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GOVERNMENT ENGINEERING COLLEGE
GANDHINAGAR
॥ कर्ममयं ज्ञानं एवं ज्ञानमयं कर्म ॥

STUDENTS' SOCIETY OF METALLURGY ENGINEERING GANDHINAGAR
SSMEG
ESTD-2012
Regd.No. GUJ/2051/Gandhinagar

NEWSLETTER

METALLURGY DEPARTMENT

(NBA ACCREDITED 2024-25)

July 2024 to December 2024

METALLURGY

राष्ट्रीय प्रत्यायन बोर्ड

चौथा तल, ईस्ट टावर, एन. बी. सी. सी. प्लेस, भीष्म पितामह मार्ग, प्रगति विहार, लोधी रोड, नई दिल्ली -110003

NATIONAL BOARD OF ACCREDITATION

4th Floor, East Tower, NBCC Place, Bhisham Pitamah Marg, Pragati Vihar, Lodhi Road, New Delhi 110003

F.No- 20-78-2013-NBA **Date: 27-04-2022**

To
The Principal
Government Engineering College,
Gandhinagar Nr. G.E.B. Cross Road,
Sector - 28, Gandhinagar –Gujarat- 382028

Subject: Accreditation status of program applied by Government Engineering College, Gandhinagar Nr. G.E.B. Cross Road, Sector - 28, Gandhinagar –Gujarat- 382028.

Sir,

This has reference to your application I.D. No. 5695-15/06/2021 seeking accreditation by National Board of Accreditation to UG Engineering program offered by **Government Engineering College, Gandhinagar Nr. G.E.B. Cross Road, Sector - 28, Gandhinagar –Gujarat- 382028.**

2. An Expert Team conducted onsite evaluation of the program from **18th to 20th February,2022**. The report submitted by the Expert Team was considered by the concerned Committees constituted for the purpose in NBA. The Competent Authority in NBA has approved the following accreditation status to the program as given in the table below:

Sl. No.	Name of the Program(s) (UG)	Basis of Evaluation	Accreditation Status	Period of validity	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
1.	Metallurgy	Tier II June 2015 Document	Accredited	Academic Years 2022-2023 to 2024-2025 i.e.up to 30-06-2025	Accreditation status granted is valid for the period indicated in Col.5 or till the program has the approval of the Competent Authority, whichever is earlier

3. It may be noted that only students who graduate during the validity period of accreditation, will be deemed to have graduated with an NBA accredited degree.

4. The program has been granted accreditation for 3 years. **Government Engineering College, Gandhinagar Nr. G.E.B. Cross Road, Sector - 28, Gandhinagar –Gujarat- 382028** should submit the Compliance Report at least six months before the expiry of validity of accreditation mentioned above so as to be eligible for consideration by the concerned Committee in NBA for further processing of the accreditation status.

5. The accreditation status awarded to the program as indicated in the above table does not imply that the accreditation has been granted to **Government Engineering College, Gandhinagar Nr. G.E.B. Cross Road, Sector - 28, Gandhinagar –Gujarat- 382028** as a whole. **As such the Institution should nowhere along with its name including on its letter head etc. write that it is accredited by NBA because it is program accreditation and not Institution accreditation. If such an instance comes to NBA's notice, this will be viewed seriously.** Complete name of the program(s) accredited, level of program(s) and the period of validity of accreditation, as well as the Academic Year from which the accreditation is effective should be mentioned unambiguously whenever and wherever it is required to indicate the status of accreditation by NBA.

6. The accreditation status of the above program is subject to change on periodic review, if needed by the NBA. It is desired that the relevant information in respect of accredited program as indicated in the table in paragraph 2, appears on the website and information bulletin of the Institute.

Tel: +91 11 2436 0620-22, 2436 0654; Telefax: +91 11 4308 4903
Website: http://www.nbaind.org |Email:membersecretary@nbaind.org

Contd./_

7. The accreditation status awarded to the program as indicated in table in paragraph 2 above is subject to maintenance of the current standards during the period of accreditation. If there are any changes in the status (major changes of faculty strength, organizational structure etc.), the same are required to be communicated to the NBA, with an appropriate explanatory note.

8. A copy each of the Report of Chairman of the Visiting Team and Evaluators' Report in respect of the above program is enclosed.

9. If the Institute is not satisfied with the decision of NBA, it may appeal within thirty days of receipt of this communication giving reasons for the same and by paying the requisite fee.

Yours faithfully,

(Dr. Anil Kumar Nassa)
Member Secretary

Encls.: 1. Copy of Report of Chairman of the Visiting Team.
2. Copy of Expert Report of the Visiting Team.

ABOUT THE INSTITUTE

Established in 2004, Government Engineering College, Gandhinagar (GEC-Gn) takes pride in its highly motivated students. Our students are life-long assets that help this institute to continuously evolve and work towards its Vision. Approved by AICTE. The College is administrated by Directorate of Technical Education, Gujarat State, Gandhinagar. GEC Gn is affiliated to Gujarat Technological University. GEC-Gn offers its students a wide range of courses like Biomedical, Computer, Electronics & Communication, Instrumentation & Control, Information Technology and Metallurgy.

VISION OF THE INSTITUTE

To be a premier engineering institution, imparting quality education for innovative solutions relevant to society and environment.

MISSION OF THE INSTITUTE

- To develop human potential to its fullest extent so that intellectual and innovative engineers can emerge in a wide range of professions.
- To advance knowledge and educate students in engineering and other areas of scholarship that will best serve the nation and the world in future.
- To produce quality engineers, entrepreneurs and leaders to meet the present and future needs of society as well as environment.

METALLURGY

ABOUT THE DEPARTMENT

The Metallurgy Department since its inception in 2008 is a backbone of GEC-Gandhinagar's events, research activities and initiatives. It is a unique initiative of Government of Gujarat in the present science and technology education and research scenario of India. At present, the department offers a four year undergraduate course in engineering. Faculty members are good blend of industrial/ academic research experienced, studied from national and state reputed institutes. Department has developed COQ (Centre for Quality) NDT which established under "Vibrant Gujarat–2019"- Financial MOU in collaboration with Gulfnde along with various well equipped metallurgical laboratories.

Currently, the focus of department activities are multi-directional with an emphasis on both research and education. Our collaborations with FCIPT, CFER, INDUS University, PDEU, IIM–Baroda Chapter, IIF- Ahmedabad Chapter, ASM International - Gujarat Chapter, IE–Gujarat Section, etc. Students are encouraged and supported to actively participate in various curricular and non-curricular activities at different level.

VISION OF THE DEPARTMENT

Developing excellence in Metallurgy Engineering education through research, development innovation and team work for the benefit of society and environment.

MISSION OF THE DEPARTMENT

- To prepare competent metallurgy engineers who can apply metallurgical fundamentals to control and manage different metallurgical and materials processing operations to produce quality metals products in industries.
- To deliver information about current trends in the field of metallurgy and materials to the students.
- To encourage students to work on innovative projects related to metallurgy engineering for managing defects free, economical, energy efficient products, processes or devices to best serve the nation to fulfil the socio-economic, techno-commercial and environmental needs.

LIST OF FACULTY MEMBERS WITH QUALIFICATION

Sr. No.	Name of Faculty	Qualification	Designation
1	Dr. I. B. Dave	Ph.D (Met. & Mat. Engg.)	Professor & Head
2	Prof. S. I. Patel	ME (Met. & Mat. Engg.)	Assistant Professor
3	Dr. D. G. Sharma	Ph.D (Metallurgy)	Assistant Professor
4	Dr. H. H. Jadav	Ph.D (Metallurgy)	Assistant Professor
5	Dr. P. K. Nanavati	Ph.D (Met. & Mat. Engg.)	Assistant Professor
6	Dr. D. V. Mahant	Ph.D (Met. & Mat. Engg.)	Assistant Professor
7	Prof. B. R. Rana	ME (Met. & Mat. Engg.)	Assistant Professor
8	Dr. H. H. Thakar	Ph.D (Metallurgy)	Assistant Professor
9	Prof. R. C. Ghanghas	ME (Met. & Mat. Engg.)	Assistant Professor

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ACHIVEMENTS OF THE FACULTIES

Dr. I B Dave published 4 research papers in reputed journals. (Details are given in research activity).

'Prof. S I Patel completed a 5 days workshop on "Train the trainers programme on Effective Implementation of NEP 2020" in Technical and Professional Institutes of Gujarat during 14/10/2024 to 18/10/2024.

Dr. D G Sharma published research paper in reputed journal/Conference. (Details are given in research activity).

Appointed as Vice-Chairman of IIM Baroda Chapter for the Year 2024-25

Completed 2 weeks' industrial training on "Manufacturing of Iron and Steel Casting/Ferrous Foundry" at Metso Outotec India Private Limited during 01/07/2024 to 13/07/2024.

Coordinated 3 days lecture series on Quality Fundamentals for Metallurgy and Mechanical engineering students delivered by Mr. Deepak Prasad & Mr. Viraj Vyas.
Coordinated Tiranga Rally on 14/08/2024 as Gymkhana Coordinator.

Coordinated Essay writing competition under vikas saptah celebration on 11/10/2024.

Coordinated one day workshop on Advanced Manufacturing at PDEU on 10/10/2024

Dr. H H Jadav successfully completed 2-weeks Industrial training at Kalpataru Projects International Limited (KPIL), Gandhinagar from 15/07/2024 to 27/07/2024

Reviewed various research papers for reputed journals and conferences.

Dr. P K Nanavati delivered two technical sessions on- "Weldability and Welding Metallurgy of Steels" and "Destructive Testing of Welded joints" at CWI-S course as per IS 18224 on 17th November 2024 at IIW Baroda Branch.

Completed 2- Weeks Industrial Training on "Welding Qualifications of Metro Railway Vehicle Parts" at Lancer Laser Tech Ltd. at Mehsana . Gujarat from 01/07/2024 to 13/07/2024.

Coordinated one day workshop on Advanced Manufacturing at PDEU on 10/10/2024

ACHIVEMENTS OF THE FACULTIES

Prof. D V Mahant received Ph.D. degree from The M S University of Baroda on 24/9/2024 for his research on "Characterization of 7075 Aluminium alloy using modifier and heat treatment".

Coordinated 3 days lecture series on Quality Fundamentals for Metallurgy and Mechanical engineering students delivered by Mr. Deepak Prasad & Mr. Viraj Vyas.

Completed 2 weeks' industrial training on "Manufacturing of Iron and Steel Casting/Ferrous Foundry" at Metso Outotec India Private Limited during 01/07/2024 to 13/07/2024.

Coordinated 2 days workshop on "Industrial Autocad, Solidworks & GD&T" on 03/09/2024–04/09/2024 for Mechanical & Metallurgy Students.

Prof. B R Rana successfully completed 2-weeks Industrial training at Kalpataru Projects International Limited (KPIL), Gandhinagar from 15/07/2024 to 27/07/2024

Prof. H H Thakar received Ph.D. degree from Gujarat Technological University on 27/12/2024 for his research on "Experimental investigation on advanced GMAW process for welding of high strength steels used in petroleum refining".

Completed 2 week industrial training at Sahajanand Laser Technology Ltd. Gandhinagar during 01/07/2024 to 13/07/2024.

Received special appreciation from Principal and HOD for successfully organizing one week webinar series on Industrial Aspects of Metallurgy.

Contributed for organizing institute Alumni meet-2024 and cultural events on 05/10/2024.

Received special appreciation from National Innovation Foundation-India (DST) for reviewing grassroots innovative ideas under "Inspire - Manak Awards 2024-25".

Prof. R C Ghanghas successfully completed an online NPTEL MOOC Course on "Research Methodology" from 22/07/2024 to 13/09/2024.

Successfully completed a 2-weeks Industrial training on "Galvanizing Treatment on Steel Sections" at Kalpataru Projects International Limited (KPIL), Gandhinagar from 01/07/2024 To 13/07/2024.

Arranged an expert talk for Alumni meet-2024 on 05/10/2024.

Received special appreciation from Principal and HOD for successfully organizing one week webinar series on Industrial Aspects of Metallurgy.

Coordinated Essay writing competition under vikas saptah celebration on 11/10/2024

PEDAGOGY SESSION

Sr.No.	Name of Speaker	Department	Topic Delivered	Date
1.	Dr. H H Jadhav	Metallurgy	Industrial Training at Sabarmati Gas Limited	12/07/2024
2.	Dr. P. K. Nanavati	Metallurgy	Welding Qualification of Metro Railway Parts	16/07/2024
3.	Dr. D. V. Mahant	Metallurgy	Industrial Casting Practice at Metso	18/07/2024
4.	Prof. R. C. Ghanghas	Metallurgy	Galvanizing Treatment of Steel Section	19/07/2024
5.	Dr. H. H. Thakar	Metallurgy	Industrial Training at Sahajanand Laser Technology Limited	20/07/2024
6.	Dr. D. G Sharma	Metallurgy	Sand Casting, Defects and their Prevention	22/07/2024

GLIMPSES OF EXPERT LECTURE

1. On the occasion of Teachers Day celebration, Metallurgy & Mechanical department organized an online expert talk on "Business Opportunities in Non Destructive Testing (NDT)" by Mr. Dhruval Kukadiya, Business Development Executive, Terahertz Engineering Services Pvt. Ltd. On 05/09/2024 which was coordinated by Dr. D G Sharma, Dr. D V Mahant and Dr. D A Patel. Students and faculty members of metallurgy and mechanical department have taken advantages of the expert talk.

2. Expert Talk on 'Material Thermodynamics' at Metallurgy Department, Government Engineering College, Gandhinagar on 10/09/2024 by Mr. Yakshil Choksi Professor of Metallurgy department in government polytechnic Gandhinagar which was coordinated by Dr. H H Jadhav and Prof. S I Patel.

GLIMSES OF EXPERT LECTURE

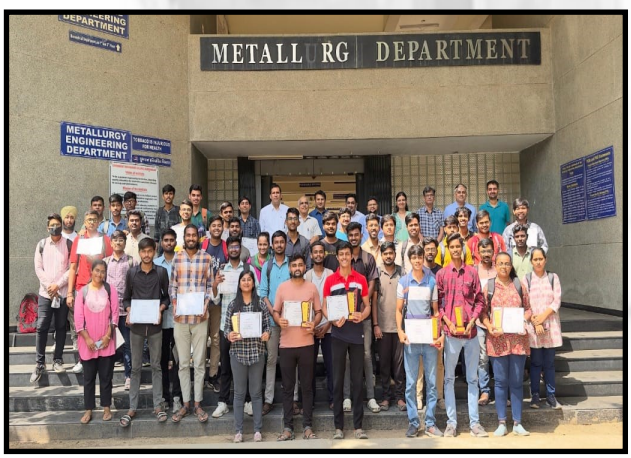
3. Expert Talk on 'Welding Practice and Code Requirements' at Metallurgy Department, Government Engineering College, Gandhinagar on 12/09/2024 by Dr. Subhash Das Senior Welding Engineer, ITW Welding Group India Pvt. Ltd Baroda which was coordinated by Dr. P.K Nanavati and Dr. D A Patel. Students and faculty members of metallurgy and mechanical department have taken advantages of the expert talk.

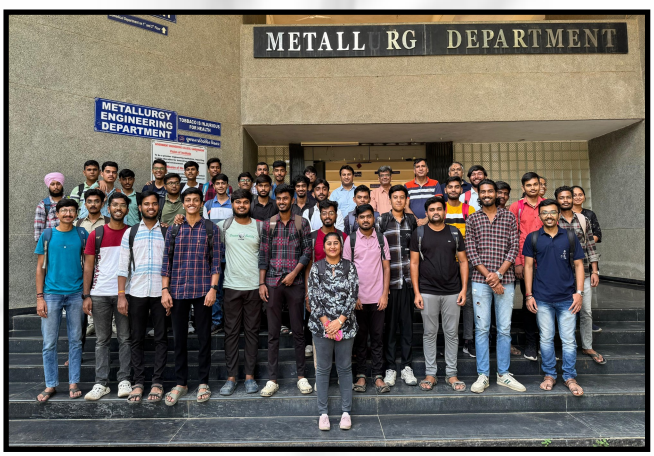
4. Expert Talk on 'Failure analysis-case studies' At Metallurgy Department, Government Engineering College, Gandhinagar on 30/09/2024 by Dr. Santhy K. ,Prof and Head of Metallurgy and materials engineering department at Indus University , Ahemdabad . which was coordinated by Dr. P K Nanavati.

5. Expert talk by Dr. Mukesh Ranjan on "Plasma Technology and its application" on 06.09.2024 at FCIPT, Gandhinagar. Expert talk Coordinated by Dr. D G Sharma & Prof. B R Rana.

GLIMPSES OF "LECTURE SERIES"

Sr.No.	Date	Expert Details	Topic	Coordinators
1	31/08/2024	Mr. Deepak Prasad Quality & Operational Excellence Leader	"Introduction to Quality"	Dr. D G Sharma Dr. D V Mahant Dr. D A Patel
2	21/09/2024		"Total Quality Management (TQM)"	
3	05/10/2024		"Introduction to JIT (Just In Time)"	





GLIMPSES OF "WEBINAR SERIES"

Under the guidance of Dr. S. P. Dave, (Principal, GEC Gandhinagar), Metallurgy department, GEC Gandhinagar has organized one week webinar series on "Industrial Aspects of Metallurgy" in association with alumni association Students Society of Metallurgy Engineers Gandhinagar during 21/10/2024 to 25/10/2024, 11:00 AM onwards.

This event was organized by Dr. H. H. Thakar and Prof. R. C. Ghanghas. Motive of this event was to give exposure to students and make them familiarize with various advancement and research in metallurgy by giving online expert lectures.

The webinar series was inaugurated on 21/10/2024 11:00 AM by Dr. I. B. Dave, HOD Metallurgy Dept. GEC Gandhinagar. More than 45 participants like current students and alumni were remain present. Online practical session and expert lectures were given on various topics of metallurgy during this event. Uniqueness of the event was the expert speakers, being alumni of the department and currently working on remarkable positions in reputed industries.

Sr.No.	Date	Expert Details	Topic
1	21/10/2024	**Dr. Naga Sruthi Neelam** Asst. Prof., NIT Raipur	**"Additive manufacturing of materials: An overview"**
2	22/10/2024	**Mr. Naitik Desai** Welding & Metallurgy Expert, Alstom India Ltd. (Ex-L&T)	**"Industrial aspects of welding"**
3	23/10/2024	**Mr. Rizwan Qureshi** Ph.D scholar, IIT Gandhinagar	**"Surface composite fabrication using FSP"**
4	24/10/2024	**Mr. Nachiketa Jani** Electrical Executive, Secure meters ltd.	**"Green Tech: Navigating sustainability and carbon footprints for future"**
5	25/10/2024	**Dr. Jyoti Menghani** Asso. Prof., SVNIT Surat	**"Powder metallurgy: An overview"**

GLIMPSES OF "ALUMNI MEET OCT 2024"

As a part of Alumni meet an expert session by Alumni was conducted at Metallurgy Department, Government Engineering College in offline mode for 3rd, and 5th, and 7th sem. Total 45+ participants have attended the session very interactively. Alumni speaker have given technical talk as well as carrier guidance for abroad study and settlement struggles as well as job finding. Current Metallurgy and Mechanical students have benefited a lot by gaining all information in this session. Session was concluded by vote of thanks by student member followed by cultural event 3:30 pm onwards. Event was followed by cultural programs from 3:30 PM onwards. This event was organised by Dr. H H Thakar and Prof. R C Ghanghas.

Sr. No.	Time	Expert Details	Topic
1	11:00 am to 12:00 am	**Mr. Viraj Vyas** Alumni Student Batch 2014 Passout GEC, MET Department Supplier Quality lead India SPX Flow Pvt.ltd	**Felicitation Program on Quality Fundamentals (Offline)**

STUDENT ACTIVITES

1. Olympics and Paraolymics-2024

Date :- 06/08/2024

Location :- Computer Lab, Metallurgy Department.

3rd, 5th & 7th semester students and Faculty of Metallurgy and Mechanical Department have Proudly watched ang enjoyed the Olympics and Paraolympics-2024 under the Screening of India Feed over 44+ Students and 12 Faculty have participated in this Screening of India Feed 2024. This event was coordinated by the Professors of Metallurgy Department Dr. D. G. Sharma and Prof. R. C. Ghanghas.

2. Tree Plantation Drive (Umeed Foundation)

Date :- 14/08/2024

Location :- Block 8 Metallurgy Department

Tree Plantation Drive was organized by Metallurgy Department Collabration with umeed Foundation, Gandhinagar to mark the tree plantation week and it was done with metallurgy professors. It marked with plantation of 20 tree sapling inside the department with 3rd, 5th & 7th semester students.

3. Fit India Pledge

Date :- 28/08/2024

Location :- Room 8013, Metallurgy Department

Students and Faculty of metallurgy Department have taken the Fit India Pledge to lead an active and a healthy lifestyle and will ensure to do his/her best in encouraging people to follow the same.

STUDENT ATIVITES

4. Teachers Day Celebration

Date:- 05/09/2024

Location:- Computer Lab, Metallurgy Department

The teachers day was celebrated with great enthusiasm and spirit from 7th semester students who arranged and the anchoring was done by Miss Shibbu Singh. Cake was cut to mark the event. The event marked with speeches and thoughts were shared of each faculty member and ended with Honouring the faculty member with a gift .

5. 4th Global RE-INVEST

Date:- 18/09/2024

Location:- Mahatma Mandir Convention and Exhibition Centre, Gandhinagar

RE-INVEST 2024, the fourth edition of this flagship event by the Ministry of New and Renewable Energy [MNRE] was held between 16 th to 18 th September in Gandhi Nagar, Gujarat. Over 40+ BE Metallurgy sem 3, 5 & 7th semester students & 3 faculty members attending the event.

6. Bharat Vikas Pledge

Date :- 07/10/2024

Location :- Metallurgy department

Students and Faculty of metallurgy Department have taken the Bharat Vikas Pledge , expiressing their commitment to the unity and integrity of India and working towards the vision of 'Ek Bharat, Shreshth Bharat'.

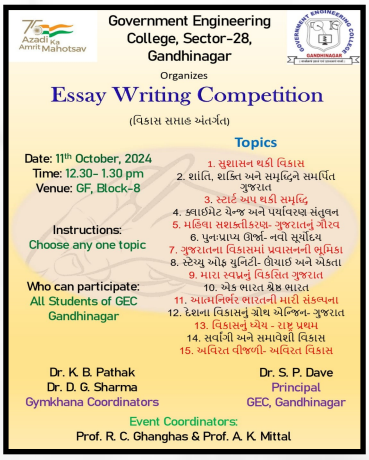
STUDENT ACTIVITES

7. Essay Writing Competition

Date:- 11/10/2024

Location:- Block 8, Metallurgy Department

GEC Gandhinagar organized an institute level essay writing competition fon 15 Different Topics . This event was coordinated by the Professors of Metallurgy Department Dr. D. G. Sharma and Prof. R. C. Ghanghas.



8. Vikas Saptah Visit-2024

Date:- 14/10/2024

Location:- Mahatma Mandir, Gandhinagar

Vikas Saptah visit at Mahatma Mandir with Faculties and students in the presence of MLA Sh. Alpesh Thakor. Students were accompanied by the Professors of Metallurgy Department Dr. D. G. Sharma and Prof. R. C. Ghanghas.

9. SSIP Sensitisation Program

Date:- 17/10/2024

Location:- Computer lab, Metallurgy Dept.

SSIP Sensitisation Program by SSIP GKS- PMU online on MS Team Meeting. Over 48+ Students of Metallurgy and Mechanical Department of Semester 3 participated in the program.

10. Innovation in Surface Engineering

Date:- 28/11/2024

Location:- L D College of Engineering

Faculties and students of Metallurgy department GEC Gandhinagar attended Live Demo of Innovation in Surface Engineering organized by ASM Gujarat & IIF Ahmedabad Chapter session.

STUDENT ACHIEVEMENTS

For being semester toppers in GTU exams Pratik Parkale (220133121016) and Huprikar Nihar (210130121504) was awarded appreciation certificate in presence of Principal GEC Gandhinagar on 15/08/2024.

METALLURGY DEPARTMENT
GOVERNMENT ENGINEERING COLLEGE
SECTOR 28, GANDHINAGAR-382028

Certificate of Appreciation

This certificate is awarded to
Mr./Ms. Huprikar Nihar R
for securing highest SPI (9.54) B.E.(METALLURGY)
in semester 7 during Academic Year 2023-24.
This certificate is issued on 15th day of August, 2024.

HEAD OF DEPARTMENT
PRINCIPAL

As a part of Lecture Series was conducted at Metallurgy Department, Government Engineering College in offline mode for 3rd, 5th, and 7th semester of Metallurgy and Mechanical Department. Total 45+ participants have attended the session very interactively. This Lecture Series was delivered by Mr. Deepak Prasad, Quality & Operational Excellence Leader . At the Last session of this Lecture series an Online Exam was conducted by Mr. Deepak Prasad with the coordinating faculty of Metallurgy Department Dr. Devang V. Mahant. In this Online Exam the top 3 Winners were Awarded by a Momento and Certificate Form Metallurgy and mechanical Department.

1st Rank
Yash Shinde

2nd Rank
Amit Gaygaye

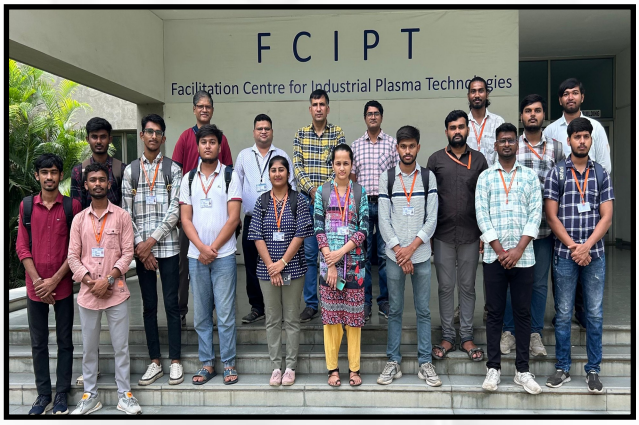
3rd Rank
Shibbu Singh

TECHNICAL/ INDUSTRIAL VISIT

Date :- 06/09/2024

Location :- Facilitation Centre for Industrial Plasma Training, GIDC.

Students of Government Engineering College, Gandhinagar of 5th & 7th semester planned visit at FCIPT with guiding faculties Dr. D G Sharma and Prof. B R Rana. The visit ended with group photos with the working faculties at FCIPT and with all the students in front of the main building and the visit was successful. The visit started with presentation at auditorium based on Plasma Technology and its Application by Dr. Mukesh Ranjan. Students clearance of doubts and thorough ideas were cleared with various curriculum based topics of Material Characterization of 7th semester and Environmental Degradation of Materials of 5th semester.



Date :- 23/09/2024 to 27/09/2024

Location :- CGCRI Naroda, Ahemdabad Traning.

9 students of Metallurgy dept., Government engineering College Gandhinagar of 7th semester took one week training under Vocational Training Program on "The Manufacturing Process of Ceramic Tiles Organized by CSIR-CGCRI Naroda Centre, Ahemdabad. This training program was sponsored by Gujarat Knowledge Society (GKS), Directorate of Technical Education Gandhinagar, Gujarat under 'IMPACT SCHEME'

Date :- 15/10/2024

Location :- Milestone Lab Visit, S Plus Tube Tech

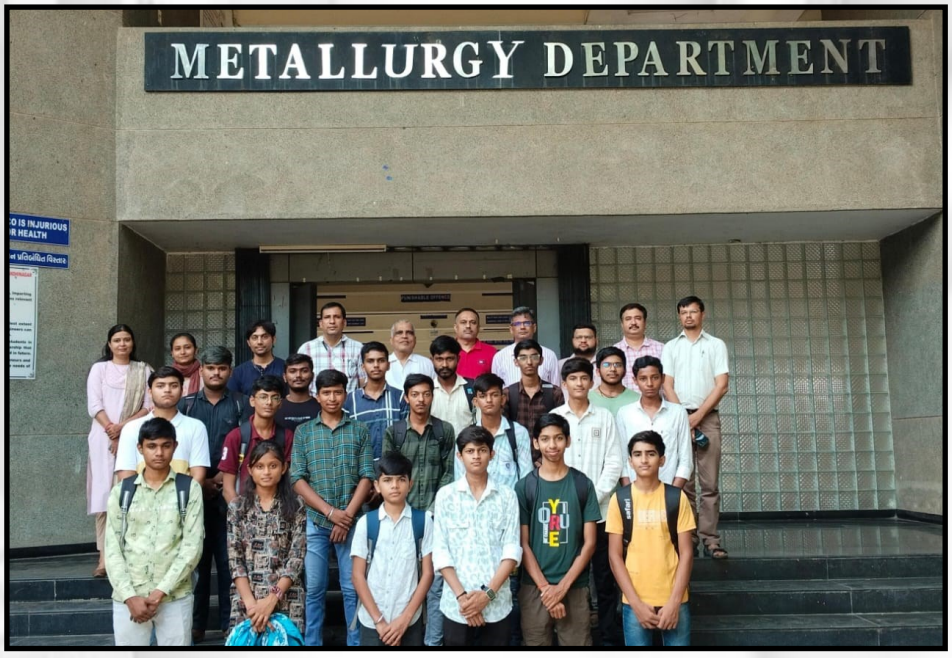
Students of Government engineering College Gandhinagar of 7th semester plan to visit at two different industries on the same day in Chhatral GIDC Vadavsvami, Gujarat This industrial visit was coordinated by Dr. H H Jadav and Dr. D V Mahant.

1. MILESTONE ENGINEERING SERVICES- Laboratory in Vadavsvami, Gujarat
2. S PLUS TUBE TECH - Stainless steel plant in Vadavsvami, Gujarat

ONE DAY WORKSHOPS

One day Workshop on "Advanced Manufacturing" for BE (Metallurgy Engineering) Students is Jointly Organised by Metallurgy Engineering Department, Government Engineering College, Gandhinagar; Mechanical Engineering Department, Pandit Deendayal Energy University, Gandhinagar; Indian Institute of Metals, Baroda Chapter; Indian Institute of Welding, Ahmedabad Chapter & IIW-PDEU Students Chapter on 10/10/2024. Workshop was held at Mechanical Department, SoT, PDEU, Gandhinagar, Gujarat. Dr. Daulat Kumar Sharma, Assistant Professor, GEC Gandhinagar and Vice Chairman, IIM Baroda chapter; & Dr. P K Nanavati Assistant Professor were coordinators of workshop. Total 20 students of GEC, Gandhinagar attended the workshop.

In the New Education Policy (NEP-2020), interdisciplinary knowledge has been encouraged. Accordingly, a one-day workshop "Metallurgy for Non-Metallurgist" was organized on 22/10/2024 by the Department of Metallurgy (NBA Accredited), Government Engineering College, Sector 28, Gandhinagar in association with the Department of Metallurgy, Gandhinagar, Government Polytechnic, Sector 26, Gandhinagar to enhance the skills of Diploma Mechanical Engineering students of G. P. Gandhinagar at the Department of Metallurgy, Government Engineering College. The event was coordinated by Dr. D G Sharma and Dr. D V Mahant.



RESEARCH ACTIVITIES

Research Paper counter (Jan 2019 onwards)	Previously published	Addition	Total
	53	5	58

Sr. No.	Title of the Paper	Authors	Publication
1	Comparative Analysis of RMD and FCAW processes on 316L Stainless Steel: Effects of Welding Parameters on Weld Bead Characteristics	Ravi Dave, Indravadan B. Dave, Jay J. Vora, Subhash das, Sonam Patel	International Research Journal of Engineering and Technology (IRJET), July-2024
2	An extensive overview of Al-Mg-Si alloy's electrochemical behavior	Tushal K Kyada, Indravadan B. Dave, Sonam Patel	International Journal of Metallurgy and Alloys
3	Thermal Spray coating—An alternative coating solution in place of hot—dip galvanizing process in present industrial scenario	Indravadan B. Dave,	Journal of Thin Films Coating Science Technology and Applications
4	Multi objective optimization of welding process variables in RMD and FCAW using HTS algorithm for 316LN stainless steel	Ravi Dave, Indravadan B. Dave, Jay J. Vora, Rakesh Chaudhari, Subhash Das, Parashant Kumar Gangwar	Journal of Discover Applied Sciences
5	Mechanical and wear behavior of al-steel solid state cladding produced by friction stir surfacing	Kedar Badheka, Daulat Kumar Sharma, and Vishvesh Badheka	E3S Web of Conferences

MEDIA COVERAGE

TRAINING/INTERNSHIP (2 WEEKS)

During 29/06/2024 to 12/07/2024, all the students of 6th semester Metallurgy, have undergone 2 weeks training program in reputed industries as listed below as a part of GTU curriculum.

Sr. No.	En. No.	Name of Student	Name of Industry/Institute
1	210130121524	Tanmay Prakashrao Yede	Ashok Leyland Limited, Bhandara
2	200130121001	Kelvin Vikani	Metalab Analytical Pvt Ltd.
3	210130121003	Shaikh Arsh	Divine Metallurgical Services Pvt. Ltd.
4	210130121004	Shaikh Shafiq	Divine Metallurgical Services Pvt. Ltd.
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TRAINING/ACTIVITY ATTENDED BY FACULTY

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1	Dr. I. B. Dave	Certificate of Publication of Manuscript 'An Extensive Overview of Al-Mg-Si Alloys Electrochemical Behaviour ' issue in volume 09	Feb-2023	International journal of Metallurgy and Alloys
		Certificate of Appreciation for participating in the Blood Donation Camp , District Branch in the Banquet hall of Raj Bhavan	15/07/2024	Raj Bhavan, GMERS General Hospital Gandhinagar , Civil hospital Ahemdabad and Indian Red Cross society Ahemdabad
2	Prof. S. I. Patel	Certificate of Participation in the faculty Development Program-2024, themed 'Change the Lens, Change the Life '	09/08/2024	Integrated Personality Development Course (IPDC) Faculty Development Programme-2024
		Certificate of Participation in 5 days workshop on train the trainers programme on Effective Implementation of NEP 2020 in Technical and Professional Institutes of Gujarat	14/10/2024 to 18/10/2024	CTE and NITTTR
3	Dr. D. G. Sharma	Certificate of Appreciation for participating in the Blood Donation Camp , District Branch in the Banquet hall of Raj Bhavan	15/07/2024	Raj Bhavan, GMERS General Hospital Gandhinagar , Civil hospital Ahemdabad and Indian Red Cross society Ahemdabad
		Certificate of Participation in online webinar on "Positive Attitude for Professional Excellence "	19/10/2024	KCG, Education Department, Govt. of Gujarat.
		Certificate of Participation in online webinar on "Athlete's Path from Home to the Olympics"	29/08/2024	KCG, Education Department, Govt. of Gujarat.
4	Dr. H. H. Thakar	Certificate of Participation in online webinar on "Wonder of Gujarat"	21/08/2024	KCG, Education Department, Govt. of Gujarat.
		Certificate of Participation in attending online webinar on "Debunking Mythology"	04/10/2024	KCG, Education Department, Govt. of Gujarat.
		Certificate of Participation in attending online webinar on "Stress Management and Work Life Balance"	18/12/2024	KCG, Education Department, Govt. of Gujarat.

- By Mr. Arzoo Bhalodiya (210130121009)

Stir-Friction Welded Al/SiC Composites Fabricated by Lost Foam Casting

ABSTRACT:-
This article presents the effects of inserting sub-micron hard silicon carbide (SiC) particles in a welded zone of aluminum (Al)/SiC metal matrix composite. Two parts of Al/35 wt. % SiC composites fabricated by lost foam casting (LFC) were welded together using friction stir welding (FSW) process. As reinforcement, 5 wt. % of SiC particles were inserted in the welding zone of the composites to enhance their microhardness and tensile strength as well as alleviate their thermal shock and weight loss/abrasion resistance. The optical images showed a good dispersion of SiC particles in the welded zone that resulted in a higher microhardness and tensile strength. The presence of well-dispersed SiC particles exhibited a good shock resistance of the composite even at higher temperatures, and lower weight loss (better corrosion performance) under salt spray test and a harsh 5% w/v NaCl solution for the presence of a hard equilibrium SiC and Al4C3 phases with further addition of SiC particles.
Keywords: FSW; lost foam casting; SiC; mechanical properties; metal matrix composite.

INTRODUCTION:-

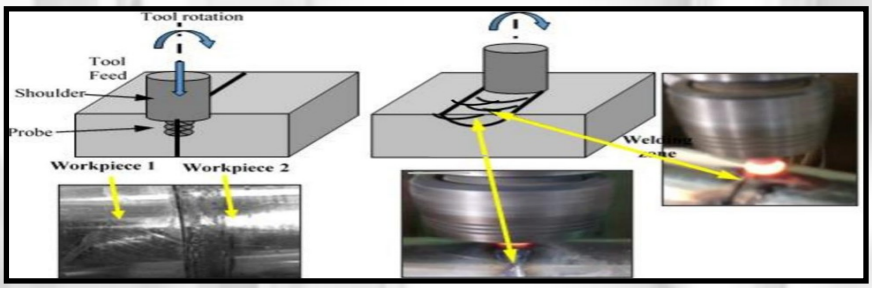
Aluminum alloys consider one of the most applicable engineering materials/alloys widely used in construction, automobile, marine and aerospace as well as mineral processing industries for their light weight, good thermal conductivity and moderate mechanical properties. Among these alloys are heat treatable and corrosion resistant alloys-based SiC metal matrix composites (MMCs) which generally used in X-37B and X-38 aircrafts parts like nose cone, leading edge wing and engine components. However, such complex shapes are difficult to be fabricated by traditional casting processes and hence some of their parts are required to be joined together by appropriate joining method. Compared to the base aluminum alloy Alloy, it was found that the tensile strength, elongation and Vickers micro-hardness of the stir welded alloy increased by 92%, 54%, and 75% respectively for the formation of a very fine grain size at the nugget zone and the uniform dispersion of reinforcement particles.

Fabrication of Al/SiC composite

To fabricate Al/SiC metal matrix composite, Al alloy was melted in an induction furnace using ceramic crucible at 780°C with a total size of the prepared batch is 750 cm3. The SiC particles were added by 35 wt. % to the patch, well stir-mixed and poured in a small mold having a Styrofoam pattern according to lost foam casting. Upon cooling, squared plates of 150 mm ×150 mm dimensions and thickness of 5 mm were prepared for the following welding process.

Friction stir welding of Al/SiC composite

Friction stir welding (FSW) as illustrated in Figure was applied to join two similar Al/SiC MMCs workpieces (butt joints) at a rotation speed of 900 rpm. To investigate the effects of SiC particles on the materials properties of the welded joints, a 5 wt. % SiC particles were inserted in the middle butting welding zone during the friction stirring process. Thereafter, a post-welding heat treatment was performed at 200ºC for all welded joints to relief any residual stresses and recrystallization



Conclusions:-

This study conducts the fabrication of Al alloy-reinforced by 35 % SiC metal matrix composite (MMCs) by the lost foam casting (LFC), and also investigates the role of inserting 5% SiC particles in the welded zone of the welded FSW Al/SiC MMCs. The results revealed that the successful fabrication of Al/SiC MMCs by LFC with a homogeneous fined-grain structure. Inserting of SiC particles in the welding interface zone exhibited a considerable increase in the Vickers microhardness and tensile strength of the reinforced Al/SiC MMCs which was ascribed for the presence of hard uniformly dispersed SiC and intermetallic phases in the aluminum matrix as well as the FSW led to refine the grain particles of the pre-casted composites. This enhancement in mechanical properties also caused in a better corrosion/abrasion resistance and higher thermal shock resistance of the Al/SiCS compared to the aluminum alloy.

REFRENCES:-

Effect of SiC Particles on Mechanical Properties of Stir-Friction Welded Al/SiC Composites Fabricated by Lost Foam Casting Moe Rabea1, Mushtaq Albdiry Department of Industrial and Manufacturing Engineering, College of Engineering, California State Polytechnic University, United States, Published: 07-03-2024.

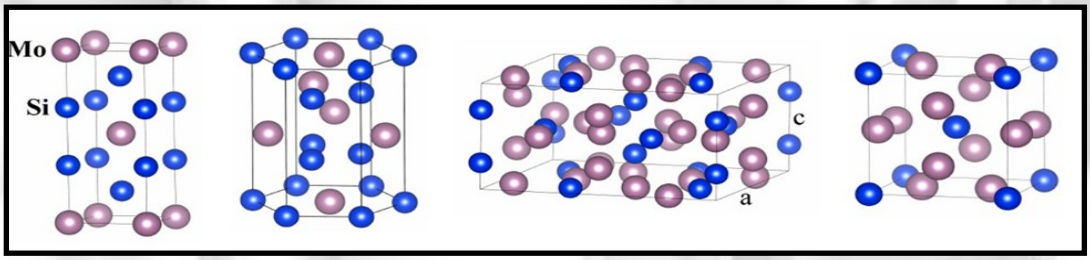
- By Mr. Viraj Ovhal (220133121014)

Mo-Si Intermetallic Compounds as Ultrahigh-Temperature Materials

ABSTRACT:-
Mo-Si compound-based ultrahigh temperature structural material (UHTM) is a new high temperature structural material with great potential due to its high melting point, high hardness, and suitable density. As an important material to meet the demands of advanced high-temperature structural applications in the range 1200–1600 C, in oxidizing and aggressive environments, it has attracted the attention of researchers in aerospace, energy, chemical industry, machinery, mechanical metallurgy, and other fields. However, both the high brittleness at room temperature and insufficient strength at high temperature have not been solved yet.
Keywords: molybdenum silicide; microstructure; oxidation; fracture toughness; creep

INTRODUCTION:-
Traditional single-crystal nickel-based alloys are used for the application at ~1100 C with hot spots of ~1200 C, which is ~90% of their melting point. Using complex cooling systems and thermal barrier coatings, these materials can exist in the hottest regions of a turbine engine where temperatures can approach 1500 C. Ultrahigh-temperature material refers to a single material or combination of materials that can be used at temperatures above 1600–2000 C, including refractory metals, ceramic matrix composites, and modified C/C composites. Ultrahigh-temperature material has high strength, high-temperature oxidation resistance, and high-temperature corrosion resistance, which can be used in aircraft nose cones, the wing leading edge, the rocket nozzle, the combustion chamber, the hot end of the engine, and other key parts or components. At present, the UHTMs under study still have numerous limitations. Ceramics with higher melting point matrix composites are brittle and difficult to toughen. Although carbon/carbon composites could maintain high strength at 2200 C, their high-temperature oxidation resistance is poor, and their production and processing are expensive. Refractory metal Mo has a high melting point, low density, low expansion coefficient, high elastic modulus, high wear resistance, and embrittlement resistance in oxidative/corrosive environments. Therefore, research on Mo-Si series intermetallic compounds has attracted much attention.

Crystal Structure and Performance Characteristics
The three intermetallic compounds have different crystal structures, which grant them significantly different physical and chemical properties. The Mo-Si series intermetallic compounds have different crystal structures, and the crystal structure of the compounds The Mo-Si series intermetallic compounds have both metal and covalent bonds. Mo and Mo are combined by metal bonds, Si and Si are combined by covalent bonds, and the bonds combining Mo and Si have the characteristics of the two bonds. The metal bonds grant the Mo-Si series intermetallic compounds a certain level of plasticity and good electrical and thermal conductivity. The covalent bonds enhance the atomic bonding force of the Mo-Si intermetallic compounds, slowing down the diffusion between components and giving them a high melting point, high hardness, and good creep resistance. Thus, the high-temperature oxidation resistance and corrosion resistance of the compounds improve significantly, but the melting point decreases and room temperature brittleness increases



Application of Mo-Si Series Intermetallic Compounds
As a new high-temperature structural material, Mo-Si series intermetallic compounds have following four structural applictions:
(1) As the matrix of Mo-Si-based composite materials;
(2) As the reinforcing agent of structural ceramic composites to improve the mechanical properties of the materials at high temperature;
(3) Because of its high melting point and excellent high-temperature oxidation resistance, it becomes a high-temperature welding material for structural ceramics;
(4) Used as high-temperature anti-oxidation coating for refractory metals and carbon-based materials.

REFRENCES:-
Jiang, L.; Zheng, B.; Wu, C.; Li, P.; Xue, T.; Wu, J.; Han, F.; Chen, Y. AReview of Mo-Si Intermetallic Compounds as Ultrahigh Temperature Materials. Processes 2022, 10, 1772. https://doi.org/ 10.3390/pr10091772

- By Miss. Jahnavi Ponnaganti (240133121004)

Random selection for top jobs is not a Crazy Idea

Picking any candidate from a pre-screened talent pool works well — and boosts diversity

Have you become bored reading headlines that lament the absence of diversity at the top of organizations? My hands even feel heavy writing this now. To raise the number of women, black and minority ethnic people in leadership positions, radical change is needed. I am proposing the use of random selection from a pre-chosen pool of candidates for promotion into middle management.

Sounds extreme? Maybe. But think about conventional recruitment and promotion practices. They assume that the "best people will reach the top". Yet many good candidates are often unwilling to throw their hat into the ring. Years of overt and covert discrimination can predispose women and minority candidates to be psychologically wary of entering competitions and more likely to suffer psychologically from failure or rejection. The willingness to compete for management and leadership roles requires self-confidence and a belief that the system is both fair and meritocratic.

On the demand side, recruiters are prone to biases and other irrationalities. Evidence from neuroscience shows that stereotype associations, which influence behaviour through unconscious biases, are hard to control. When candidates differ greatly in their characteristics, they are more difficult to compare. Research suggests that evaluations are then more likely to be implicitly influenced by prejudices, stereotypes and in-group favouritism. In short, although decision makers are eager to select the most qualified candidate, they often fail to do so.

Some solutions address the supply side by trying, for example, to "fix the woman". She is encouraged to "lean in" or "ask more" when in fact the evidence shows that women have been asking for higher pay and promotions, but just not getting them. In my experience the most ubiquitous form of bias comes through "homophily", or selecting in your own image — often practised by people who are unaware of it. Homophily is evident on hiring panels, across management and in many social settings.

The process would involve three stages. First, human resources will advertise a post and invite strong candidates to apply — not merely relying on the naturally confident. Recruiters may choose to announce at this initial point that the vacant post will, at the final stage, be filled by lot. In the second stage, the promotion panel draws up a list of candidates who meet various performance and other criteria. In stage three, the successful candidate is randomly picked from among this pre-chosen talent pool. There are benefits to both diversity and efficiency from using random selection. The first advantage is that this procedure encourages new talent because homophily, and other selection biases, are reduced. Crucially, it also protects women and ethnic minorities against internalising failure, and reduces the propensity of winners to assume they are "the chosen one" and over-claim on their success .

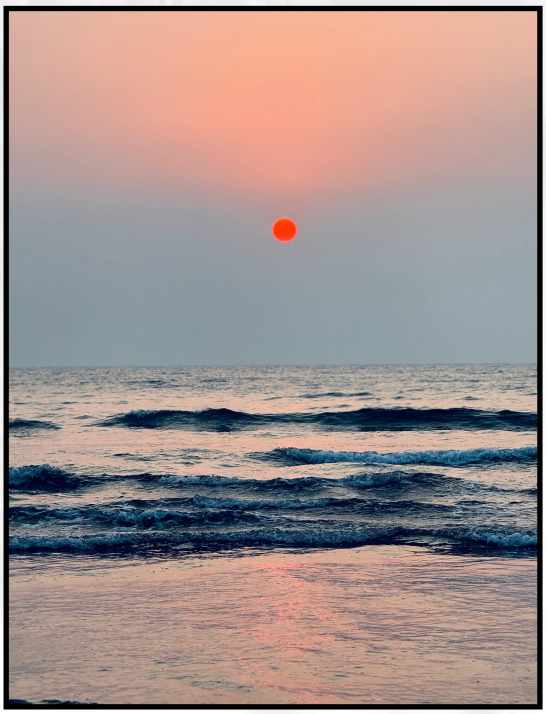
We know that in the field of human performance, it is often the case that the very best people are extraordinarily valuable to an organisation — and yet at the interview stage those very people will often appear as risky hires to a selection panel. The call from global corporations for diversity in management rings out, yet the landscape barely changes. We need to experiment, and some companies are ready to act. As the HR director at one London start-up told me: "We already use blind CV selection across the board and are open to exploring the possibility of adding random selection into our recruitment process."

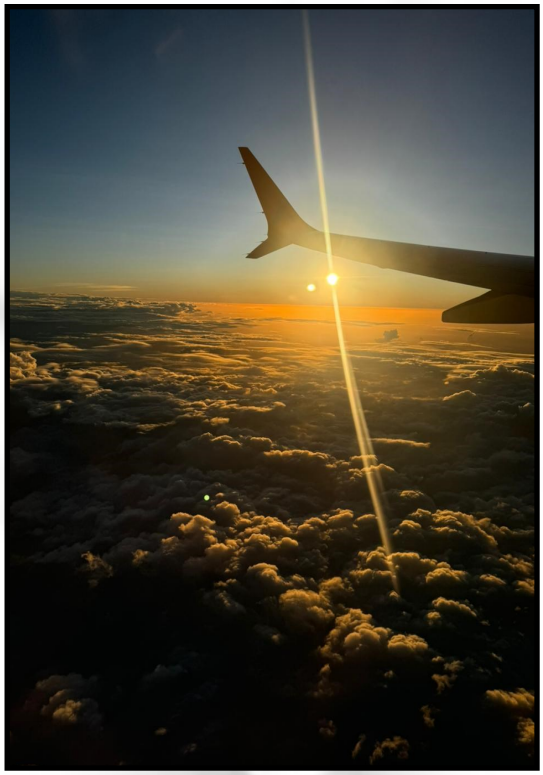
Why is it so important that we see our diverse selves in leadership positions? Recalling the experience of watching Black Panther with its majority black cast, she said she saw for the first time the importance of watching films with others: "To see a version of themselves, their questions, their struggles, reflected back at them on the big screen — and to not feel alone in that journey."

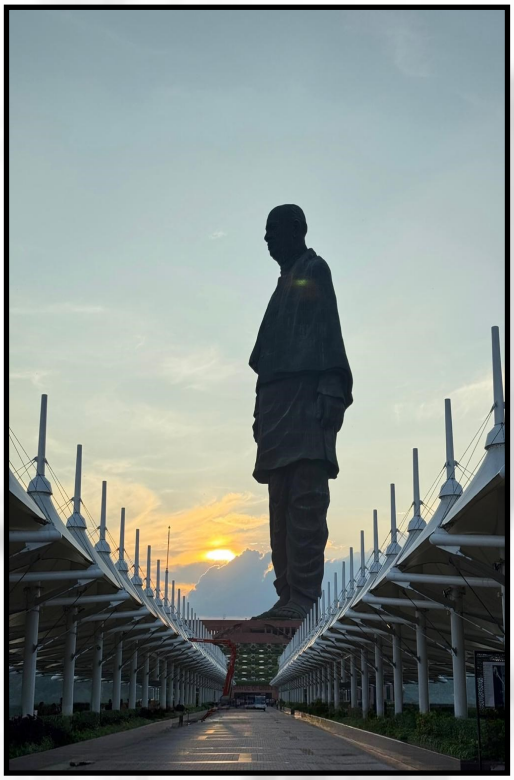
ART GALLARY

PHOTOGRAPHY

-Photography by Mr. Raghav Deshpande (220133121007)







ART GALLERY

संघर्ष की कहानी

संघर्ष की है एक पुरानी कहानी,

कभी ये दिल की धड़कन, कभी ये जवानी।

आंधियों से लड़कर जो खड़ा हो जाए,

वही तो है, जो कभी न हार पाए।

हर कदम पर चुनौतियाँ आती हैं,

मगर हिम्मत से ही राहें बनती हैं।

कभी गिरते हैं, कभी संभलते हैं,

संघर्ष की कहानी यही तो कहते हैं।

जीवन के इस महासमर में,

कभी हंसी, कभी ग़म का बयार है।

जो ठान लें, वो हासिल करते हैं,

संघर्ष की इसी ताकत से आगे बढ़ते हैं।

रुकते नहीं, आगे बढ़ते जाते हैं,

असफलताओं से कुछ न सीखते, कुछ और पाते हैं।

यह कहानी उन वीरों की है,

जो कभी थकते नहीं, कभी हारते नहीं।

-Written by Miss. Shibbu Singh (210130121010)

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