडेल 505 E
स्पीड	– 6194/1500 RPM
गिअर बॉक्स रेशो	– 4.129:1

कंडेन्सेट एक्सट्रॅक्शन पंप तपशील

मेक	– के.एस.बी. पंप्स लि.
मॉडेल	– WKT 065/10
पंप संख्या	– 3 नग (2W+1S)
फ्लो	– 26 m^3/तास / पंप
हेड	– 95 मीटर
स्पीड	– 1440 RPM
मोटर	– 15 KW फ्लॅंज माऊंटेड

कन्डेसर तपशील

सरफेस एरिआ	– 1142 m^2
वॉटर फ्लो	– 3036 m^3/तास
स्टीम फ्लो	– कमीत कमी 8.5 मे.टन/तास
	– जास्तीत जास्त 46 मे.टन/तास
ट्युब साईज	– 19.05 mm ओ.डी. X 0.9 mm जाड X 5200 mm लांब
इनलेट स्टीम प्रेशर	– 85 केजी/सेमी^{2}
इनलेट स्टीम टेंपरेचर	– 505 ± 5°C

जनरेटर तपशील

मेक	टी.डी. पॉवर सिस्टीम लि; बेंगलोर
क्षमता	– 16 मे. वॅट
स्पीड	– 1500 RPM
जनरेशन व्होल्टेज	– 11 KV
फुल लोड करंट	– 1050 ॲम्पीअर
पॉवर फॅक्टर	– 0.8
पोल संख्या	– 4
एक्साईटेशन व्होल्टेज	– 219 V
एक्साईटेशन करंट	– 627 ॲम्पीअर

ए.सी. एक्साईटर तपशील

मेक	– टी.डी. पॉवर सिस्टीम लि; बेंगलोर.
टाईप	– GZA 73
आऊट पुट	– 166 KW
व्होल्टेज	– 241 V
करंट	– 690 ॲम्पीअर
फ्रिक्वेंशी	– 50 Hz
स्पीड	– 1500 RPM
एक्साईटेशन व्होल्टेज	– 94 व्होल्ट
एक्साईटेशन करंट	– 21.4 ॲम्पीअर
पोल संख्या	– 12
एक्साईटींग सिस्टीम	– सेल्फ एक्साईटर

पी.एम.जी. तपशील

मेक	– स्टॅम्प फोर्ड
टाईप	– BC-116402
व्होल्टेज	– 220 V
करंट	– 39.4 ॲम्पीअर
एक्साईटेशन सिस्टीम	– ब्रशलेस

Kalani

HEAD
DEPARTMENT OF PHYSICS
KRISHNA MAHAVIDYALAYA,
Rethare Bk; Shivnagar - 415108

संहती कार्यसाधिका । शिलं परं भूषणम्
Shetkari Shikshan Prasarak Mandal's
KRISHNA MAHAVIDYALAYA, RETHARE BK.
Shivnagar, Tal. Karad, Dist. Satara, 415108 (M.S.)
Email : kmr_sspm@yahoo.co.in Website : www.krishnamahavidyalaya.com
NAAC 'B+' Grade (CGPA 2.65)
Principal (I/C) : **Dr. Salunkhe C. B.,** M.Sc., Ph. D. Founder : **Hon. Jaywantrao Bhosale**

Ref. No. : KMR/2019-2020/SR/273 Date : 05/02/2020

To,
The Managing Director,
Yashwantrao Mohite Krishna Sahakari Sakhar Karkhana,
Rethare Bk

Subject: Request for permission to visit Co-generation power plant.....

Respected Sir,

With reference to the above mentioned subject, our 16 students from department of Physics and Mathematics would like to visit co-generation power plant of Yashwantrao Mohite Krishna Sahakari Sugar Factory on 8th February, 2020.

Herewith I kindly request you to permit us to visit co-generation power plant installed by our factory.

Please do the needful.

Yours faithfully

5/2/2020

(Dr. Chandrakant B. Salunkhe)
Principal
Krishna Mahavidyalaya, Rethare BK
Tal. Karad (M.S.)

Received
DISPATCH CLERK
Y. M. Krishna Sahakari Sakhar Karkhana Ltd
Rethare Bk, Post. Shivnagar,
Tal. Karad, Dist. Satara
5 FEB 2020

सुरक्षा अधिकारी
कृष्णा सह. साखर का. लि. रेटरे बु.॥

SHETKARI SHIKSHAN PRASARAK MANDAL'S

KRISHNA MAHAVIDYALAYA, RETHARE, BK

DEPARTMENT OF PHYSICS

Number of Student Participated in One Day Study Tour (Field Visit)

Place: Yashwantrao Mohite Krishna Sahakari Sugar Factory Co-generation Power Plant, Rethare Bk

Date: 8th February, 2020

Roll. No.	Student Name	Signature
3006	DAMAME ANIKET ANIL	
3007	DESAI AJAY RAJENDRA	
3008	HARALE MOHINI RAJENDRA	
3009	JADHAV BHARATI DILIP	
3010	KADAM ROHIT GUNWANT	
3011	KANASE AISHWARYA ASHOK	
3012	LAD DIVYA DILIP	
3013	MASTUD KAJAL RAVINDRA	
3014	PATIL ASHLESHA ARUN	
3015	PATIL JAYDIP SHANKAR	
3016	PATIL NAMDEV LALASAHEB	
3017	PATIL SHUBHAM ASHOKRAO	
3018	PHARNE MANDAR SHIVAJI	
3019	THORAT AJINKYA BHIMRAO	

List of Teachers Participated in Study Tour (Field Visit)

Sr. No	Teacher Name	Signature
1.	Dr. Dhanaji S. Dalavi	
2.	Dr. Satish A. Mahadik	
3.	Miss. Pranoti V. Desai	
4.	Miss. Pooja G. Pawar	
5.	Mrs. Radhika S. Desai	


SHOT ON REDMI Y3
AI DUAL CAMERA

HEAD
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Rethare Bk; Shivnagar - 415108