



Shri Shamrao Patil (Yadravkar) Educational & Charitable Trust's

SHARAD INSTITUTE OF TECHNOLOGY, COLLEGE OF ENGINEERING

Yadrav (Ichalkaranji), Dist.-Kolhapur (Maharashtra)

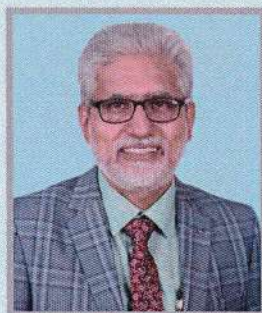
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Principal



Dr. V. S. Hajare
HoD, Mechanical Engineering

Apex ...A Newsletter

Department of
Mechanical Engineering
2019-20

Vol: 01 ISSUE: 01

Themes Inside :

- Refcold event achievement
- SITCOE ISHRAE student chapter re-installation
- Internal smart India hackathon
- Best paper award: micro to Nano (ETMN-2019)
- ISHRAE KSSC zonal level a-Quest competition
- ISHRAE funded project
- AICTE Chatra Vishwkarma Award-2019
- ISHRAE job junction @ Pune
- World ozone day celebration
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From Head of the Department Desk (Dr. V.S.Hajare)



I feel happy to introduce Apex 2019-20 Vol-1, Issue-2nd prepared by faculty and students of Mechanical Engineering Department. This newsletter includes highlights of mechanical engineering department with perspective of technical event achievements, faculty achievements, professional society events and activities, etc. We at SITCoE promise of increasing the knowledge, enhancing the critical thinking, ability to change information into knowledge and power of analyzing the things technically of each and every individual of ever changing society through students and faculties I congratulate “APEX” team for their efforts in launching first issue of year 2019-20. Wish you all a happy learning here.

From Faculty Editor Desk (Mr. Utkal S. Patil)



Dear Readers, It is indeed a great honor to be the “APEX” Newsletter Editor from Department of Mechanical Engineering, SITCOE. And it is an immense pleasure to presenting you with the Volume 1 Issue 1 of AY 2019-20. Last but not least, I would like to thank Beloved Hon. Executive Director, The Principal, Head of the Department and Faculty members for their everlasting support throughout the creation of this edition.

From Student Editor Desk (Miss. Pradnya Chougule)



We are happy to bring out the Volume 1, Issue 1 of our News Letter “APEX”. Our Faculty diligently involved in encouraging students and preparing for a bright future. I am glad that I am part of this News Letter preparation and release. I am very much thankful to our Department Faculty members and my team members for helping me in making this “APEX”

Publisher Name: Asiya Pendhari, Vaibhavi Miraje, Sanjana Patil
Technical Head: Nikita Walve, Rahul Shinde, Amey Panade, Nikhil Molaj

VISION AND MISSION OF THE DEPARTMENT

Vision

To be a centre of excellence in Mechanical Engineering education to prepare professionally competent engineers with lifelong learning attitude for the accomplishment of ever-growing needs of society.

MISSION

- To prepare technically and professionally competent engineers by imparting quality education through effective teaching learning methodologies and providing stimulating environment for research and innovation.
- To develop professional skills and right attitude in students that will help them to succeed and progress in their personal and professional career.
- To imbibe moral and ethical values in students with concern to society and environment.

Program Educational Objectives (PEOs)

Graduates of the programme will

PEO I: Demonstrate capabilities to develop optimal solution to the real world engineering problems by applying theory based practical approach of engineering and related engineering disciplines.(K)

PEO II: Exhibit professional skills, ethical attitude and sensitivity towards society and environment.

PEO III: Engage in life-long learning for successful adaptation to technological changes.



REFCOLD EVENT ACHIEVEMENT

We are pleased to announce that the Poster Designs of ISHRAE KSSC and SITCOE, Yadrav have been selected by the Global Poster Design Competition (GPDC) Jury and we will project the same in REFCOLD India virtual exhibition.

And proud to say that from India 39 entries was invited and now we are in top 3.

GLOBAL POSTER DESIGN COMPETITION					
S.no	First and Middle Name/s	Last Name	Organization(s)	Ishrae Chapter	Poster Title
1	Hariswar	Reddy	Jawaharalal Nehru architectural and fines arts university	Deccan	comparison of freezing-damage during isochoric and isobaric freezing of the potato
	Thryambica	S			
2	Ashutosh Rajendra	Kale	Amrutvahini College of Engineering, Sangamner.	Pune	Blanching Refrigerator for Preservation of Vegetables & Fruits with Pretreatment by $C_6H_8O_7$ & NaCl
	Mohit Sanjay	Drake			
	Parikshit Sambhaji	Deshmukh			
3	Shradha Sanjay	Mahadik	Sharad institute of Technology College of engineering, Yadrav-Ichalkaranji	Kolhapur Sangli	Controlled Atmosperic Chamber for Cold Chain Shipping container
	Amru: Balawant	Jadhav			
	Avesahemad Sayyadnaimutlla	Husainy			

REFCOLD Global Poster Design Competition 2020- Winner Certificates

Vikram 7:24 PM
to shradha.mahadik1698, jadh...

Reference: REFCOLD Global Poster Design Competition 2020.

Poster Title: Controlled Atmospheric Chamber for Cold Chain Shipping container

Name of the Institute : Sharad institute of Technology College of engineering, Yadrav-Ichalkaranji

Parent Chapter: ISHRAE Kolhapur-Sangli Sub Chapter

Student Team:

- Shradha Sanjay Mahadik
- Amrut Balawant Jadhav

Dear Shradha & team,



Controlled Atmospheric Chamber for Cold Chain Shipping Containers

Shraddha S. Mahadik, Amrut B. Jadhav, Avesahemad S.N. Husainy.

Sharad Institute of Technology College of Engineering, Yadrav, Ichalkaranji. (DBATU)



INTRODUCTION

India is an agricultural-based economy and is the largest producer of fruits and vegetables in the world. Fruits & vegetables, being perishable in nature require certain techniques of preservation for retaining the quality and extend the self-life of the production. The estimated annual production of fruits and vegetables in the country is about 130 million tones. The cold storage & cold chain facilities are the prime infrastructure component for such perishable commodities.

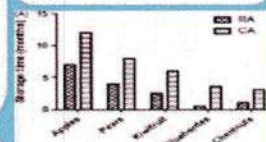
The current scenario reveals that there is a tremendous scope for the development of cold chain facilities. The Cold Chain industry is recognized as a sunrise sector in India and is expected to offer significant opportunities in the near future. Developing an integrated supply chain, including cold chain can save up to 300 billion annually and at the same time reduce the wastage of perishable horticulture produce.

OBJECTIVES

1. Implementation of the controlled atmospheric chamber for cold chain application.
2. To safe handling and convey the fruits, vegetables and dairy products to Market.
3. This technology enables the customers to retain the quality of their perishable products and derive more value for it by selling it at right time right Markets.
4. Aims to create value by reducing wastage and improving price realization for produce

POTENTIAL USERS

There is various types of cold storages, fruit cold storages, vaccine cold storages, organ transportation cold storages etc. these are all primary end users.

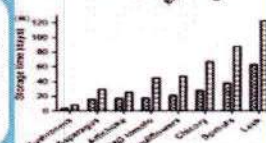


WORKING

In controlled atmosphere (CA) storage uses oxygen and carbon dioxide concentration of about 1% to 5% for each gas in most application. Normal room has O2 concentration of about 21% and CO2 level near 0.03%. Low O2 and high CO2 levels slow the ripening process, stop the development of storage disorders such as scald in apples, and slow the growth of decay organisms. All of these effects increase storage life of fresh produce compared with convectonal refrigerator stores. These facilities are recommended for long terms storage of fruits and vegetables like apples, pears, kiwi, cabbage etc. for up to 10 months.

FEATURES

1. Considerable decrease in fruit respiration rate.
2. Reduction in the effect of ethylene on metabolism.
3. Extension in storage life and excellent firmness on flesh.

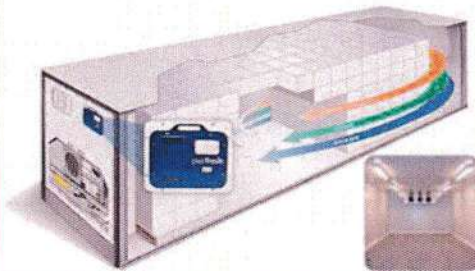


THERMAL INSULATION

It is recommended that appropriate BIS standards are adopted for selection of design parameters (IS 661:2000) and method of application of thermal insulation (IS 661 & 13205). For fresh F & V are stored at + 0 degree celsius, it is recommended to design thermal insulation for (- 4 degree celsius to + 2 degree celsius) temperature condition to have lower heat load. Materials of thermal insulation and its application- Cold chambers have to be insulated on walls, ceilings / roofs & floors with proper insulating material of adequate thickness, with provision for vapour barrier on outer side & proper cladding/ cover on inner side.

INSULATION MATERIALS

- a) Expanded polystyrene
 - b) Rigid Polyurethane foam
 - c) Rigid phenolic foam
 - d) Mineral wool in composite panel form
 - e) Extruded polystyrene
- The ancillary materials to be used include:
- a) Vapour barrier e.g. aluminium foil, polyurethane sheet, with bitumen / cold mastic adhesives
 - b) Teakwood batten pegs, Tees etc.
 - c) G.S. sheet runners (avoid wooden batten runners)
 - d) Cladding of profiled / pre-coated G.S. Sheets 0.5 / 0.6 mm thick / Fibreglass sheets of suitable thickness



Source: purfresh.com

SYSTEM OPERATION

Atmospheric air is drawn through an air intake filter to remove contaminants before entering an oil-less air compressor. Once it is compressed, air is feed into a condensing line where moisture is removed. It then passes through a filter assembly where the moisture is drained away. To enhance the efficiency of separation, it is passed through an air heater before entering the membrane separator. In the membrane separator, nitrogen is separated from the other gases and delivered inside the container while the other separated gases are simply vented to the outside atmosphere.

BENEFITS OF C.A.

- Reduces respiration
- Ethylene production retarded
- Higher natural sugar content.
- Retards senescence (ripening/aging)
- Associated softening and compositional changes
- Alleviates certain physiological storage disorders.
- Retards some pathogens and consequential decay.
- Provides insect control.
- Permits longer tree ripening
- Better product quality at final destination
- Less spoilage during transport.

CONCLUSION

CA technique have a profound effect on the physiology of harvested horticultural commodities. Under optimal conditions (that vary depending on the species/variety to be stored and the composition/developmental stage of the commodity), the marketable life of the commodity can be greatly extended and quality can be retained for a longer time. As indicated in Fig.CA technology is effective in prolonging the storability of many horticultural commodities, when compared with regular atmosphere (RA) systems.

REFERENCES

1. Falagán, Natalia, and Leon A. Terry. "Recent advances in controlled and modified atmosphere of fresh produce." (2018).
2. Goyette, B., C. Vigneault, N. R. Markarian, and J. R. DeEl. "Design and implementation of an automated controlled atmosphere storage facility for research." Canadian Biosystems Engineering 44, no. 3 (2002): 35-40.
3. <https://images.app.goo.gl/N5smkdW2hrn4yaDX9>

SITCOE ISHRAE STUDENT CHAPTER RE-INSTALLATION



SITCOE conducted Reinstallation Ceremony of ISHRAE Student chapter. Also Reinstallation ceremony is followed by Technical Event and technical talk. I am very much thankful to our Director Hon. Anil Bagane sir, Principal Dr. S.A. Khot sir and HOD Dr. V. S. Hajare sir for their presence and Motivation. I am also thankful to our ISHRAE KSSC President Mr. Suresh Patil sir to make this program successful. Also I am thankful to Mr. Sanjay Malekar (Founder President of KSSC) and Prof. Ghanashyam Chendake (student zonal chair), Mr. Bharat kadam (past president) , Prof. Ravindra Yadav (President Elect) for their guidance for program.



INTERNAL SMART INDIA HACKATHON



I am happy to share Internal Hackathon event at SIT COE YADRAV. 15 teams (90 students) were participated and present their ideas. In that my role is SPOC of SITCOE and internal judge.



BEST PAPER AWARD: MICRO TO NANO (ETMN-2019)



Happy to announce that, Got 1st prize in 4th International Conference on Emerging Technologies: Micro to Nano (ETMN-2019), (AIP) organized by Savitribai Phule University, Pune (Electronics and Physics Dept), and Manipal University, Rajasthan. It was a wonderful experience to prove myself among 135 Indian and foreign participants. Heartly thanks for my Ph.D. Guide Dr. G. V. Parishwad Sir (Dept. of Mech. Engineering, COEP, Pune) for dedicated guidance and motivation. Also, I am very thankful to my colleague Er Siddhanath Nishandar and all SIT family.

ISHRAE KSSC Zonal Level aQuest Competition

ISHRAE Kolhapur Sangli sub chapter organized aQuest Competition at SGU, Atigre. And it is happy to announce that Rushikesh Patil and Shubham Mali (SIT, Yadrav) secure Winner in Chapter level Quest Competition..... And Shirin Patel (JIM COE) and Vishal Kudave (SGU) secure Runner up. Congratulations both of teams and they are going to Mumbai on 6th Nov for Zonal Round... All the best from Kolhapur Sangli ISHRAE Sub Chapter. Also nice co- ordination as a volunteer for aQuest..... Shubham Kulkarni, Abhishek Bhagate, Siddhesh Kudalkar, Suraj Haswal.




ISHRAE Student
Project Grant

ISHRAE FUNDED PROJECT

Proud moment for Sharad Institute of Technology college of Engineering, Yadrav (Department of Mechanical Engineering) Our Project title “Performance Improvement of vapor compression refrigeration system by Electrohydrodynamic Effect” is selected by ISHRAE UG ISPG Project Grant And glad to say that from all our India out of 111 proposals only 9 Proposals are sanctioned for funding and our’s is one of them. Amount Sanctioned for Project is 43,000/Rs. Students included in proposals are Jagdish Choudhary, Yuvraj Kadage, Prashant Jambhale, Akash Kamble, Juned Pathan

Name of Guide- Mr. A.S.N.Husainy



Toll free : 1800 - 3000 - 4245
 info@ishraeq.in

Dear Mr. Ghanashyam Mahaling Chendke,
 Membership No 22524
 Designation, West
 Chapter Name, Kolhapur-Sangli Sub Chapter
 Dear Sir,

For the current S.Y 2019-20 we launched ISPG (UG) Competition in the month of August 2019 & we received around 111 Project Submissions.

All the submissions received were forwarded to the Jury & they came out with the 9 final selected projects for funding.

The details of the selected projects are as given below.

Sl. No	Project code	Chapter Name	Institute Name	Title	Name of the Team Leader
1	ISPG_UG_24	Chemical Chapter	RAJALAKSHMI ENGINEERING COLLEGE	EXPERIMENTAL STUDIES ON BUILDING COOLING BY INCORPORATING PHASE CHANGE MATERIAL ON THE ROOF	SIVA SANKAR
2	ISPG_UG_26	Jalpur Chapter	Poornima university	Desiccant Cooling System Performance Optimization	Niran Chaturani
3	ISPG_UG_36	Kolhapur Sangli Sub Chapter	Sanjay Ghodawat Group of Institution	Low Energy Earth Pipe Cooling Novel Technology for providing thermal comfort in a building of Sanjay Ghodawat University, Maharashtra, India.	Mr. Alish Dhanajirao Gaikwad
4	ISPG_UG_40	Kolhapur Sangli Sub Chapter	Sharad Institute of Technology College of Engineering, Yadrav	Performance improvement of vapour compression system by electro hydrodynamic effect	Mr. Jagdish Choudhan



AICTE Chatra-Vishwkarma Award-2019



Our team from Sharad Institute of Technology College of Engineering, Yadrav. Performing their Product Presentation on Multicrop Solar Dryer under the guidance of Prof. A. S. N. Husainy sir at regional level in AICTE Vishwkarma award 2019 (Western Region). This team was cracking 2 levels and selected for 3rd level i.e Regional level. In regional level overall 89 teams were selected from different states like Maharashtra, Gujarat, MP, Goa etc.

ISHRAE JOB JUNCTION @ Pune

ISHRAE ORGANISED JOB JUNCTION AT PCCOE, PUNE. MORE THAN 30 STUDENTS TAKE PART OF THIS CAMPUS DRIVES.



WORLD OZONE DAY CELEBRATION

Behalf of World Ozone Day we conduct Event iZone-2018 at Sharad Institute of technology college of engineering, Yadrav

More than 300+ students participated in this.

Thanks all Dignitaries on Dais for prize distribution Ceremony.



DEPARTMENTAL PUBLICATIONS DETAILS

Sr. No.	Name of Faculty member	Title of Research Paper	Name of Journal/Conference	Volume/Issue, Year of Publication	Scopus/SC I/UGC/DOI
1	Mr.S.D.Patil	Optimization of Design Variables for Carbon/ Glass Hybrid Composites Laminates using the Taguchi Technique	World Journal of Engineering (WJE)	WJE ISSN:1708-5284, Volume:17, Issue:02, 2020	Scopus
2	Dr. A. M. Takale	Optimization of Design Variables for Carbon/ Glass Hybrid Composites Laminates using the Taguchi Technique	World Journal of Engineering (WJE)	WJE ISSN:1708-5284, Volume:17, Issue:02, 2020	Scopus
3	Mr.S.D.Patil	Optimization of Dynamic properties of Hybrid Composite Shaft with newly developed resin (NDR) using grey relational analysis	International Journal of Structural Integrity	Emerald Publishing Ltd. 1757-9864 DOI: 10.1108/IJSI-07-2019-0073, Volume:11, Issue:02	Scopus
4	Dr. V.S.Hajare	Evaluation of Bio- Fouling effect in Cooling Tower by Chemical Treatment	International Journal of Recent technology and Engineering	ISSN:2277-3878, Vol. 08, Issue: 03, September 2019	Scopus
5	Mr. A.S.N. Husainy	Evaluation of Bio- Fouling effect in Cooling Tower by Chemical Treatment	International Journal of Recent technology and Engineering	ISSN:2277-3878, Vol. 08, Issue: 03, September 2019	Scopus
6	Mr. M. A.Jadhav	Evaluation of Bio- Fouling effect in Cooling Tower by Chemical Treatment	International Journal of Recent technology and Engineering	ISSN:2277-3878, Vol. 08, Issue: 03, September 2019	Scopus
7	Mr. S. G.Bardiya	Evaluation of Bio- Fouling effect in Cooling Tower by Chemical Treatment	International Journal of Recent technology and Engineering	ISSN:2277-3878, Vol. 08, Issue: 03, September 2019	Scopus
8	Mr. A.S.N. Husainy	A glance on solar cooking technology in India	IJSRD	ISSN:2321-0613, Vol. 06, Issue: 12, 2019	Peer Reviewed Journal with DOI
9	Mr. A.S.N. Husainy	Reducing temperature fluctuation of refrigeration system by incorporating Nano phase change materials	API Proceeding	API Proceeding	In review
10	Mr. M. M. Khade	Development and testing of MR damper	IJRTE	ISSN: 2277-3878 Vol. 08, Issue: 04, Nov 2019	Scopus
11	Dr. Vishal V. Patil	Experimental investigations to predict optimistic biodiesel (s) and its optimistic operating conditions by varying ignition delay period and fuel spray pressures for lower emissions and better performance	Journal of Mechanical Engineering Science (Institution of Mechanical Engineers)	SAGE, Proc. iMechE DOI: 10.1177/0954406220/917693	Scopus, SCI
12	Mr. Suyog S.Patil	Reliability analysis of a steam boiler system by expert judgment method and best fit failure model method: A new approach	International Journal of Quality & Reliability Management (IJQM)	Accepted on 23/02/2020	Scopus
13	Mr.S.D.Patil	Multiobjective optimization of Carbon/ Glass Hybrid Composites with newly developed resin (NDR) using grey relational analysis	Multidiscipline modeling in materials and structures	ISSN 1573-6105, DOI:10.1108/MM MS-08-2019-0141	Scopus
14	Dr B N S Reddy	Impact of groove area on longitudinal shrinkage in CO ₂ arc welding process	IJRASET	ISSN-2321-9653 Vol. 07, Issue: 08, Aug 2019	Peer Reviewed Journal

15	Dr. V. S. Hajare	Impact of groove area on longitudinal shrinkage in CO ₂ arc welding process	IJRASET	ISSN-2321-9653 Vol. 07, Issue: 08, Aug 2019	Peer Reviewed Journal with DOI
16	Mr. M. M. Khade	Impact of groove area on longitudinal shrinkage in CO ₂ arc welding process	IJRASET	ISSN-2321-9653 Vol. 07, Issue: 08, Aug 2019	Peer Reviewed Journal with DOI
17	Mr. U. S. Patil	Impact of groove area on longitudinal shrinkage in CO ₂ arc welding process	IJRASET	ISSN-2321-9653 Vol. 07, Issue: 08, Aug 2019	Peer Reviewed Journal with DOI

STUDENTS RESEARCH PROJECTS

Sr. No	PROJECT TITLE	Project Guide	Name of Student	Sponsoring Agency	Grant Received/ Amount Invested by Industry
1	Design & Development of 4 Speed Gearbox with Auto Shifting Mechanism	Mr.A.A.Desai	GAIKWAD ASHWAJIT ASHOK	SRN Drives, Shinoli	Grant Received
			PATIL PARTH ABHIJIT		
			MAGDUM INDRAJEET DHANYKUMAR		
			*BHOSALE POONAM TANAJI		
			DHARMANNAVAR SHUBHAM SAGAR		
2	Design and manufacturing of pattern with gating system analysis of hydraulic control block	Mr.A.S. Udgave	BORGAVE ANIKET AJIT	Climax Engineering Pvt Ltd	Grant Received
			DEMANNA KARMVEER PRADIP		
			MAGDUM DIGVIJAY ABHAYKUMAR		
			MULLA SAHIL RAJU		
			KUMBHAR RUSHIKESH ARUN		
3	Design and development of oil dipping machine used for oil coating of crank shaft	Mr.A.S. Udgave	KEDARNATH ANIL LOHAR	Technocraft Engineering, Hatkanangle	Grant Received
			CHOUGULE ANIKET PRAKASH		
			AWALE RAHUL SURESH		
			KAMBLE SANJAY DATTATRAY		
			KAMBLE SWAPNIL CHHATRU		
4	Design development and retrofitting of conventional milling machine by PLC operated special purpose machine for face milling operation	Dr.A.M.Takale	SHAIKH SHOHEB HARUN	Sanmati CNC Engineering Works, Hatkanangale	Grant Received
			*CHOUGULE NAMARTA SURESH		
			KAGAWADE VISHAL VIJAY		
			HANJE SUBHAM MAHAVIR		
5	Design & Development of Universal Fixture for drilling Bamboo furniture	Mr. G V Pujari	KADAGE YUVRAJ RAJENDRA	Cygnet Sanmati CNC Engineering Works, Hatkanangale	Grant Received
			ALASE AKSHAY KALLUSHA		
			ANGADI AKSHAY APPJI		
			ALANDE ABHISHEK KRISHNAT		
			CHIGARE PRAVIN BALKRISHNA		
6	Shear Strengthening of beam using externally bonded FRP system	Mr.S.D.Patil	PATIL SANGRAM BALASAHEB	S P Concare Pvt. Ltd. Sangli	Grant Received
			PUJARI RANAJIT POPAT		
			SHITOLE VIKAS RAJENDRA		
			RAUT SURAJ CHANDRAKANT		

			SHAHANAVAJ B. NAIKWADE		
7	Design And Manufacturing of Hydraulic Fixture for trip cover plate for VMC/ HMC	Mr. S.M.Ghanwat	PATIL AVADHOOT KRISHNAT	SRN Drives, Shinoli	Grant Received
			PATIL PRATIK ABASAHEB		
			MAGDUM PRADEEP PANDURANG		
			MALKAR AKASH MAHADEV		
			KHOT SOURABH SUBHASH		
8	Design and Fabrication of multipurpose Agricultural Equipment	Mr.S.P.Udgave	KOLE ROUNAK SANJAY	P.S.Enggg.	Grant Received
			MANE ROHIT BHIMRAO		
			KALE AJINKYA SARJERAO		
			PATIL ADITYA JAYSING		
			BANDGAR SHEKHAR SHIVAJI		
9	Design & Optimization of Rear under-run Protective Device (RUPD)	Mr.U.S.Patil	*GOYAKAR SHITAL KUMAR	Axaya Technology, Ichalakaranji	Grant Received
			*KESARE ANUJA PRAVIN		
			*KAMBLE SHAMAL PANDURANG		
			*SHENDAGE ASHWINI		
			*SUTAR RUTUJA DATTATRAY		

ISHRAE INDUSTRIAL VISIT

ISHRAE Students from SITCOE, YADRAV visited Amul Milk Processing Unit, Jaysingpur
Objective of Visit is to study the Milk Processing unit as well as to study the components like
Boiler, Heat Exchanger, Shell type Condenser, Evaporator, Etc
More than 50 Students take part in Visit.





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