

# **MET.TEL NEWSLETTER**



**METALLURGY DEPARTMENT**

**DR. S. & S. S. GHANDHY COLLEGE OF  
ENGINEERING & TECHNOLOGY, SURAT**



**5<sup>th</sup>**

**ALUMINUM EDITION**

**JULY 2022**

# M

## Message From The Desk of Head of The Department



Dear Faculty, Staff, and Students,

I am pleased to welcome you to the 5th edition of our Metallurgy Department's Newsletter, highlighting our focus on aluminium. This year has been marked by notable accomplishments, enriching experiences, and significant contributions to the advancement and excellence of our department.

Throughout the year, we have organized a series of expert lectures, industrial visits, seminars, and webinar series, each aimed at enhancing our understanding and expertise in metallurgy. Noteworthy events such as expert lectures on corrosion prevention, practical challenges in foundry operations, safety guidelines in corex technology, insightful seminars on plasma applications and nuclear fusion, and a five-day webinar series on "Metallurgy in Ancient India" have enriched our knowledge base significantly.

Additionally, our department actively engaged in extracurricular activities, fostering holistic development and community building. Celebrations such as International Yoga Day, Van Mahotsav Elocution Competition, and Teacher's Day underscored our commitment to nurturing talent beyond academic realms.

I am proud to highlight the achievements of our faculty members who actively participated in various faculty development programs and contributed to the academic discourse through publications in reputed journals. Furthermore, I extend my heartfelt congratulations to Trushar Rana for his outstanding achievement, earning a gold medal from Gujarat Technological University for his exemplary performance in metallurgy.

As we reflect on our accomplishments and endeavors, let us continue to uphold the spirit of innovation, collaboration, and excellence that defines our department. Together, let us strive to push the boundaries of knowledge and contribute meaningfully to the field of metallurgy.

Warm regards,

Mrs. Bindu Goyal

Head of the Metallurgy Department

## STAFF MEMBERS



**Mrs. B. H. Goyal (HOD)**  
ME-Industrial Metallurgy



**Mr. S. F. Parmar (LME)**  
ME- Material Technology



**Ms. S. M. Patel (LME)**  
ME- Material Technology



**Mr. M. J. Joshi (LME)**  
ME-Material Technology  
PhD (Pursuing)



**Mr. T. K. Kyada (LME)**  
ME-Industrial Metallurgy



**Mr. R. D. Dave (LME)**  
ME-Welding Technology



**Mr. N. G. Patel (LME)**  
ME-Industrial Metallurgy



**Mr. A. M. Gautam (LME)**  
ME-Material Technology



**Ms. J. B. Lad (Lab. Asst.)**  
Diploma Mechanical

## INSIDE THIS ISSUE

- Vision, Mission of the Institute
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## **VISION OF THE INSTITUTE**

“To be a unique center of excellence in technical education & innovation for sustainable growth of industry and society.”

## **MISSION OF THE INSTITUTE**

- To impart globally viable technical core competencies and skills.
- To respond effectively to the ever-changing needs of industry and community at large.
- To promote conducive campus environment and resources for qualitative education and innovation.
- To inculcate moral, ethical, and professional values amongst all internal stakeholders.

## **VISION OF THE DEPARTMENT**

“To lead in diploma metallurgical engineering education with focus on innovation and sustainable development of industry and society.”

## **MISSION OF THE DEPARTMENT**

- To impart and empower students with relevant knowledge, competence, and creativity with special emphasis on metallurgical engineering.
- To promote conducive environment for all round development of students.
- To promote linkages with external agencies to meet changing needs of industry and society.

## **PROGRAM EDUCATIONAL OBJECTIVES (PEOs)**

- The metallurgy diploma graduate will be able to make successful career in metallurgical industry to meet ever changing needs of industry.
- To enable diploma graduate for lifelong learning and higher studies.
- Identifying and engage in innovation, become an entrepreneur for sustainable development of society.

## **PROGRAM SPECIFIC OUTCOMES (PSOs)**

- Apply the fundamental knowledge of metallurgy for the benefit of society, industries, and research organizations.
- Diploma holders will be able to select suitable techniques for testing of metals and alloys.

## EXPERT LECTURE ON CORROSION & ITS PREVENTION

The Metallurgy Department at Dr. S. & S. S. Gandhi College of Engineering & Technology, Surat, organized an expert lecture on "Corrosion & its Prevention" on 6<sup>th</sup> July 2021. Dr. D. G. Sharma, Assistant Professor from GEC Gandhinagar, conducted the session, which was attended by approximately 25 students. Dr. Sharma's expertise and engaging delivery enriched the learning experience, offering students valuable knowledge in the field of materials science and engineering. The event facilitated a deeper understanding of corrosion processes and equipped attendees with practical solutions to combat corrosion challenges in various industries.



## INDUSTRIAL VISIT AT JAY METAL TECH, SURAT

The Metallurgy department arranged an industrial visit for 5th-semester students to Jay Metal Tech, Surat, on September 27, 2021. Twenty students from the 5th semester participated in this visit. Faculty member Mr. S. F. Parmar accompanied and guided the students throughout the visit.



## EXPERT LECTURE ON "PRACTICAL PROBLEMS FACED IN FOUNDRY"

The Metallurgy department organized an expert lecture on "Practical Problems Faced in Foundry" on October 1, 2021. The session was conducted by Mr. Kush Shaligram, the P.P.C. incharge at Global Exportech LLP. A total of 30 students attended this insightful lecture. During the session, Mr. Shaligram shared practical insights and real-world experiences regarding the challenges encountered in foundry operations. Students had the opportunity to learn about various issues faced in the foundry industry and gained valuable knowledge on how to address them effectively. The lecture provided a platform for students to enhance their understanding of practical aspects related to foundry practices, thereby supplementing their theoretical learning with practical insights from industry experts.

# CO-CURRICULAR ACTIVITIES



## INDUSTRIAL VISIT AT ITI, MAJURAGATE, SURAT

The Metallurgy department organized an industrial visit for 3rd-semester students to ITI, Majuragate, Surat, on December 20, 2021. Twelve students from the 3rd semester participated in this visit. Faculty member Mr. R. D. Dave accompanied and guided the students throughout the visit.



## WEBINAR SERIES – “METALLURGY IN ANCIENT INDIA”

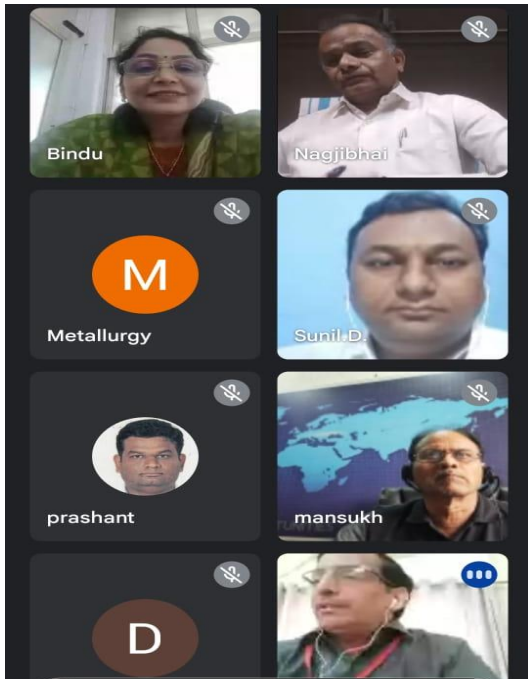
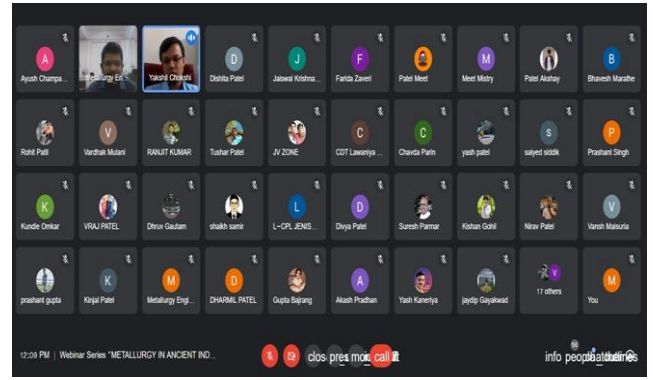
Five Days Webinar Series on “Metallurgy in Ancient India” was jointly organized by the Metallurgy Department and Bhutpurva Vidhyarthi Mandal of Dr. S. & S. S. Ghandhy College of Engineering & Technology, Surat and Vigyan Gurjari, Surat during 7th March, 2022 to 11th March 2022. This series was attended by 78 participants and 08 metallurgy department staff members and Guests.

<b>Webinar Series on “METALLURGY IN ANCIENT INDIA”</b> as a part of National Science Day Celebration under Azadi Ka Amrit Mahotsav	
<b>7<sup>th</sup> to 11<sup>th</sup> MARCH 2022</b> Jointly Organized By Metallurgy Department & Bhutpurva Vidhyarthi Mandal of Dr. S. & S. S. Ghandhy College of Engg. & Tech, Surat & Vigyan Gurjari, Surat	
 <b>Dr. Daulat Sharma</b> Assistant Professor Metallurgy Engg. Department, GEC Gandhinagar Topic: Metals in Ancient India Date: 7 <sup>th</sup> March 2022 Time: 11:30 AM to 01:00 PM	 <b>Mr. Yakshil Chokshi</b> Lecturer Metallurgy Department, GP Rajkot Topic: Iron Production in Ancient India Date: 8 <sup>th</sup> March 2022 Time: 11:00 AM to 12:30 PM
 <b>Dr. Indravadan Dave</b> Professor (Head) Metallurgy Engg. Department, GEC Gandhinagar Topic: Non-Ferrous Metallurgy in Ancient India Date: 8 <sup>th</sup> March 2022 Time: 12:30 PM to 02:00 PM	 <b>Dr. Vandana Rao</b> Associate Professor Met. & Mats. Engg. Department, The M. S. U. of Baroda, Vadodara Topic: Powder Metallurgy in Ancient India Date: 9 <sup>th</sup> March 2022 Time: 11:00 AM to 12:30 PM
 <b>Dr. Sunil Kahar</b> Assistant Professor Met. & Mats. Engg. Department, The M. S. U. of Baroda, Vadodara Topic: The Mystery of Delhi's Iron Pillar Date: 10 <sup>th</sup> March 2022 Time: 11:00 AM to 12:30 PM	 <b>Mr. Urvesh Vala</b> Head Material Engineering I & T Chiyoda, Vadodara Topic: Metal Joining From Ancient Ages to Modern Technology Date: 11 <sup>th</sup> March 2022 Time: 11:00 to 12:30 PM
<b>Registration Link:</b> <a href="https://forms.gle/9ziDwcpAaLUWStC29">https://forms.gle/9ziDwcpAaLUWStC29</a>	
<ul style="list-style-type: none"> <li>All sessions will be conducted on Google Meet.</li> <li>E-certificates will be provided to registered participants who will attend all the sessions and fill daily feedback forms.</li> </ul>	
<b>PATRON</b> Mr. N. A. Saugani Principal, SSGP, Surat	
<b>CONVENER</b> Mrs. B. H. Goyal HoD Met., SSGP, Surat	
<b>CO-CONVENER</b> Mr. Mananika Naria Secretary, VG Surat	
<b>CO-ORDINATORS</b> Mr. S. F. Parmar, LME, SSGP, Surat Ms. S. M. Patel, LME, SSGP, Surat	
<b>ORGANIZING COMMITTEE:</b> Mr. M. J. Joshi, LME, SSGP, Surat Mr. T. K. Khyada, LME, SSGP, Surat Mr. R. D. Dave, LME, SSGP, Surat Mr. N. C. Patel, LME, SSGP, Surat	

# CO-CURRICULAR ACTIVITIES

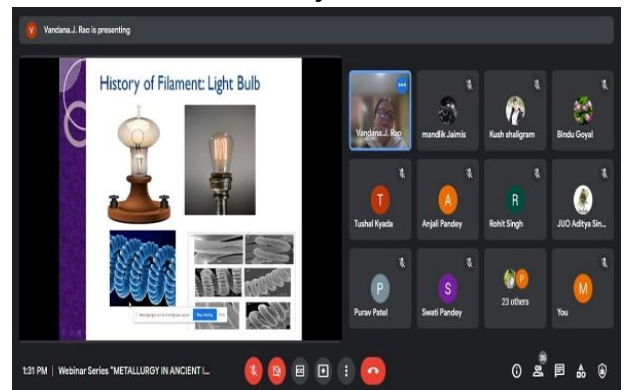


Day 1

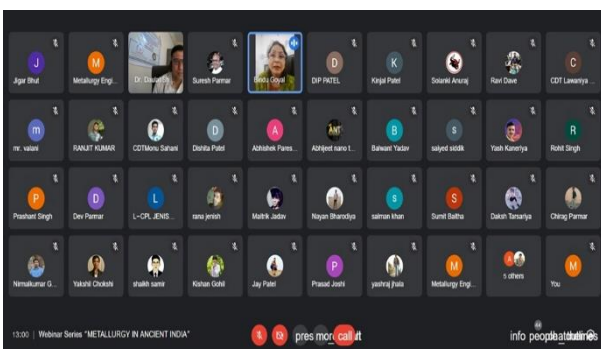


Inauguration Ceremony

Day 2

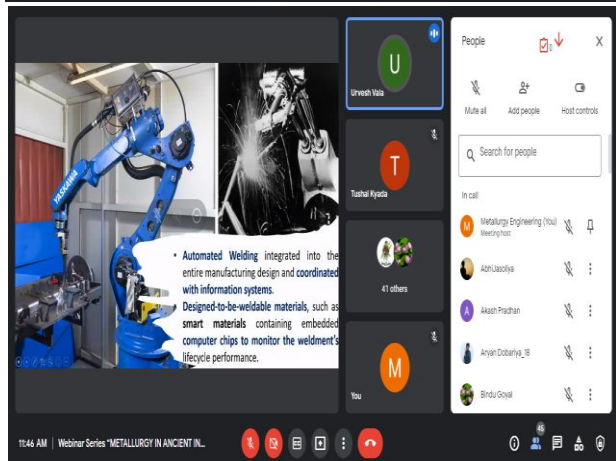
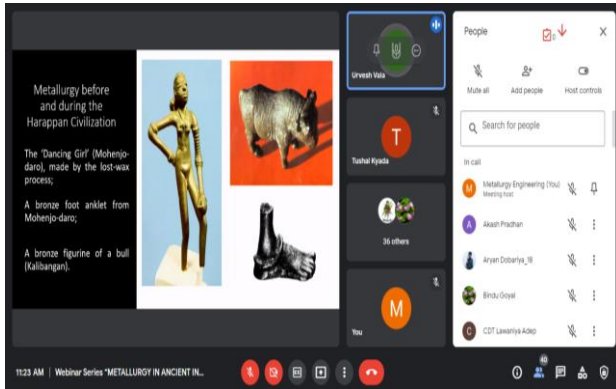


Day 3



# CO-CURRICULAR ACTIVITIES

## Day 4



## Day 5

### SEMINAR ON "PLASMA – ITS APPLICATION AND NUCLEAR FUSION"

The Metallurgy Department, in collaboration with the Bhutpurva Vidhyarthi Mandal of Dr. S. & S. S. Ghandhy College of Engineering & Technology, Surat, and Vigyan Gurjari, Surat, jointly organized a seminar on "Plasma – its Application and Nuclear Fusion" on April 28, 2022. The event witnessed the participation of 46 attendees, including 8 staff members from the metallurgy department and distinguished guests. The keynote address was delivered by Ms. Harsha Machchhar, Scientific Officer F, from the Institute of Plasma Research Center. Her expertise and insights enlightened the audience on the applications and significance of plasma

technology, particularly in the context of nuclear fusion.



### EXPERT LECTURE ON "SAFETY GUIDE IN COREX TECHNOLOGY"

The Metallurgy Department arranged a talk on "Staying Safe in Corex Technology" on May 17, 2022. Mr. Parth Mistry, an Engineer from AMNS Surat, shared important safety tips with the students. The session was straightforward and easy to follow, helping everyone grasp the key points. A total of 12 students joined in, showing their interest in the topic and their desire to learn. The department's effort in organizing such talks demonstrates their commitment to providing practical knowledge to students. This initiative aims to prepare students for their future careers in the metallurgical field by emphasizing essential safety practices.





## INDUSTRIAL VISIT AT TCR ADVANCED ENGINEERING PRIVATE LIMITED, VADODARA

Metallurgy department had arranged industrial visit for 4th semester students in TCR Advanced Engineering Private Limited, Vadodara on 23/05/2022. 12 students of 4th semester visited this company. Head of metallurgy department Mrs. B. H. Goyal accompanied and guided the students throughout the visit.



## INDUSTRIAL VISIT AT JMT INDIA INC., SURAT

The Metallurgy Department organized an industrial visit for 4th-semester students to Jay Metal Tech, Surat, on May 19, 2022. Thirteen students from the 4th semester participated in this visit. Mr. S. F. Parmar, a faculty member, accompanied and guided the students throughout the visit, providing them with valuable insights and assistance. The visit aimed to provide students with practical exposure to industrial processes and enhance their understanding of foundry operations.



## INDUSTRIAL FOLLOW UP VISIT

As per GTU curriculum, students of 6th semester have to undergo industrial training of 14 weeks. As per the guideline's faculties went to respective companies for follow up and routine visit to keep check on their progress report. Metallurgy students went for industrial training at 10 different industries.

A site visit was arranged at L & T Special Steel & Heavy Forging, Surat on 17/03/2022.



A site visit was arranged at JMT, Udhana, Surat on 17/03/2022.

A site visit was arranged at Miranda Tools, Ankleshwar on 19/03/2022.



A site visit was arranged at Hazira Refractory, Surat on 19/03/2022.

A site visit was arranged at Drashti Casting & Forging, Halol on 19/03/2022.



# EXTRA-CURRICULAR ACTIVITIES

## INTERNATIONAL YOGA DAY CELEBRATION

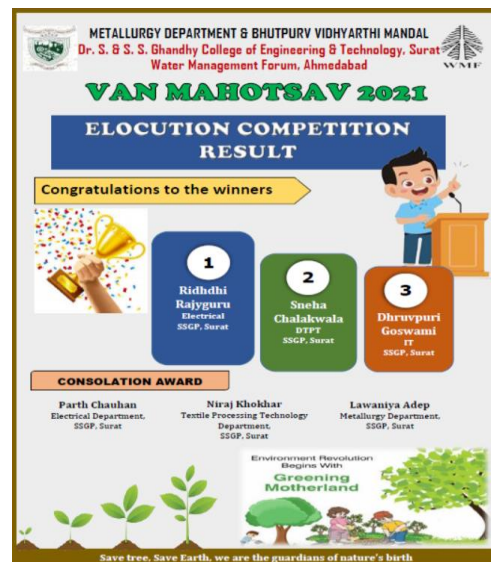
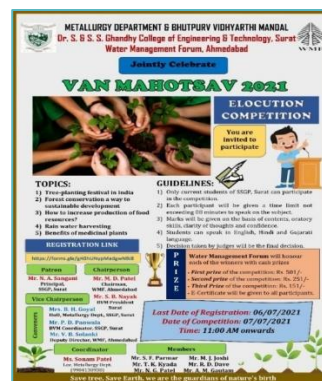
On the 7<sup>th</sup> International Yoga Day in 2021, faculty members and students of the Metallurgy Department celebrated by practicing yoga at their respective homes. Due to the COVID-19 pandemic, the traditional gathering for the event was replaced with virtual participation. Despite the physical distance, participants enthusiastically engaged in yoga sessions from the comfort of their homes, emphasizing the importance of maintaining physical and mental well-being during challenging times. Through virtual platforms, individuals were able to join together in spirit, fostering a sense of unity and solidarity in promoting holistic health practices. The event underscored the resilience and adaptability of the Metallurgy Department community in embracing innovative approaches to commemorate International Yoga Day while prioritizing safety and well-being.



## ELOCUTION COMPETITION ON VAN MAHOTSAV 2021

To celebrate Van Mahotsav 2021, the Metallurgy Department, Bhutpurv Vidhyarthi Mandal of Dr.

S. & S. S. Ghandhy College of Engineering and Technology, Surat, along with the Water Management Forum, Ahmedabad, jointly organized an "Elocution Competition" on 7th July 2021 through online mode. The competition featured topics such as the significance of tree-planting festivals in India, forest conservation for sustainable development, methods to increase food resource production, rainwater harvesting, and the benefits of medicinal plants. A total of 28 students from Dr. S. & S. S. Ghandhy College of Engg. & Tech., Surat, participated actively. Prizes and winner certificates were awarded to the top three participants, with three students receiving consolation prizes. E-certificates were distributed to all eligible participants to recognize their participation.





## TEACHER'S DAY CELEBRATION 2021

The Metallurgy Department celebrated Teacher's Day on September 5, 2021. Four students acted as teachers, giving lectures to the 3<sup>rd</sup> and 5<sup>th</sup> semesters. They shared their knowledge on metallurgy subjects with their classmates. This helped students understand the topics better. The event allowed students to experience teaching and learn from each other. It was a special way to appreciate teachers and promote learning among peers.



## VACCINATION DRIVE AWARENESS PROGRAMME

A talk was delivered to metallurgy students to make them aware about the ongoing situation of Covid19 pandemic and appropriate expected behaviour to avoid the spread of the virus. Students were informed to take all necessary actions for the same. Students were also motivated for vaccination. They were also asked to motivate their near and dear ones to fight against Covid-19. 34 students were remaining present in the session.



## PARIKSHA PE CHARCHA

The Metallurgy department organized a screening of the Bisag program "Pariksha Pe Charcha" featuring our Honorable Prime Minister Narendra Modi. Fourteen students attended this program. The screening aimed to inspire and motivate students through the insightful discussion led by Prime Minister Narendra Modi. It provided valuable insights and guidance for dealing with examination-related stress and challenges.

# EXTRA-CURRICULAR ACTIVITIES



## NATIONAL VOTER'S DAY – 2022 CELEBRATION

Election Commission of India is celebrating 12th National Voters Day on 25th January 2022. The theme for this year's NVD, 'Making Elections Inclusive, Accessible and Participative', envisages focus on ECI's commitment to facilitate active participation of voters during the elections and to make the complete process hassle free and a memorable experience for all categories of voters. Dr. S. & S. S. Gandhi College of Engineering & Technology, Surat has celebrated National Voter's Day on 25/01/2022. Metallurgy department staff and students have actively participated in this celebration and take a Voter's Oath.



# EXTRA-CURRICULAR ACTIVITIES

The number of co-curricular and extracurricular activities carried out at the institute and departmental level. The details of these activities are

Sr. No.	Activity Name	Date
1.	Tree Plantation	03.07.2021
2.	Kargil Vijay Divas	06.07.2021
3.	Van Mahotsav Elocution Competition	07.07.2021
4.	Webinar On Understanding and Awareness of Covid 19 Epidemic	10.07.2021
5.	Webinar On Your Guide to Inner Piece	24.07.2021
6.	Independence Day Celebration	15.08.2021
7.	Teacher's Day Celebration	04.09.2021
8.	Freedom India Run 2.0	11.09.2021
9.	PPT Making Competition on Culture of Gujarat and Chattisgarh	16.10.2021 To 22.10.2021
10.	School And Lake Cleaning Drive	26.10.2021
11.	Webinar On Legal Literacy	15.11.2021
12.	Webinar On Need for Fostering Communal Harmony/National Integration and Unity	25.11.2021
13.	Tree Plantation	20.10.2021
14.	Swachhta Abhiyaan	25.10.2021
15.	Voter Awareness Rally	25.11.2021
16.	Webinar On Nasha Bandhi and Kurivaj Nivaran	26.11.2021
17.	National Nadi Utsav: River Cleaning Drive	22.12.2021
18.	Mile To Fitness	01.01.2022
19.	Blood Donation Camp	04.01.2022
20.	Vaccination Drive	12.01.2022 & 18.01.2022
21.	National Voters Day	25.01.2022
22.	Eassay Competition on Freedom Fighetrs	27.01.2022
23.	Mini Marathon Under Fit India Program	21.02.2022
24.	Seminar On Financial Planning Life Cycle	22.02.2022
25.	Sexual Harassment Awareness	08.03.2022
26.	Poster Making Competition on Water Conservation Making the Invisible Visible	11.03.2022
27.	Riffle Shooting Activity in Fun and Food Festival	16.03.2022
28.	Fun And Food Festival 2022	16.03.2022
29.	Punit Sagar Abhiyaan	03.04.2022
30.	Tree Plantation at Devadh Village	12.04.2022
31.	Pledge For Spreading Awareness to Not Use Alcohol At Devadh Village	12.04.2022
32.	Thalassemia Test Drive	22.04.2022
33.	Project Competition on Catch the Rain Where It Falls When It Falls	28.04.2022
34.	Exhibition On Water Conservation and Harvesting	21.05.2022
35.	International Yoga Day	21.06.2022

# PROJECTS AND INDUSTRIAL TRAINING

## PROJECTS OFFERED IN 5<sup>th</sup> SEMESTER

Group	Project Title	Guide
1	Review on stainless steels	Mrs. B. H. Goyal
2	Review: Recent development in metal casting processes	Mr. S. F. Parmar
3	Development of metal matrix composite	Ms. S. M. Patel
4	Overview of polymer matrix composite material	Mr. M. J. Joshi
5	Improvement in performance of lead acid battery	Mr. T. K. Kyada
6	A study on arc welding defects their causes and remedies	Mr. R. D. Dave
7	Review on advanced ceramic material	Mr. N. G. Patel
8	Use of simulation software in metal casting process	Mr. A. M. Gautam

## INDUSTRIAL TRAINING

Sr. No.	Industry Name and Address
1	Drashti Casting & Forging GIDC Halol
2	Jay Metal Cast (JMT) Blok No A/15 Plot No 6/7/8 Udhna Surat
3	JMT India Inc. 59/60 Plot Sachin, Surat
4	L & T Heavy Engineering, L& T Limited Hazira, Surat
5	Hazira Refractory Ichhapore G.I.D.C Surat
6	Vittoria Design Private Limited
7	Drashti Casting & Forging GIDC Halol
8	Vertex Aluminium Extrusion Co.
9	JMT India Inc
10	Jay Metal Cast (JMT)
11	Everlite Batteries

# PLACEMENT & RESULT ANALYSIS

Companies Visited for Placement:

**AM/NS  
INDIA**

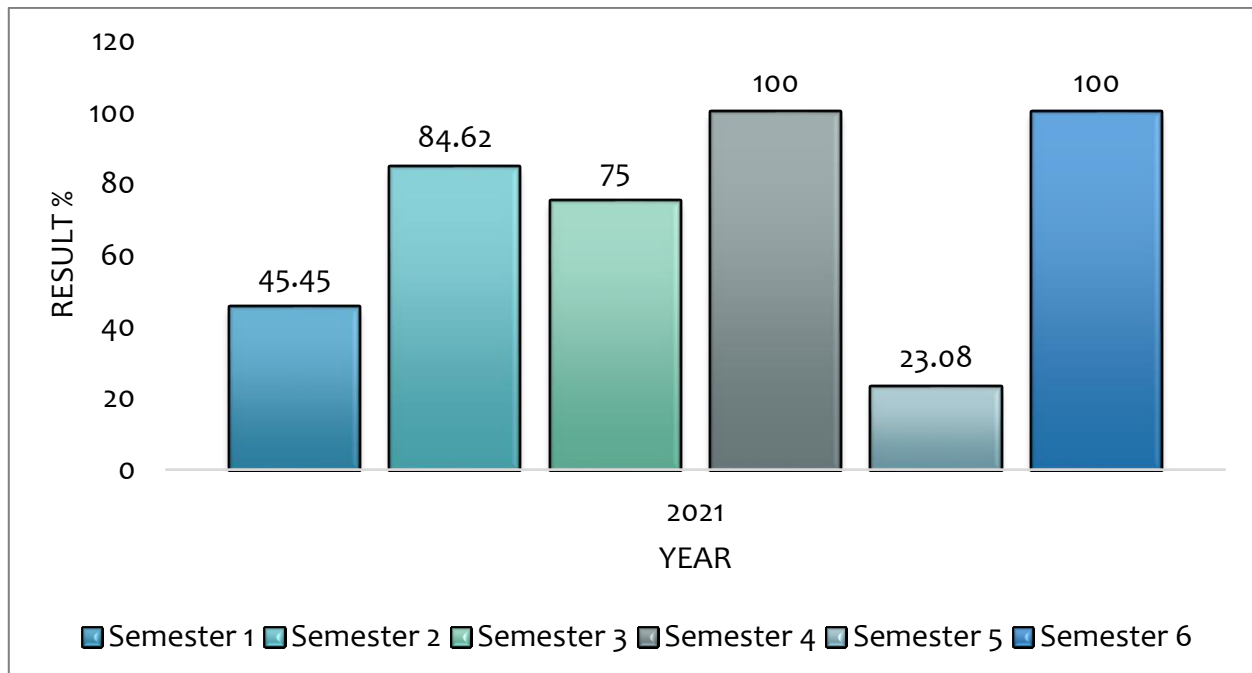
*Godrej* | **GODREJ & BOYCE**

 **LARSEN & TOUBRO**

 **WELSPUN CORP**



## RESULT OF 2021 EXAMINATION





# FACULTY PARTICIPATION

## 1. TRAINING

SR. NO.	FACULTY NAME	START DATE	END DATE	TRAINING NAME	ORGANIZER
1	Mrs. B. H. Goyal	12/07/2021	12/07/2021	Emotional Intelligence	NITTTR, Bhopal
2	Ms. S. M. Patel	12/07/2021	12/07/2021	Emotional Intelligence	NITTTR, Bhopal
3	Mr. M. J. Joshi	12/07/2021	12/07/2021	Emotional Intelligence	NITTTR, Bhopal
4	Mr. R. D. Dave	12/07/2021	12/07/2021	Emotional Intelligence	NITTTR, Bhopal
5	Mr. T. K. Kyada	02/08/2021	06/08/2021	Leadership Development	NITTTR, Bhopal
6	Mr. N. G. Patel	02/08/2021	06/08/2021	Leadership Development	NITTTR, Bhopal
7	Mr. T. K. Kyada	27/10/2021	27/10/2021	FDP On Integrated Personality	B.A.P.S., Varachha, Surat
8	Ms. S. M. Patel	21/02/2022	25/02/2022	Metallurgy For All	Metallurgy Dept., Govt. Eng. College, Gandhinagar
9	Mr. M. J. Joshi	21/02/2022	25/02/2022	Metallurgy For All	Metallurgy Dept., Govt. Eng. College, Gandhinagar

## 2. EXPERT LECTURE DELIVERED

SR. NO.	FACULTY NAME	Date	TOPIC	VENUE
01	Mrs. B. H. Goyal	18/06/2022	Metals "Inside Out" and Metallurgy	L. P. Savani School, L. H. Road, Varachha, Surat

## 3. PAPER PRESENTED/PUBLISHED

1. **Ms. Sonam M. Patel**, Vandana Rao, "Synthesis and characterization of magnesium melting fluxes", in Materials Research Express (Impact Factor 1.62), IOP Publishing on 15/11/2021. DOI of the paper is <https://doi.org/10.1088/2053-1591/ac30b2>
2. **Sonavari Yash, Mehul Rana, Sonam Patel**, Vandana Rao "Source of Calcium-CaO & CaCl<sub>2</sub> addition and its recovery effect into pure." GIT-Journal of Engineering and Technology 14 (2022): 60-64. ISSN 2249-6157.

# STUDENT PARTICIPATION

## STUDENT AWARD



Trushar Rana, student of Metallurgy Department got gold medal in GTU 11<sup>th</sup> convocation for getting highest marks in whole diploma engineering programme in metallurgy branch.



Mini Idli team (Lawaniya, Jenish, Krish) Secured 3<sup>rd</sup> Position IN Fun-N-Food Festival 2022

SR. NO.	STUDENT NAME	DATE	TYPE OF ACTIVITY	REMARKS
1.	05 Students of Metallurgy Department	27/1/2022	"Freedom Fighters"	-
2.	78 Students of Metallurgy Department	07/03/2022 to 11/03/2022	Webinar Series Metallurgy in Ancient India	-
3.	05 Students of Metallurgy Department	11/03/2022	Water Conservation - Making the Invisible Visible	Lawaniya Secured 1 <sup>st</sup> position and Kishan secured 3 <sup>rd</sup> Position
4.	08 Students of Metallurgy Department	16/03/2022	Fun-N-Food Festival 2022	Mini Idli team (Lawaniya, Jenish, Krish) Secured 3 <sup>rd</sup> Position
5.	11 Students of Metallurgy Department	21/03/2022	Sports Week 2022	Lawaniya secured 1 <sup>st</sup> position in Carrom
6.	09 Students of Metallurgy Department	21/04/2022	Tech Fest "Anveshan" 2022	-
7.	02 Students of Metallurgy Department	28/04/2022	"Catch the rain-where it falls when it falls "	-
8.	01 Student of Metallurgy Department	30/6/2022	"Say yes to life, no to drugs"	-

# TECHNICAL GALLERY

## Introduction to Aluminum

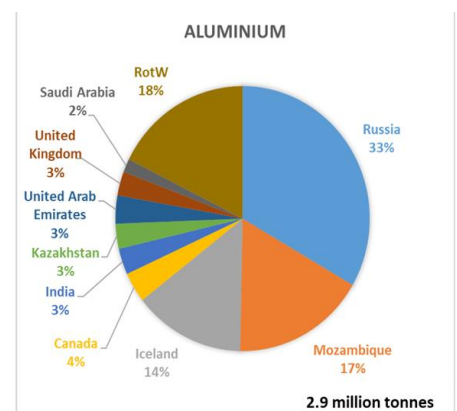
By Aaditya Singh, Harsh Kulkarni

Aluminium has a density lower than that of other common metals, about one-third that of steel. It has a great affinity towards oxygen, forming a protective layer of oxide on the surface when exposed to air. Aluminium visually resembles silver, both in its colour and in its great ability to reflect light. It is soft, nonmagnetic, and ductile. It has one stable isotope,  $^{27}\text{Al}$ , which is highly abundant, making aluminium the twelfth-most common element in the universe. The radioactivity of  $^{26}\text{Al}$  is used in radiometric dating



## Aluminum Production

This is a list of countries by primary aluminium production. Primary aluminium is produced from aluminium oxide which is obtained from bauxite and excludes recycled aluminium. Only countries with a minimum production of 100,000 tonnes are listed.



## Aluminium Applications

Aluminium is almost always alloyed, which markedly improves its mechanical properties, especially when tempered. For example, the common aluminium foils and beverage cans are alloys of 92% to 99% aluminium. The main alloying agents are copper, zinc, magnesium, manganese, and silicon (e.g., duralumin) with the levels of other metals in a few percent by weight.<sup>[147]</sup> Aluminium, both wrought and cast, has been alloyed with manganese, silicon, magnesium, copper and zinc among others. For example, the Kynal family of alloys was developed by the British chemical manufacturer Imperial Chemical Industries,



## Environmental Impact and Sustainability

High levels of aluminium occur near mining sites; small amounts of aluminium are released to the environment at the coal-fired power plants or incinerators. Aluminium in the air is washed out by the rain or normally settles down but small particles of aluminium remain in the air for a long time.

### **Title: A Brief Review of Aluminium Alloys: Properties, Applications, and Recent Advances**

**By Adep Lawaniya, Kishan Gohil, Dev Parmar**

Aluminium alloys are widely recognized for their exceptional combination of properties, making them indispensable materials in various industries. This review provides an overview of aluminium alloys, focusing on their key characteristics, applications, and recent advancements.

Aluminium alloys exhibit remarkable attributes such as lightweight, corrosion resistance, high thermal and electrical conductivity, and excellent machinability. These properties make them highly desirable for applications ranging from aerospace and automotive to construction and packaging industries.

In the aerospace sector, aluminium alloys are extensively utilized in aircraft structures due to their lightweight nature, contributing to fuel efficiency and enhanced performance. Similarly, in the automotive industry, aluminium alloys are employed to manufacture lightweight components, reducing vehicle weight and improving fuel economy.

Recent advances in aluminium alloy research have focused on enhancing their mechanical properties, corrosion resistance, and recyclability. The development of advanced alloying techniques, such as precipitation hardening and grain refinement, has led to alloys with improved strength and durability. Furthermore, the incorporation of novel alloying elements and microstructural modifications has resulted in alloys with superior performance in challenging environments.

Moreover, the recycling of aluminium alloys plays a crucial role in sustainable manufacturing practices, as aluminium is infinitely recyclable without compromising its mechanical properties. Efforts towards developing efficient recycling technologies and promoting the use of recycled aluminium alloys are underway to minimize environmental impact and conserve resources.

In conclusion, aluminium alloys continue to be at the forefront of materials innovation, driven by their exceptional properties and diverse applications. Ongoing research efforts aimed at further improving their properties and sustainability aspects ensure that aluminium alloys remain integral to modern industrial practices.

## Teacher's Day

I miss you my teacher, I miss my school,  
The days were happy and very beautiful.

Your teaching is helpful for us to grow,  
Bloom like a flower & rivers to flow.

Thank you, teacher, for everything you do,  
Behind every success there is share of you.

I wish to see you really really soon.  
I love you always till stars & the moon.

Written By: Swati Mandar Joshi

Mandar Joshi (Faculty)

સત્તા બદલવાની તાકત ધરાવું છું,  
શાહીના એક ટીપામાં લાખો લોકોની હિમ્મત ધરાવું છું,  
છું નાગરિક હું ઐતિહાસિક લોકશાહીનો,  
પોતાનો આગવો સ્વતંત્ર મત ધરાવું છું.

છાપામાં ખડકાતી વાતોની વણઝાર સામે,  
પુદની આંખો દેખી હકીકત ધરાવું છું.  
પોતાના દેશનું ભવિષ્ય છું હું,  
સુવર્ણ ભાવીનો હક ધરાવું છું.  
છું નાગરિક હું ઐતિહાસિક લોકશાહીનો,  
પોતાનો આગવો સ્વતંત્ર મત ધરાવું છું.

ખોખલા વાણદા ને દંભી આશ્વાસકોથી ઘેરાયેલો,  
વાસ્તવ ને દીવા સ્વપ્નની છણાવટ ધરાવું છું.  
ભલે હોય પૈસા અને પહોંચનો વધુ ભાર,  
હું મારા પલડામાં આખી રૈયત ધરાવું છું.  
છું નાગરિક હું ઐતિહાસિક લોકશાહીનો,  
પોતાનો આગવો સ્વતંત્ર મત ધરાવું છું.

છું એક નાનો બીજ હું; ભરતના આ ઉદ્યાનમાં,  
ગગન ભેદીને વિસ્તરવાની બનાવટ ધરાવું છું.  
છે ધર્મ મારો દેશપ્રેમ, હું દેશભક્તોનો વંશ છું,  
તન, મન ને કણકણમાં રાષ્ટ્રહિત ફક્ત ધરાવું છું.  
છું નાગરિક હું ઐતિહાસિક લોકશાહીનો,  
પોતાનો આગવો સ્વતંત્ર મત ધરાવું છું.

ના પક્ષથી-વિપક્ષથી, ના ભૂત ના ભવિષ્ય કાળથી,  
માત્ર મારી માતૃભૂમિના જનહિતથી નિસ્ખત ધરાવું છું.  
છું નાગરિક હું ઐતિહાસિક લોકશાહીનો,  
પોતાનો આગવો સ્વતંત્ર મત ધરાવું છું.  
પોતાનો આગવો સ્વતંત્ર મત ધરાવું છું.....

@સ્વાતી

## PUZZLE

## Metallurgy

B S P E C I F I C A T I O N S P U W Z D Y I F S  
P D H X F O P U A H T N E M E L E S N I G G M O  
M A G N E T I C N X M W Z Y M A X I M U M L D F  
L O M G H O N G Z V I E T E C L E P B P Z R N L  
N X E F E Y A W Z V N C O V Z G T S A P G G T U  
V J T S M D F T C O I A E B N R Q R O B Z I P O  
R F A O Y D O E L D M F R K V X T G N Z J L M R  
N Z L N B E B T P D U R P M G I Z T T C R F D E  
E S L I E B R G O O M U C E C Q P X D W O L F S  
R Z U C J K U H T M C S V L N P E V N B V H L C  
U M R Y S J T Z U T T S E W B E T M V B D A A E  
T E G Q Z E D R C E Q N O I Q T T M K I U F C N  
C E Y Z M X C U N S V Q E R C B J R G K S I I T  
U V I J Z F U O K T P Q P M C O T E A N S L T M  
R A C U R R E N T I N S F S P I V W B N L L Y A  
T L K R H V T V M N R J Y E T I M O P C T E L N  
S U E H O N I A R G U L U M S I U P N H P T A G  
O A S R H T T B I Q E N E A D T M Q M E C C N A  
R T R A G E A T C E Z T R J T C N I E M A T A N  
C I O A R T E T T H C B Z F U O H K L I I A M E  
I O H I I C I S O H A L G T T T X U I S R M B S  
M N A I F M V J E R Q Q O D I S T O R T I O N E  
W L V H G O Y M X E S Q O W Z B O P I R T X X L  
E T C H L H C R I U R A M O D I S J G Y Z E D O

microstructure	specifications	fluorescent	analytical	evaluation
distortion	microscope	metallurgy	penetrant	equipment
manganese	chemistry	particle	magnetic	abrasive
rotators	material	turbofan	current	minimum
maximum	metchem	surface	testing	element
method	fillet	limits	sonic	steel
grain	etch	eddy	high	flow
NDT	cut	low		

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MET.TEL

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