

NEWSLETTER

METALLURGY DEPARTMENT

January 2021 to June 2021



METALLURGY

**GOVERNMENT ENGINEERING COLLEGE
SEC-28, GANDHINAGAR**

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	Prof. H. H. Jadav	ME (Met. & Mat. Engg.)	Assistant Professor
5	Dr. P. K. Nanavati	Ph.D (Met. & Mat. Engg.)	Assistant Professor
6	Prof. D. V. Mahant	ME (Met. & Mat. Engg.)	Assistant Professor
7	Prof. B. R. Rana	ME (Met. & Mat. Engg.)	Assistant Professor
8	Prof. D. A. Patel	ME (Met. & Mat. Engg.)	Assistant Professor
9	Prof. H. H. Thakar	ME (Met. & Mat. Engg.)	Assistant Professor
10	Dr. M. S. Dani	Ph.D (Metallurgy)	Assistant Professor

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ACHIVEMENTS OF THE FACULTIES



Dr. I B Dave delivered expert lecture on “Surface composite manufacturing by friction stir welding” at one week STTP on Recent trends in advanced manufacturing processes” organized by Mechanical Engineering Department, LEC Morbi during April 5-9, 2021.

Dr. I B Dave delivered expert lecture on “Heat Treatment Principles & Processes” at DTE Approved AICTE-GTU sponsored Online FDP- “Metallurgy for All” during Feb 1 - 6, 2021.

Dr. I B Dave has published research paper in reputed journal (Details are given in research activity).



Prof. S.I. Patel has delivered online expert talk on the topic entitled “Application of Material Science in computer Engineering” at MIND MERGE organized by Computer Engineering department GEC-Gandhinagar on March 1, 2021.

Dr. D G Sharma delivered an expert lecture on “Corrosion Principles, Types, Protection and Testing” at DTE Approved AICTE-GTU sponsored Online FDP- “Metallurgy for All” during Feb 1 - 6, 2021.

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



Dr. D G Sharma received research grant from Directorate of Technical Education for collaborative research with IIT Gandhinagar under STEM.

Dr. D G Sharma appointed as GTU recognized PhD supervisor.

Dr. D G Sharma worked as organizing secretary in ICRPMSME 2021.

Dr. D G Sharma delivered an expert lecture on “Surface Composite Manufacturing by Friction Stir Processing” under student chapter activity of Indian Institute of Welding (IIW) at Parul University on Feb 6, 2021.

Dr. D G Sharma worked as Co-convener and delivered an expert lecture on “Metal casting, forming and joining processes” at one day workshop on Metallurgy for Non-metallurgist organized by FICCI, IIM Baroda chapter, MSU Baroda and SRTMI on March 20, 2021.

ACHIVEMENTS OF THE FACULTIES



Prof. H H Jadav has coordinated DTE Approved AICTE-GTU sponsored Online FDP- “Metallurgy for All” during Feb 1 - 6, 2021.



Dr. P K Nanavati delivered a talk on "Destructive Testings on welded joints" In Welding Inspector Course (WIC2021), organized by Indian Institute of Welding (IIW) Baroda Chapter on 24/01/2021.

Dr. P K Nanavati Delivered guest lecture on "Arc Welding Process Characteristics" on 20/2/2021 at IIW Baroda Chapter sponsored two days workshop on EN Code.

Dr. P K Nanavati has published research paper in reputed journal (Details are given in research activity).



Prof. D V Mahant delivered two expert talks on “Road map to iron and steel industries” and “Secondary steel making” at DTE Approved AICTE-GTU sponsored Online FDP- “Metallurgy for All” during Feb 1 - 6, 2021.

Prof. D V Mahant worked as editor of book of abstracts published in ICRPMSME 2021.



Prof. B R Rana has coordinated DTE Approved AICTE-GTU sponsored Online FDP- “Metallurgy for All” during Feb 1 - 6, 2021.



Prof. H. H. Thakar received special appreciation from Hon. Principal Secretary Higher and Tech. Education, Anju Sharma (IAS) for highly esteemed contribution in planning implementation and organizing mega placement camps 2021 in all districts of Gujarat.

Prof. H. H. Thakar received special appreciation from National Innovation Foundation-India (DST) for reviewing grassroots innovative ideas under “Inspire - Manak Awards 2020”.



Dr Minal S Dani appointed as Co Supervisor for guiding PhD students at GTU.

Dr Minal S Dani published research paper in reputed journal. (Details are given in research activity) .

NBA MOCK VISIT

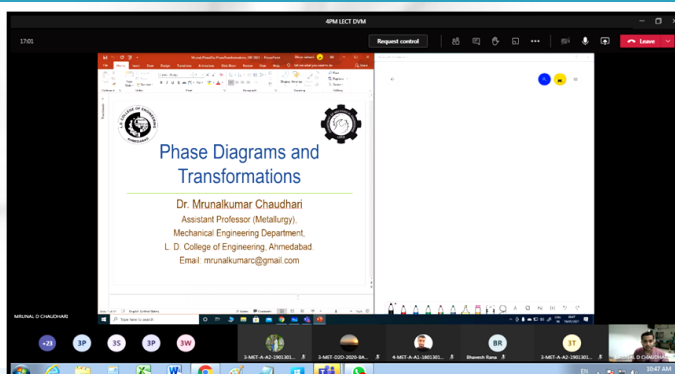
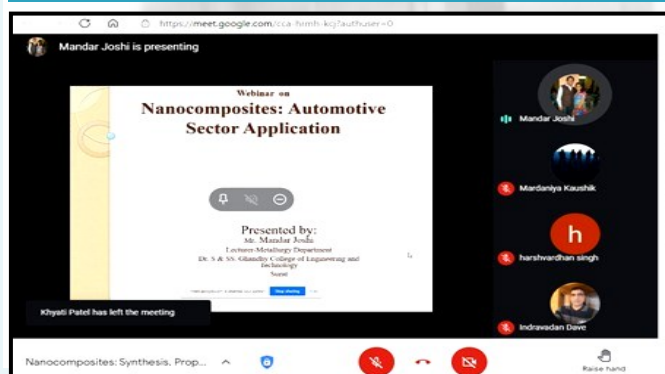
The NBA internal Mock round was held for the Metallurgy Department on 30th January 2021. As a part of the Internal Quality Assurance Committee (IQAC) under the chair of CTE appointed Mentor Dr. Femina Patel, Institute Coordinator Dr. D.A.Parikh & Dr. Sweta Dave, Principal, GEC Gandhinagar. Metallurgy Department represented the progress made under NBA for various NBA criteria through documentation and accepted the valuable suggestions of the committee.

PEDAGOGY SESSIONS

Sr. No	Name of Speaker	Department	Topic Delivered	Date
1	Prof. H. H. Thakar	Metallurgy	Advanced GMAW Process	02/01/2021
2	Dr. D. G. Sharma, Prof. B. R. Rana & Prof. D. V. Mahant	Metallurgy	NBA criteria 5 documentation	20/01/2021
3	Prof. S I Patel & Dr. M S Dani	Metallurgy	NBA criteria 7 documentation	16/06/2021

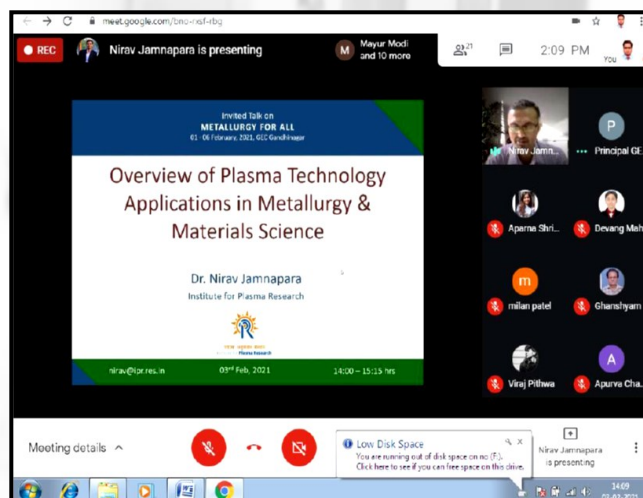
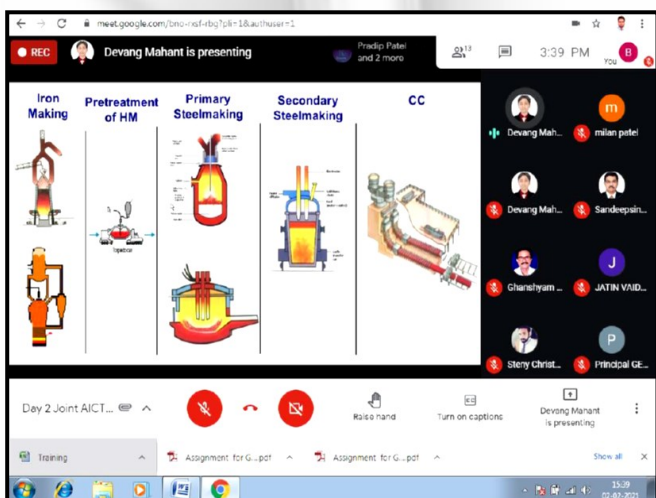
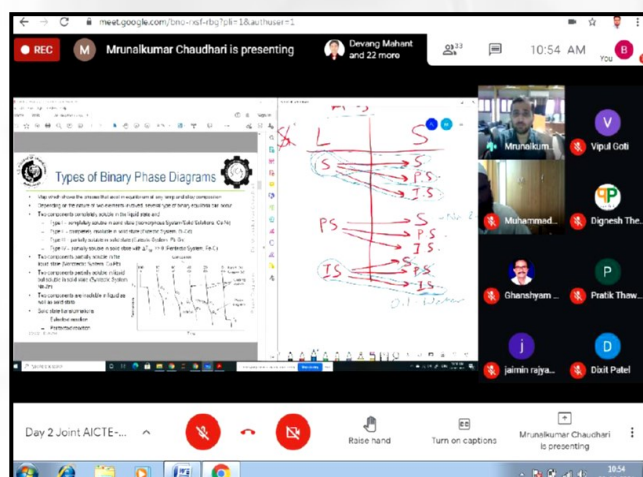
GLIMPSES OF “WEBINARS”

Sr. No	Date/Time	Speaker	Topic	Organizing Partner	Coordinator
1	19/1/2021 11:00—1:00 pm	Dr. Mrunal Chaudhari, (Asst Prof. Mechanical Engineering Dept. LDCE)	Phase diagrams and Transformations	SSMEG	Prof. D V Mahant
2	2/3/2021 1:00 - 3:00 pm	Mr. Mandar Joshi, (Lecturer, Dr. S. & S. S. Ghandhy College Surat)	Nano composites: Synthesis, Properties and Applications	IIM Baroda Chapter	Dr. D G Sharma
3	2/3/2021 3:15 - 5:15 pm	Mr. Rajesh M. Bhavsar, Retired Ex. Eng. (Metallurgy), GSECL	Power Plant components Failure Cases	SSMEG	Dr. D G Sharma / Dr. M S Dani
4	4/3/2021 , Time: 11.30 - 1.00 pm	Mr. Achit Gautam, (Lecturer, Dr. S. & S. S. Ghandhy College Surat)	Sintering of metal powders	SSMEG	Prof. S I Patel/ Prof. B R Rana
5	4/3/2021 , Time: 3.15 pm to 5.15 pm	Mr. Urvesh Vala, (Sr. DGM, Material Engineering Tech., Plant Integrity Engineering Division, L&T Chiyoda Ltd.	Corrosion Damage Mechanism in Oil and Gas Industry	IIM Baroda Chapter	Dr. D G Sharma



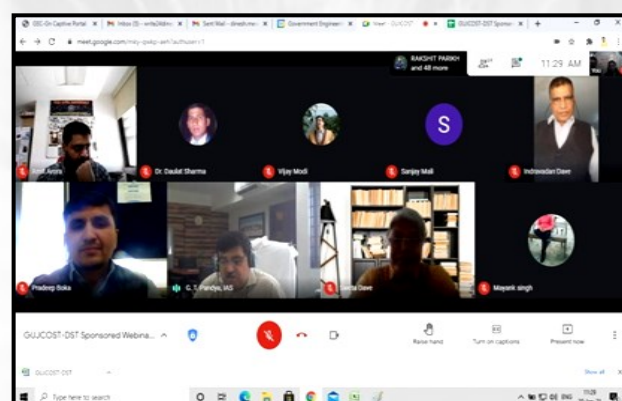
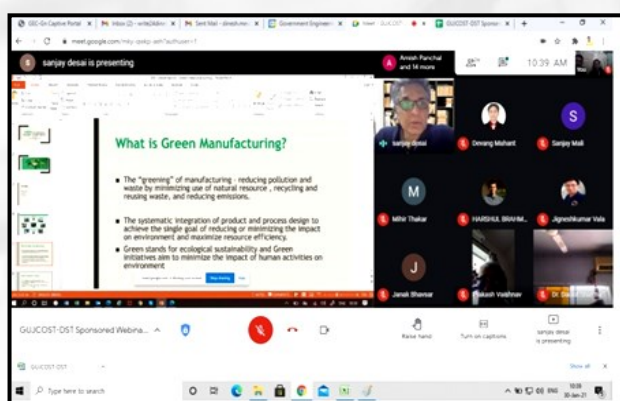
GLIMPSES OF “WEBINAR SERIES”

AICTE- GTU sponsored one week Online Faculty Development program on “**Metallurgy For All**” was organized during February 1 - 6, 2021 by Metallurgy department, GEC Gandhinagar. This FDP was coordinated by Prof H H Jadav and Prof. B R Rana. In the Inauguration ceremony, Mr Amish Panchal, (Owner) Kastwel industries, IIF (Ex . Chairman) was invited as a guest for motivation speech. 31 participants from various GTU affiliated institutes have participated in this FDP. Participants had complete exposure of manufacturing process and materials in this six days having different 22 session which include the basic fundamentals of the metallurgy and material science, iron and steel making, advance technology in the field of plasma, welding technology and advance solid state process, metal working process, corrosion engineering, surface engineering, foundry technology, Non-destructive testing, failure analysis and characterization, etc. At the last day, Shri G. T. Pandya sir, Director of Technical Education, Government of Gujarat presided the valedictory function.



GLIMPSES OF “WEBINAR SERIES”

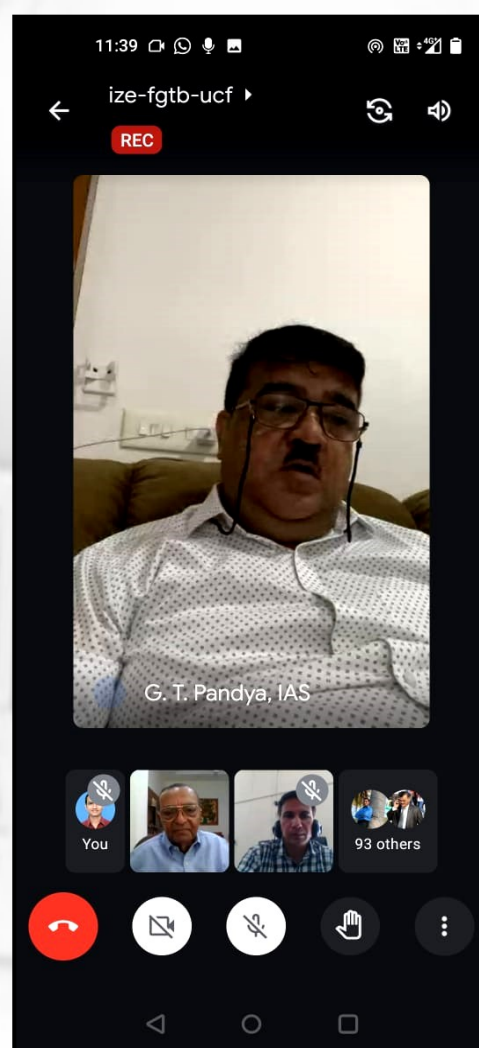
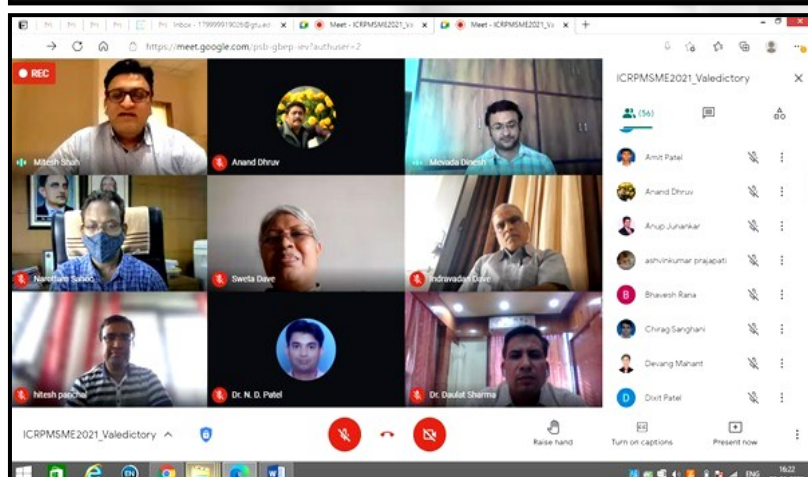
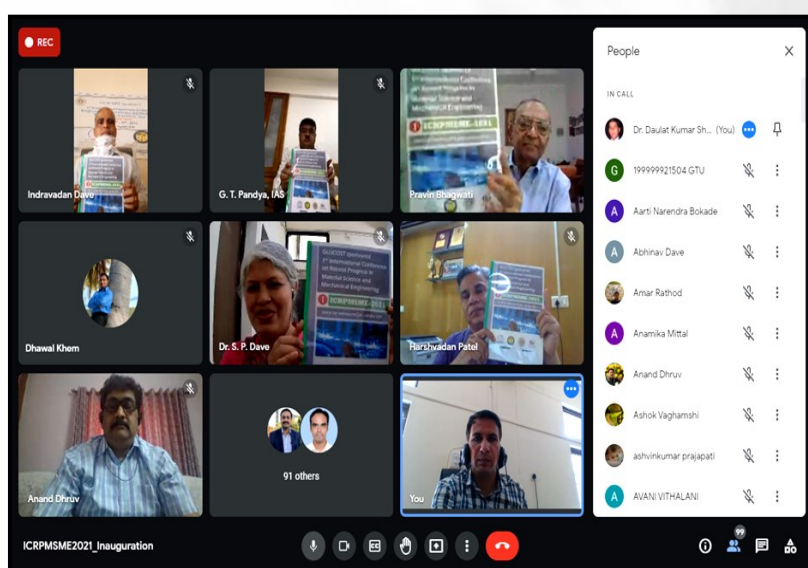
Metallurgy department, GEC, Gandhinagar has successfully organized one day webinar on “Green Manufacturing Processes” dated 30th JANUARY 2021. Webinar was organized by coordinators Dr. Minal Dani and Prof. D D Mevada through Google meet link: <https://meet.google.com/mky-qwkp-aeu> and almost more than 80 participants from various Industries, Institutes all over the India have joined and took knowledge in field of Green Manufacturing processes in area of Foundry, Welding Industry, Plasma Technology, Solar Energy and Green house technology. In this webinar chief guest Shri. G T Pandya, Commissioner of Technical Education, Gujarat, motivated all participants of this webinar.



Sr. No.	Expert Details	Topic
1	Mr. Sanjay Desai (CEO) RBD Engineers, Ahmedabad	Green Manufacturing processes- Foundry Overview
2	Dr. Amit Arora (Professor) IIT, Gandhinagar	Green Welding Techniques – Friction stir processing
3	Mr. Amish Panchal (Director) Kastwel Industries, IIF (Ex. Chairman)	Green Casting Processes
4	Dr. Nirav Jamnapara (SO-F and Head - Projects & Technology Transfer Section), IPR, Gandhinagar	Plasma Technology as Green Manufacturing alternative- Application Overview
5	Dr. Hitesh Panchal Assistant Professor, GEC Patan	Advances in Solar Desalination system
6	Dr. G N Tiwari, Professor IIT Delhi	Greenhouse Technology

GLIMPSES OF “ICRPMSME 2021”

Gujcost-DST sponsored “1st International Conference on Recent Progress in Material Science and Mechanical Engineering- ICRPMSME 2021” was jointly organized by Government Engineering College, Gandhinagar and Government Engineering College, Patan during May 28 - 29, 2021. The role of materials and mechanical engineering in the economic and socio-environmental development of the country is well established. The convener of the conference were, Dr. I B Dave, Professor, GEC-Gandhinagar, and Dr. H. N. Panchal, Assistant Professor, GEC-Patan. Key note lectures were organized by international experts to present the theme of the conference. According to the organizing secretary of the conference, Dr. Daulat Kumar Sharma, Assistant Professor, GEC-Gandhinagar and Prof. D. D. Mewada, Assistant Professor, GEC-Gandhinagar, the conference featured 61 research papers on ongoing progress and latest developments in the field of Materials Science and Mechanical Engineering in 07 sessions presented by industries, educational institutes, R &D institutes and professional engineers. Inauguration of the conference and release of the Book of Abstracts of research papers accepted at the conference was done by Shri Dr. G. T. Pandya and industrialist Shri P N Bhagwati, Dr. S. P. Dave, Principal, Government Engineering College, Gandhinagar, Dr. H.S. Patel, Principal, Government Engineering College, Patan, in the presence of subject experts and heads of various departments and faculties on 28 May 2021. Conference was concluded with a valedictory session on 29 May, 2021.

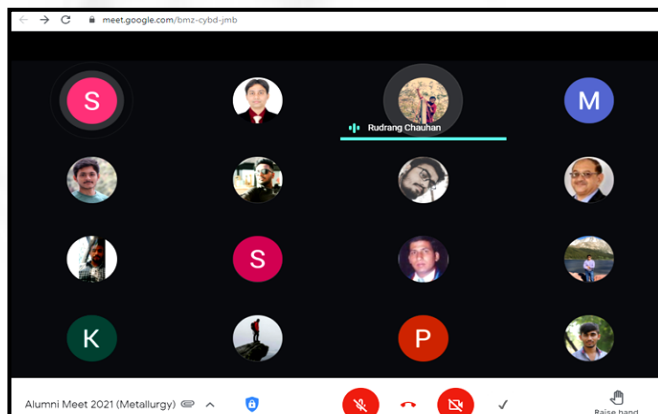


GLIMPSES OF “VIRTUAL ALUMNI MEET 2021”

The Department of Metallurgy Engineering have organized an expert talk by Alumni in this meeting for all current batches and pass out students on 11th April 2021 on the Google Meet Platform between 9 am to 12 pm. The meeting started with welcome introduction by Metallurgy Department alumni coordinator Prof. H H Thakar followed by series of two expert sessions by Alumni of the department. The event was enjoyable and simultaneously profitable in terms of providing career as well as technical guidance to the current enrolled students.

Alumni Experts and faculty members have shared the memories, Faculty members from Metallurgy Engineering and Dr. G H Upadhyay sir who was former HOD of Metallurgy department have participated in this event. Dr. G H Upadhyay sir have blessed and motivated all participants with his good wishes.

Sr. No.	Time	Expert Details	Topic
1	9:00 to 10:30 am	Mr. Shaswat Joshi M. E. (Materials Eng.) University of Toronto, Working as Program Manager (A&B rail service Ltd.) Alumnus of 2014 batch	Study and settlement in Canada
2	10:30 to 12:00 pm	Mr. Prince Gajjar MSc (Materials Engineering) RWTH University, Working in HOESCH Metallurgy, Germany Alumnus of 2016 batch	Physical and numerical modelling of mixing in steel ladle



“BOARD OF STUDIES MEET”

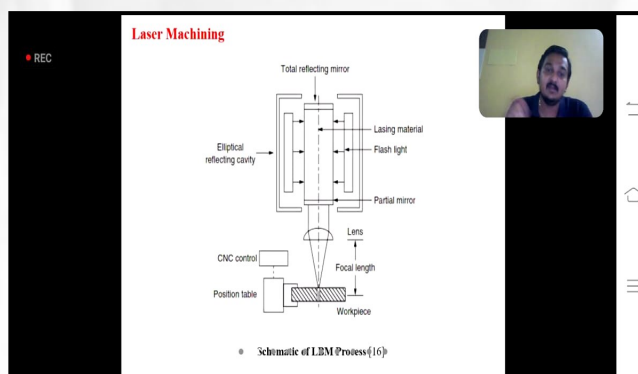
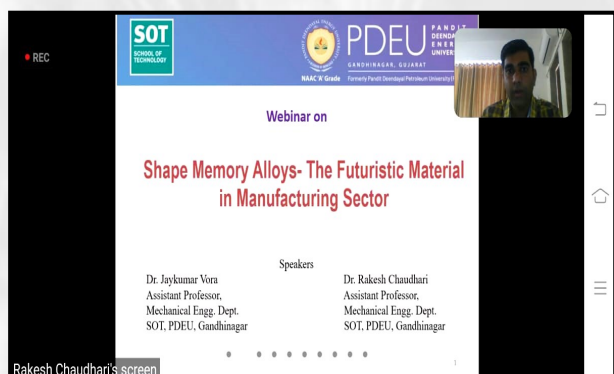
Under the chairmanship of Dr. G H Upadhyay, a meeting of Board of studies has been arranged at Gujarat Technological University on 17/2/2021 at 3:00 pm in presence of Dr. I B Dave, Dr. D G Sharma and industry experts. Syllabus and teaching scheme has been verified and strengthened for the betterment of future metallurgists.



“STUDENT ACTIVITIES”

“EXPERT SESSION ON SHAPE MEMORY ALLOYS”

An online expert talk by Dr. Jaylumar Vora and Dr. Rakesh Chaudhary on “**Shape Memory Alloys- The futuristic material in manufacturing sector**” was organised by PDEU on 16/6/2021 through Zoom meeting platform. More than 35 students and faculty members of Metallurgy Department have participated in the session.

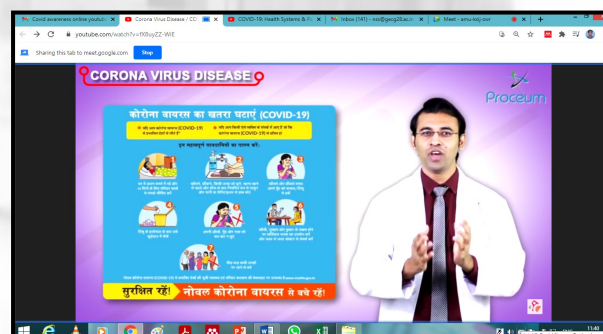
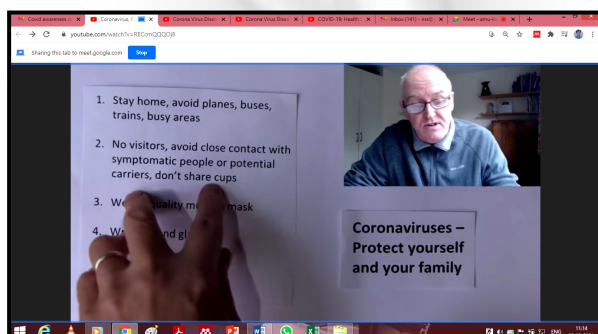


“FINISHING SCHOOL TRAINING”

The KCG Sponsored Finishing School Training program (SET A & C - Life Skill and Employability skills) Total 40 Hrs conducted online on MS Team platform during 30/03/2021 to 12/04/2021 by KCG empanelled Trainer -Mrs Anupama Bohra. total 15 Nos. of Pre-final year Metallurgy Students got benefitted from this program.

“COVID AWARENESS PROGRAM”

An on line COVID Awareness Webinar was organized on 20th Feb., 2021 by NSS, GEC, Gandhinagar unit for Faculties and Staff. Video lectures covered generation of COVID19 and its symptoms. Sessions covered conceptions and misconceptions about COVID and importance of isolation. Sessions also covered how one can protect by maintaining social distancing. Sessions discussed do's and don'ts to protect one. Total of 17 participants attended sessions.



RESEARCH ACTIVITIES

Research Paper counter (last 3 years)	Previously published	Addition	Total
	24	3	27

Sr. No.	Title of the Paper	Authors	Publication
1	Utilization of waste foundry reclaimed sand for manufacturing of paver blocks	Dr. Dani Minal Sanjay and Dr. I B Dave	Annual technical volume of metallurgical and materials engineering.
2	Comparisons of Different Oxide Fluxes in Activated Gas Tungsten Arc Welding of Duplex Stainless Steels for Improved Depth of Penetration and Pitting Corrosion Resistance	Purvesh K. Nanavati, Vishvesh J. Badheka, Jaynish Idhariya & Darshan Solanki	Advances in Materials and Processing Technologies
3	Recent development of hybrid surface Metal Matrix Composites produced by Friction Stir Processing: A Review	Daulat Kumar Sharma, Vishvesh Badheka, Vivek Patel, Gautam Upadhyay	Journal of Tribology

CONFERENCE PRESENTATION

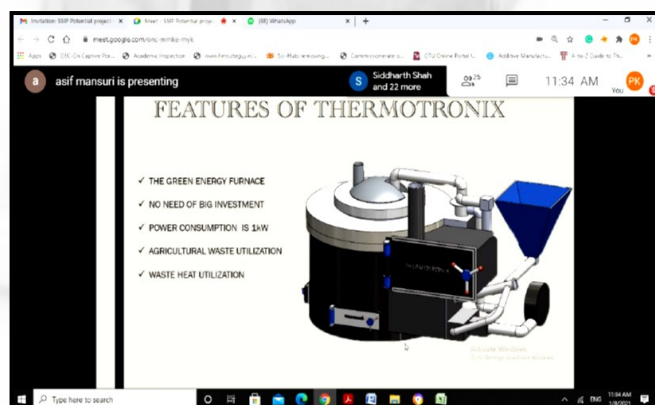
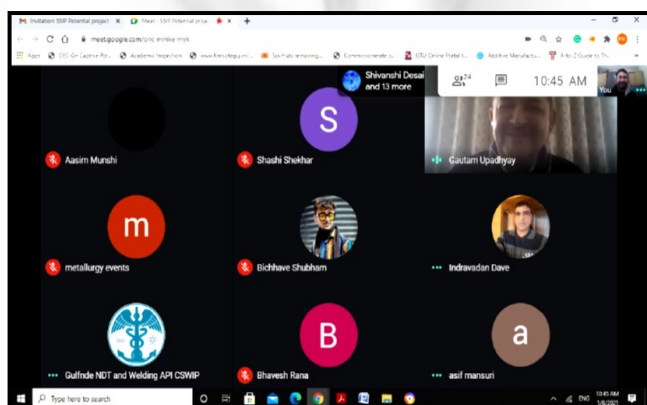
Sr. No.	Title of the Paper	Authors	Conference/ Publication
1	Improvement In Corrosion Resistance Of Magnesium-Aluminum Alloy Via Friction Stir Processing	Dr. Minal Dani, Dr. I. B Dave and Alphonsa Joseph	1st International Conference on Recent Progress in Material Science and Mechanical Engineering- ICRPMSME 2021
2	A Review on Effect of Alloying Element on Aluminium Anode	Vidhi A Mistry, Dr.Minal S Dani and Dr.Indravadan B Dave	
3	An investigative analysis on backup coat sands for Investment casting process	Vishal Kaila and Dr. Indravadan Dave	
4	Modelling On Toughness Of Weld Deposits	Rudrang Chauhan, Vinay Kumar Pandit, Shashank Sharma and Purvesh Nanavati	
5	Effect of Various Fluxes on Different Metals and Alloys in A-TIG Process: A Review	Rudrang Chauhan, Jemish Bhayani, Meet Borad, Dr. Daulat Kumar Sharma and Bhavesh Rana	

RESEARCH ACTIVITIES

Sr. No.	Title of the Paper	Authors	Conference/ Publication
6	Review on gas tungsten arc welding of stainless steel and mild steel plates	Achal Sharma, Bhagyesh Shukla, Keval Solanki, Dr. Daulat Kumar Sharma and Naishadh P. Patel	1st International Conference on Recent Progress in Material Science and Mechanical Engineering-ICRPMSME 2021
7	Review on impact of environmental pollution caused by foundries.	Yuvrajsinh Gohil, Urvik Dandawala, Pritesh Borad and Devang Mahant	
8	Review on Effect of Heat Treatment on Properties of 2024 Aluminum Alloy	Akash Patel, Ashik Patel, Suketu Parmar and Harshdkumar Jadav	
9	Effect of Friction Stir Processing on AZ91 Mg-alloy	Paras Rank, Samir Rathod, Nikunj Savaliya, Dr. Daulat Kumar Sharma and Dr. Minal Dani	
10	Galvanizing Coating Defects: Causes and Remedies	Jayraj Parmar, Khyati Patel, Sweta Patel and Dr. Daulat Kumar Sharma	
11	Activated Flux Tungsten Inert Gas (A-TIG) welding process for weld depth enhancement – A Review	Naishadh P. Patel, Dr. Jay J. Vora, Dr. Daulat Kumar Sharma and Dr. Gautam H. Upadhyay	
12	Tool used for friction stir processing/ welding	Akshay Kanzariya, Kaushik Mardaniya, Ravi Nakum and Dr. Daulat Kumar Sharma	

SSIP POTENTIAL PROJECT IDENTIFICATION

SSIP Potential project identification Meeting was held on Fri day January 8, 2021 10:30am – 12:30pm via Google meet (meet.google.com/onc-mmke-myk). Dr. G H Upadhyay and Mr. Ashish Patel were present in the expert committee. Progress review of 3 ongoing projects has been carried out and 2 new projects like Thermotronix and Graphene were identified suitable for SSIP through this activity.



CAMPUS PLACEMENTS

Sr. No.	Name of Student	Name of Industry/Institute
1	Aparna Arvind Shrivastava	TCR advanced (Vadodara)
2	Pratik Nathabhai Jadav	Shilpan Steel cast (Rajkot)
3	Manthan Ashokbhai Pipalva	Entrepreneur
4	Meet Rahulbhai Borad	Steel Strip Wheels Ltd.(Mehsana)
5	Hardik Sureshbhai Ghodadara	
6	Dharmik Kamleshbhai Gohil	
7	Yashodip Ravindra Hire	
8	Dhruval Dineshbhai Kukadiya	
9	Virenbhai Hareshbhai Lakhani	
10	Jeet hasmukhbhai padhiyar	
11	Vinaykumar H Pandit	
12	Viraj Piyushkumar Pandya	
13	Akash Chandubhai Patel	
14	Ashik Govindbhai Patel	
15	Manan Kiritkumar Patel	
16	Umangkumar K Patel	
17	Shashank Anilkumar sharma	
18	Harshwardhan Singh	
19	Meet Nipulkumar Tadkeshwarwala	
20	Akshay Sunil bhai chaudhari	
21	Yuvrajsinh Bharatsinh Gohil	
22	sandeepkumar pravinbhai kalsariya	
23	Kanzariya Akshay premjibhai	
24	Ravi Bharatbhai Nakum	
25	Pratikbhai Rameshbhai zanzmera	
26	Virani Madhav	
27	Devang Trivedi	
28	Sahid Tank	
29	Jemishkumar Nareshbhai Bhayani	
30	Dhawal Nandha	

TRAINING/ACTIVITY ATTENDED BY FACULTY

Sr. No.	Name of the Faculty	Title of Training/Activity	Duration	Organizer
1	Dr. I B Dave	Letter of Thanks- Online expert session on " Surface composite manufacturing by friction stir welding" at GUJCOST sponsored One week online STTP on "Recent Trends in Advanced Manufacturing Processes"	29-04-2021	Mechanical Engineering Department, L.E. College, Morbi
2	Prof. S I Patel	Certificate of Appreciation- MIND MERGER E-MEET to share their expertise on the topic entitled Application of Material Science in computer engineering	01-03-2021	Department of Computer Engineering, Governemnt Engineering College, Gandhinagar
3	Dr. D G Sharma	E-Talk Series on "Nanotechnology - Smart Materials : Research : Commercialization"	30-04-2021	Department of Mechanical Engineering, Maharaja Agrasen Institute of Technology
		GUJCOST Sponsored One Day Webinar on "Green Manufacturing processes"	30-01-2021	Metallurgy Department, Government Engineering College, Sector- 28, Gandhinagar
		CERTIFICATE of Appreciation- For rendering valuable efforts as a reviewer in GUJCOST sponsored 1stInternational Conference ICRPMSME 2021	28-05-2021 and 29-05-2021	Government Engineering College, Gandhinagar, and Government Engineering College, Patan,
		CERTIFICATE of Appreciation- For rendering valuable efforts as a Organizing Secretary in GUJCOST sponsored 1stInternational Conference ICRPMSME 2021	28-05-2021 and 29-05-2021	
		CERTIFICATE of Appreciation- For rendering valuable efforts as an Session Co-ordinator in GUJCOST sponsored 1st International Conference ICRPMSME 2021	28-05-2021 and 29-05-2021	
4	Prof. H H Jadav	CERTIFICATE of Appreciation- For rendering valuable efforts as a reviewer in GUJCOST sponsored 1st International Conference on Recent Progress in Material science and Mechanical Engineering (ICRPMSME 2021	28-05-2021 to 29-05-2021	Government Engineering College, Gandhinagar, and Government Engineering College, Patan,
		CERTIFICATE OF PARTICIPATION- Coordinated AICTE-GTU sponsored one week online Facutly Development Program on "Metallurgy For All"	01-02-2021 to 06-02-2021	Metallurgy Department, Government Engineering College, Gandhinagar, Gujarat

TRAINING/ACTIVITY ATTENDED BY FACULTY

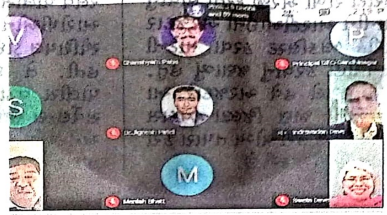
Sr. No.	Name of the Faculty	Title of Training/Activity	Duration	Organizer
5	Prof. D V Mahant	CERTIFICATE of Appreciation- For rendering valuable efforts as a reviewer in GUJCOST sponsored 1st International Conference on Recent Progress in Material science and Mechanical Engineering (ICRPMSME 2021)	28-05-2021 to 29-05-2021	Government Engineering College, Gandhinagar, and Government Engineering College, Patan,
		CERTIFICATE of Appreciation- For rendering valuable efforts as a Committee member in GUJCOST sponsored 1st International Conference on Recent Progress in Material science and Mechanical Engineering (ICRPMSME 2021)	28-05-2021 to 29-05-2021	
6	Prof. B R Rana	Certificate of Participation- 5-days online FDP- "Inculcating Universal Human Values in Technical Education"	22-03-2021 to 26-03-2021	All India Council for Technical Education (AICTE)
7	Prof. D A Patel	CERTIFICATE OF PARTICIPATION- Six days Faculty Development Programme on "Post lockdown trends in CAD/CAM and Manufacturing for MSME"- Jointly sponsored by AICTE and GTU	18-01-2021 to 23-01-2021	Mechanical Engineering Department and IQAC cell Gandhinagar Institute of Technology
		Certificate of Participation- 5-days online FDP- "Inculcating Universal Human Values in Technical Education"	22-03-2021 to 26-03-2021	All India Council for Technical Education (AICTE)
		CERTIFICATE of Appreciation- For rendering valuable efforts as a Committee member in GUJCOST sponsored 1st International Conference on Recent Progress in Material science and Mechanical Engineering (ICRPMSME 2021)	28-05-2021 to 29-05-2021	Government Engineering College, Gandhinagar, and Government Engineering College, Patan
8	Prof. H H Thakar	Served as reviewer of innovative ideas/ innovations received under the INSPIRE Awards-MANAK for the year 2020-21	11-01-2021	National Innovation Foundation- India
		CERTIFICATE OF APPRECIATION- Highly esteemed contribution in planning, implementation and organizing Mega Placement Camps in all Districts of Gujarat	17-04-2021	Placeemnt Cell, Department of Education, Government of Gujarat

MEDIA COVERAGE

સરકારી ઈજનેરી કોલેજમાં ઓનલાઈન ફેકલ્ટી ડેવલપમેન્ટ પ્રોગ્રામનું આયોજન

ગાંધીનગરની સેક્ટર-૨૮ ખાતેની સરકારી ઈજનેરી કોલેજમાં સંસ્થાના આચાર્ય ડૉ. એસ. પી. દવે ના માર્ગદર્શન અને ડૉ. આઈ. બી. દવે ના નેતૃત્વ હેઠળ એઆઈસીટીઈ-જીટીયુ પ્રાયોજિત સામાજિક ઓનલાઈન ફેકલ્ટી ડેવલપમેન્ટ પ્રોગ્રામ 'મેટલજી ફોર ઓલ' નું આયોજન તારીખ ૧ થી ૬ ફેબ્રુઆરી, ૨૦૨૧ દરમિયાન કરાયું હતું. આ તાલીમના સંયોજક મેટલજી વિભાગના પ્રાધ્યાપક ડૉ. એચ. જાડવ તથા બી. આર. રાણા ના જણાવ્યા પ્રમાણે આ પ્રોગ્રામમાં મેટલજી ઈજનેરીના વિવિધ વિષયોનું તજજ્ઞો દ્વારા વિશેષ અને માર્ગદર્શન આપવામાં આવ્યું હતું. ઉપરાંત સામાજિક પ્રોગ્રામ હેઠળ જીટીયુ સંલગ્ન કોલેજોના વિવિધ ઈજનેરી વિદ્યાર્થીઓના અંદાજે ૮૦-૧૦૦ અધ્યાપકોએ તાલીમ મેળવી હતી.

સરકારી ઈજનેરી કોલેજમાં ઓનલાઈન ફેકલ્ટી ડેવલોપમેન્ટ પ્રોગ્રામ યોજાયો



ગાંધીનગર ભાસ્કર | સરકારી ઈજનેરી કોલેજ ગાંધીનગરના મેટલજી વિભાગ દ્વારા સાપ્તાહિક ઓનલાઈન ફેકલ્ટી ડેવલોપમેન્ટ પ્રોગ્રામ મેટલજી ફોર ઓલ તાજેતરમાં યોજાયો હતો. જેમાં ટેકનિકલ શિક્ષણ વિભાગના નિયામક જી.ટી. પંચા ઉપસ્થિત રહીને ઈજનેરી શાખાઓમાં પાતુઓના મહત્વ અંગેની જાણકારી આપી હતી. વિષયોના તજજ્ઞો દ્વારા જરૂરી માર્ગદર્શન આપવામાં આવ્યું હતું.

ગુજકોસ્ટ પ્રાયોજિત આંતરરાષ્ટ્રીય કોન્ફરન્સનો ૨૮મીથી પ્રારંભ

ગાંધીનગર અને પાટણ
સરકારી ઈજનેરી કોલેજ
દ્વારા આયોજન

નવગુજરાત સમય > ગાંધીનગર

ગાંધીનગર અને પાટણ ખાતેની સરકારી ઈજનેરી કોલેજ દ્વારા સંયુક્ત રીતે ગુજકોસ્ટ-ડીએસટી પ્રાયોજિત આંતરરાષ્ટ્રીય કોન્ફરન્સ '1st International Conference on Recent Progress in Material science and Mechanical Engineering-ICRPMSME 2021' નું આયોજન ઓનલાઈન મોડથી તા. 28-29 મે દરમિયાન કરવામાં આવ્યું છે.

દેશના અર્થતંત્ર અને સામાજિક-પર્યાવરણીય વિકાસમાં મટિરીયલ અને મિકેનિકલ એન્જિનિયરિંગની ભૂમિકા સારી રીતે સ્થાપિત છે. આ આંતરરાષ્ટ્રીય કોન્ફરન્સ મટિરીયલ સાયન્સ અને

મિકેનિકલ એન્જિનિયરિંગના ક્ષેત્રમાં તાજેતરની પ્રગતિ સાથે સંકળાયેલ છે. કોન્ફરન્સના કન્વીનર ડૉ. આઈ બી દવે, પ્રોફેસર, જીઈસી-ગાંધીનગર, અને ડૉ. એચ. એન. પંચાલ, સહાયક પ્રોફેસર, જી.ઈ.સી.-પાટણ છે. કોન્ફરન્સની થીમ રજૂ કરવા આંતરરાષ્ટ્રીય પ્રતિષ્ઠિત ખ્યાતનામ હસ્તીઓ દ્વારા પ્રવચન આપવામાં આવશે.

કોન્ફરન્સના ઓર્ગનાઈઝિંગ સેક્રેટરી ડૉ. દીલત કુમાર શર્મા, અને પ્રો. ડી. ડી. મેવાડાએ જણાવ્યું હતું કે, કોન્ફરન્સમાં વિવિધ સંશોધન પત્રો રજૂ કરવામાં આવશે. કોન્ફરન્સનું ઉદ્દાટન ટેકનિકલ શિક્ષણ કમિશનર જી.ટી. પંચા અને પી.એન ભગવતીના હસ્તે ડૉ. સ્વેતા. પી. દવે, આચાર્ય, સરકારી ઈજનેરી કોલેજ, ગાંધીનગર, ડૉ.એચ. એસ. પટેલ, આચાર્ય, સરકારી ઈજનેરી કોલેજ, પાટણ, નિષ્ણાતો તથા વિવિધ ક્ષેત્રના વડાઓની ઉપસ્થિતિમાં થશે.

નવગુજરાત સમય

Thu, 27 May 2021
<https://epaper.navi>

ગ્રીન મેન્યુફેક્ચરિંગ પ્રોસેસિસ પર વેબિનાર

સેક્ટર-૨૮ સ્થિત સરકાર ઈજનેરી કોલેજ ખાતે ગુજકોસ્ટ પ્રાયોજિત એક દિવસીય ઓનલાઈન વેબિનાર ગ્રીન મેન્યુફેક્ચરિંગ પ્રોસેસિસનું આયોજન આગામી ૩૦ જાન્યુઆરીના રોજ કરવામાં આવ્યું છે. આ તાલીમના સંયોજક મેટલજી વિભાગના પ્રાધ્યાપક ડૉ.એસ.દાણી તથા ડી.ડી.મેવાડાના જણાવ્યા પ્રમાણે આ પ્રોગ્રામમાં વિષય તજજ્ઞો દ્વારા માર્ગદર્શન આપવામાં આવશે.

મટિરિયલ સાયન્સ અને મિકેનિકલ એન્જિ. ક્ષેત્રની પ્રગતિ અંગે ચર્ચા થઈ

ગુજકોસ્ટ પ્રાયોજિત
આંતરરાષ્ટ્રીય કોન્ફરન્સ
'ICRPMSME 2021'
યોજાઈ

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ઉચ્ચ શિક્ષણના તાબા હેઠળના, સરકારી ઈજનેરી કોલેજ, ગાંધીનગર અને સરકારી ઈજનેરી કોલેજ, પાટણ દ્વારા સંયુક્ત રીતે ગુજકોસ્ટ-ડીએસટી પ્રાયોજિત આંતરરાષ્ટ્રીય કોન્ફરન્સ '1st International Conference on Recent Progress in Material science and Mechanical Engineering-ICRPMSME 2021' નું આયોજન ઓનલાઈન મોડથી તા. 28-29 મે દરમિયાન કરવામાં આવ્યું છે.

દેશના અર્થતંત્ર અને સામાજિક-પર્યાવરણીય વિકાસમાં મટિરીયલ અને

મિકેનિકલ એન્જિનિયરિંગની ભૂમિકા સારી રીતે સ્થાપિત છે. આ ક્ષેત્રમાં સંશોધન, વિસ્તૃત જાણકારી અને કુશળતાના વહેણ માટે શૈક્ષણિક સંસ્થાઓ, ઉદ્યોગો, સંશોધન સંસ્થાઓ અને વ્યાવસાયિક ઈજનેરોના નિષ્ણાતોને સાથે રાખવું જરૂરી છે. આ આંતરરાષ્ટ્રીય કોન્ફરન્સ મટિરીયલ સાયન્સ અને મિકેનિકલ એન્જિનિયરિંગના ક્ષેત્રમાં તાજેતરની પ્રગતિ સાથે સંકળાયેલ છે. આ કોન્ફરન્સના કન્વીનર ડૉ. આઈ બી દવે, પ્રોફેસર, જીઈસી-ગાંધીનગર, અને ડૉ. એચ. એન. પંચાલ, સહાયક પ્રોફેસર, જી.ઈ.સી.-પાટણ છે. કોન્ફરન્સની થીમ રજૂ કરવા આંતરરાષ્ટ્રીય પ્રતિષ્ઠિત ખ્યાતનામ હસ્તીઓ દ્વારા પ્રવચન આપવામાં આવ્યું હતું.

કોન્ફરન્સના ઓર્ગનાઈઝિંગ સેક્રેટરી ડૉ. દીલત કુમાર શર્મા, સહાયક પ્રોફેસર, જી.ઈ.સી.-ગાંધીનગર અને પ્રો. ડી. ડી. મેવાડા,

સહાયક પ્રોફેસર, જીઈસી-ગાંધીનગર અનુસાર આ કોન્ફરન્સમાં મટિરીયલ સાયન્સ અને મિકેનિકલ એન્જિનિયરિંગના ક્ષેત્રમાં ચાલી રહેલ પ્રગતિ અને નવીનતા વિકાસ અંગેના વિવિધ સંશોધન પત્રો ઉદ્યોગો, શૈક્ષણિક સંસ્થાઓ, સંશોધન અને વિકાસ સંસ્થાઓ અને વ્યાવસાયિક ઈજનેરો દ્વારા સમાવેશ કરવામાં આવ્યા છે. કોન્ફરન્સનું ઉદ્દાટન અને કોન્ફરન્સમાં સ્વિકારેલ સંશોધન પત્રોની બુક ઓફ એબસ્ટ્રેક્ટ્સ વિષયોના ટેકનિકલ શિક્ષણ કમિશનર જી.ટી. પંચા અને ઉદ્યોગપતિ પી.એન. ભગવતીના હસ્તે ડૉ. સ્વેતા. પી. દવે, આચાર્ય, સરકારી ઈજનેરી કોલેજ, ગાંધીનગર, ડૉ.એચ. એસ. પટેલ, આચાર્ય, સરકારી ઈજનેરી કોલેજ, પાટણ, વિષય નિષ્ણાતો તથા વિવિધ ખ્યાતનામ વડાઓ અને પ્રોફેસરોની ઉપસ્થિતિમાં આજે કરવામાં આવ્યું હતું.

નવગુજરાત સમય

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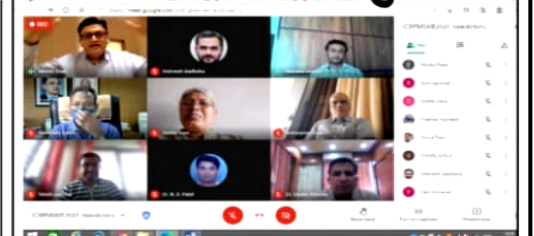
સરકારી ઈજનેરી કોલેજ, ગાંધીનગર અને સરકારી ઈજનેરી કોલેજ, પાટણ દ્વારા આયોજિત ગુજકોસ્ટ પ્રાયોજિત આંતરરાષ્ટ્રીય કોન્ફરન્સ "ICRPMSME 2021 નું ઉદ્દાટન (નિ.ન્યુ.સ.)

ઉચ્ચ શિક્ષણના તાબા હેઠળના, સરકારી ઈજનેરી કોલેજ, ગાંધીનગર અને સરકારી ઈજનેરી કોલેજ, પાટણ દ્વારા સંયુક્ત રીતે ગુજકોસ્ટ-ડીએસટી પ્રાયોજિત આંતરરાષ્ટ્રીય કોન્ફરન્સ '1st International Conference on Recent Progress in Material science and Mechanical Engineering-ICRPMSME 2021' નું આયોજન ઓનલાઈન મોડથી તા. 28-29 મે દરમિયાન કરેલ છે. દેશના અર્થતંત્ર અને સામાજિક-પર્યાવરણીય વિકાસમાં મટિરીયલ અને મિકેનિકલ એન્જિનિયરિંગની ભૂમિકા સારી રીતે સ્થાપિત છે. આ ક્ષેત્રમાં સંશોધન, વિસ્તૃત જાણકારી અને વ્યાવસાયિક ઈજનેરોના નિષ્ણાતોને સાથે રાખવું જરૂરી છે. આ આંતરરાષ્ટ્રીય કોન્ફરન્સ મટિરીયલ સાયન્સ અને મિકેનિકલ એન્જિનિયરિંગના ક્ષેત્રમાં તાજેતરની પ્રગતિ સાથે સંકળાયેલ છે. આ કોન્ફરન્સના કન્વીનર ડૉ. આઈ બી દવે, પ્રોફેસર, જીઈસી-ગાંધીનગર, અને ડૉ. એચ. એન. પંચાલ, સહાયક પ્રોફેસર, જી.ઈ.સી.-પાટણ છે. કોન્ફરન્સની થીમ રજૂ કરવા આંતરરાષ્ટ્રીય પ્રતિષ્ઠિત ખ્યાતનામ હસ્તીઓ દ્વારા પ્રવચન આપવામાં આવ્યું હતું. કોન્ફરન્સના ઓર્ગનાઈઝિંગ સેક્રેટરી ડૉ. દીલત કુમાર શર્મા, સહાયક પ્રોફેસર, જી.ઈ.સી.-ગાંધીનગર અને પ્રો. ડી. ડી. મેવાડા સહાયક પ્રોફેસર, જીઈસી-ગાંધીનગર અનુસાર આ કોન્ફરન્સમાં સ્વિકારેલ સંશોધન પત્રોની બુક ઓફ એબસ્ટ્રેક્ટ્સ વિષયોના ટેકનિકલ શિક્ષણ કમિશનર જી.ટી. પંચા અને ઉદ્યોગપતિ પી.એન. ભગવતીના હસ્તે ડૉ. સ્વેતા. પી. દવે, આચાર્ય, સરકારી ઈજનેરી કોલેજ, ગાંધીનગર, ડૉ.એચ. એસ. પટેલ, આચાર્ય, સરકારી ઈજનેરી કોલેજ, પાટણ, વિષય નિષ્ણાતો તથા વિવિધ ખ્યાતનામ વડાઓ અને પ્રોફેસરોની ઉપસ્થિતિમાં તારીખ ૨૮ મે ૨૦૨૧ ના રોજ કરેલ છે.

સરકારી ઈજનેરી કોલેજ, ગાંધીનગર અને પાટણ દ્વારા આયોજિત ગુજકોસ્ટ પ્રાયોજિત આંતરરાષ્ટ્રીય કોન્ફરન્સનું સમાપન

(ડી.ડી.ન્યુ.સ.) પાટણ
ઉચ્ચ શિક્ષણના તાબા હેઠળના

સરકારી ઈજનેરી કોલેજ, ગાંધીનગર અને સરકારી ઈજનેરી કોલેજ, પાટણ દ્વારા સંયુક્ત રીતે ગુજકોસ્ટ-ડીએસટી પ્રાયોજિત આંતરરાષ્ટ્રીય કોન્ફરન્સ '1st International Conference on Recent Progress in Material science and Mechanical Engineering-ICRPMSME 2021' નું આયોજન ઓનલાઈન મોડથી તારીખ ૨૮-૨૯ મે ૨૦૨૧ ના દરમિયાન કરેલ છે. દેશના અર્થતંત્ર અને સામાજિક-પર્યાવરણીય વિકાસમાં મટિરીયલ અને મિકેનિકલ એન્જિનિયરિંગની ભૂમિકા સારી રીતે સ્થાપિત છે. આ ક્ષેત્રમાં સંશોધન, વિસ્તૃત જાણકારી અને કુશળતાના વહેણ માટે શૈક્ષણિક સંસ્થાઓ, ઉદ્યોગો, સંશોધન સંસ્થાઓ અને વ્યાવસાયિક ઈજનેરોના નિષ્ણાતોને સાથે રાખવું જરૂરી છે. આ આંતરરાષ્ટ્રીય કોન્ફરન્સ મટિરીયલ સાયન્સ અને મિકેનિકલ એન્જિનિયરિંગના ક્ષેત્રમાં તાજેતરની પ્રગતિ સાથે સંકળાયેલ છે. કોન્ફરન્સનું ઉદ્દાટન અને કોન્ફરન્સમાં સ્વિકારેલ સંશોધન પત્રોની બુક ઓફ એબસ્ટ્રેક્ટ્સ વિષયોના ટેકનિકલ શિક્ષણ કમિશનર જી.ટી. પંચા અને ઉદ્યોગપતિ પી.એન. ભગવતીના



હસ્તે ડૉ. સ્વેતા. પી. દવે, આચાર્ય, સરકારી ઈજનેરી કોલેજ, ગાંધીનગર, ડૉ.એચ. એસ. પટેલ, આચાર્ય, સરકારી ઈજનેરી કોલેજ, પાટણ, વિષય નિષ્ણાતો તથા વિવિધ ખ્યાતનામ વડાઓ અને પ્રોફેસરોની ઉપસ્થિતિમાં તારીખ ૨૮ મે ૨૦૨૧ ના રોજ કરવામાં આવ્યું હતું. આ કોન્ફરન્સના કન્વીનર ડૉ. આઈ બી દવે પ્રોફેસર, જીઈસી-ગાંધીનગર, અને ડૉ. એચ. એન. પંચાલ, સહાયક પ્રોફેસર, જી.ઈ.સી.-પાટણ છે. કોન્ફરન્સની થીમ રજૂ કરવા આંતરરાષ્ટ્રીય પ્રતિષ્ઠિત ખ્યાતનામ હસ્તીઓ દ્વારા પ્રવચન કરેલ છે. કોન્ફરન્સના ઓર્ગનાઈઝિંગ સેક્રેટરી ડૉ. દીલત કુમાર શર્મા, સહાયક પ્રોફેસર, જી.ઈ.સી.-ગાંધીનગર અને પ્રો. ડી. ડી. મેવાડા,

સહાયક પ્રોફેસર, જીઈસી-ગાંધીનગર અનુસાર આ કોન્ફરન્સમાં મટિરીયલ સાયન્સ અને મિકેનિકલ એન્જિનિયરિંગના ક્ષેત્રમાં ચાલી રહેલ પ્રગતિ અને નવીનતા વિકાસ અંગેના વિવિધ સંશોધન પત્રો ઉદ્યોગો, શૈક્ષણિક સંસ્થાઓ, સંશોધન અને વિકાસ સંસ્થાઓ અને વ્યાવસાયિક ઈજનેરો દ્વારા સમાવેશ કરવામાં આવ્યા છે. કોન્ફરન્સનું ઉદ્દાટન અને કોન્ફરન્સમાં સ્વિકારેલ સંશોધન પત્રોની બુક ઓફ એબસ્ટ્રેક્ટ્સ વિષયોના ટેકનિકલ શિક્ષણ કમિશનર જી.ટી. પંચા અને ઉદ્યોગપતિ પી.એન. ભગવતીના હસ્તે ડૉ. સ્વેતા. પી. દવે, આચાર્ય, સરકારી ઈજનેરી કોલેજ, ગાંધીનગર, ડૉ.એચ. એસ. પટેલ, આચાર્ય, સરકારી ઈજનેરી કોલેજ, પાટણ, વિષય નિષ્ણાતો તથા વિવિધ ખ્યાતનામ વડાઓ અને પ્રોફેસરોની ઉપસ્થિતિમાં તારીખ ૨૮ મે ૨૦૨૧ ના રોજ કરેલ છે.

Metallic Glass- A revolutionary material

Metallic glass or amorphous metal, is a solid metallic material which has a disordered structure. Metallic glass has properties combined of polymers and metals. (plastic and steel). Like plastics can take any shapes and has good Strength and toughness like steel. Metallic glasses don't have grain boundaries like other crystalline materials All the unusual properties of Metallic glass are being attributed to its disordered structure

First produced at Caltech in 1950 – the metallic glass was a Combination of gold and silicon- Au80Si20, it was just few microns thick. Metallic glass is produced by cooling the liquid mixture of metals at a very high rate of cooling, one kelvin drops in a millionth of a second. This thin sheets of metallic glass at some few microns wouldn't be able to use for practical applications. Scientists learned later that by adding few more elements, metallic Glass could be made thicker.

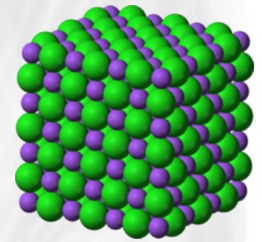
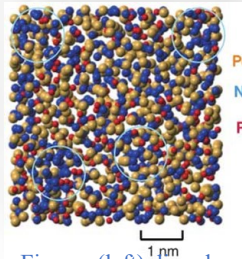
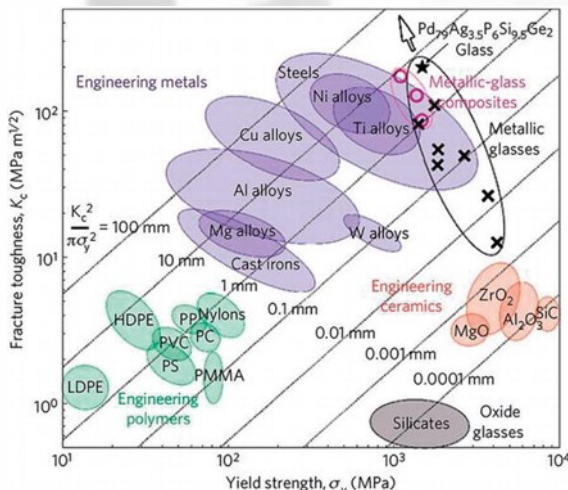


Figure- (left) disordered metallic glass structure (right) ordered metal structure.

Here in this graph fracture toughness vs yield strength of different materials is given. Different colours represent different materials like green for engineering polymers, purple for metals and alloys, orange for engineering ceramics, brown for silicates- oxide glasses and the black and pink crosses and circles for metallic glasses and metallic glass composite. Metallic glasses are situated at the top right corner on the graph which conveys maximum fracture toughness and yield strength. Metal alloys like steel nickel alloys and titanium alloys too have considerable toughness and strength yet they are below metallic glass in graph. The silicates or oxide glasses which can be considered as parent material for metallic glasses have same disordered structure, have a good amount of yield strength but very poor fracture toughness. As you drop a china dish from top it gets shattered away into pieces. Metallic glass has disordered structure same as silicates but possess strength and toughness similar to metals and alloys. Metallic glasses composites are newer development where metallic glass are one layer of the composite. This enhances the properties of composite and makes in usable for more complicated applications. Due to this above stated properties, metallic glasses are used in making tennis racquets, golf sticks etc for its high toughness and elasticity. Also, it has being used in solar wind ion collector on Genesis space probe as a replacement



for titanium, due to its high thermal resistance. The late SAN disk's model "titanium" Pen drive was made from Vitreloy- a metallic glass of zirconium and titanium as main constituent by proportion, due to its wear resistance and good moulding ability like ordinary glass. Materials Scientists throughout the world are thinking more of metallic glasses as a future material. But there is still a very long way to go where we see metallic glass bring used as a substitute to steel and other alloys in structural applications. The main limitation as structural application is that metallic glasses cannot sustain heavy loads for a long duration, if exposed then they break down in a catastrophic manner without any prior warning. The manufacturing of metallic glass is itself very costly, many metallic glasses contain zirconium palladium titanium whose extraction is costly that just adds on the total expenditure to use metallic glasses in everyday applications. There is also research going on with the help of simulation and modelling where new metallic glass combinations are made and simulated for real life scenario.

The need of the hour is to find metallic glasses that are cheap and has wide applicability. Future of this material is very bright.

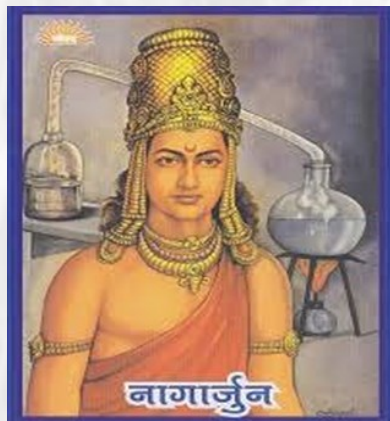
References:

https://en.wikipedia.org/wiki/Amorphous_metal#

Google Photos

TECHNO RIDE

- By, Mr. Kishor Mali. 170130121020, Sem 8



Nagarjun is a name synonymous to **philosopher, mathematician, Alchemy, Chemistry and Metallurgy**. He is also a well known name in Ayurveda. He conducted a number of alchemic and metallurgical experiments directed towards transforming base elements into gold. His book "**Rasaratnakara**" is one of the earliest documented texts in Sanskrit on Alchemy and related subjects. At a time when the Western scientists conducted subsequent experiments in Alchemy and failed, in India, alchemy saw a prominence in similar experiments by Nagarjuna.

Nagarjuna's treatise Rasaratnakara describes methods for the extraction of metals like gold, silver, tin and copper. He also wrote **Rasahrdya** and **Rasandramangala**. In Ayurveda, intake of **swarna bhasma** (gold powder) as a therapeutic agent is suggested for treating several ailments. This swarna bhasma is not the direct powder of the physical gold but a substance obtained after being subjected to chemical process such as heating to high temperatures in air or oxygen (termed calcination) of metal (gold) and subsequent mixing with herbs.

He discovered through his experiments in his laboratory the alchemy of transmuting base metals into gold. It was not the actual gold, but a gold-like substance or element that looked like gold and shone like gold. This **gold-shine mechanism** technology is used today by the **jewelry industry** for making imitation jewelry. The gold shine in imitation jewelry we wear today is a gift by Nagarjuna.

He is known as the "**Einstein of India**" because he propounded the idea of **Shunyavada** like Einstein's theory of Relativity. In the Ratnavali, he gave the instance that shortness exists only in relevance to the concept of length. He held that the connection between the ideas of "short" and "long" isn't due to intrinsic nature (Svabhava).

- 1) His books deal with the preparation of "**mercury (rasa) compounds**" !!!
- 2) He described extraction of metals such as gold, silver, copper, tin from their ores and their purification.
- 3) Described design of chemical lab including instruments to be used in the lab, shape and size of instruments and their uses.
- 4) Described preparation of medicinal drugs
- 5) Described preparation of the elixir of 1 - of creating medicines for increasing lifespan.
- 6) Described corrosion and loss on heatin.
- 7) Wrote on metals and their stability. 8) Described preparation of yellow metal which shines like gold, but not gold.

References:

1. Alberuni's India by Eduard Sachau
2. The Early Use of Iron in India by Dilip K. Chakrabarti
3. Hindu Culture and Lifestyle by Vaishali Shah
4. 'The origins of iron-working in India: new evidence from the Central Ganga Plain and the Eastern Vindhyas' by Rakesh Tewari
5. A History of Indian Medical Literature by Gerrit Jan Meulenbeld 6. indiascienceheritage.gov.in
6. www.vedyog.net

TECHNO RIDE

- By, Ms. Neelam Sompura. Alumni of 2008-12 batch

METALLURGY IN RIG VEDA

Back in 2008, when I was an excited young student of metallurgy engineering, I knew nothing about this branch except that it is related to extraction of metals. Little did I know men and metals had such an intimate relationship that the entire human history is defined by metals. So much so that metals find an important place in one of the most ancient religious texts – The Vedas. For anybody willing to learning about ancient Indian metallurgy, there are two sources viz. literature and archeological evidences. Some ancient Indian texts are filled with the treasure of old purification and processing techniques for metals like mercury, copper, gold, silver etc., their use in medicine, transmutation of base metals and metallurgy of mercury. This article is my first step in exploring this treasure.

There are several ancient texts mentioning metals viz. Rigveda, Atharva Veda (Satapatha Brahmana), Yajurveda (Taittiriya Samhita), Charaka Samhita, Silpasastras, Silppadarikaram, Rasendramangala, Rasaratnakara, Brihad-vimanshastra, Rasa-ratna-samuccayah, Rasendra Sara Sangraha, Brihat Samhita etc. Each of these texts emphasizes on one or more of the previously stated aspects of metallurgy. This article will focus on the mention of metals in RigVeda only.

The most widely mentioned metal in the Vedas is Gold. It is called by its ancient Sanskrit name Hiranya in the first of the four Vedas – The Rigveda. The importance of gold is reflected in the hymn which refers the Creator by the name Hiranyagarbha meaning '*God is the **golden embryo** or seed*'. Besides this, it also mentions the use of gold in making various products like water vessels, necklace, visor and decorations of Chariots. Here are some of the hymns from the Rigveda:

*'Borne in his **golden chariot** he cometh, Savitar (the Sun), God who looks on every creature.'*

*'Rightly you carry the arrows and bow; rightly you wear the precious **golden necklace shaped with many forms and colours**; rightly you extend this terrible power over everything. There is nothing more powerful than you, Rudra.'*

*'So, Lord of all prosperity, best wielder of the **golden sword**, Make riches easy to be won.'*

It is also said in the tenth mandala that '*Sindhu possesses excellent horses, beautiful chariots, handsome clothing and **golden ornaments***'. Sindhu river is referred as **hiranyavartan** in the veda.

Other than gold, the next important metal quoted in the Rigveda is 'ayas' which means either copper-bronze or iron. Indra's weapon Vajra is described to be made of ayas. Other references of ayas in Rigveda are as ayas armour for Indra, forts; ayas -fashioned homes of Indra and Soma, the ayas -pillared chariots of Mitra and Varuna, an edge and a blade, material of a beak, point, arrow, axe, vessel, and knives. Ayas is also mentioned to describe the teeth of Agni and Marut, the jaws of a horse and the sun, a thigh, the feet of a sacrificial horse. Here are some of the examples.

*His is that **thunderbolt, of iron**, goldenhued, gold-coloured, very dear, and yellow in his arms; Bright with strong teeth, destroying with its tawny rage.*

*As I lay within the womb, considered all generations of these Gods in order. A hundred **iron fortresses** confined me but forth I flew with rapid speed a Falcon.*

*Thou hurledst forth from heaven the **iron missile**, brought by the Skilful, from the sling of leather, when thou, O Much-invoked, assisting Kutsa with endless deadly darts didst compass Śuṣṇa.*

*Ye mount your car **gold-hued** at break of morning, and **iron-pillared** when the Sun is setting, And from that place, O Varuṇa and Mitra, behold infinity and limitation.*

*Strong, with **fair chains of gold and jaws of iron**, ye have a splendid car and well-fed horses. Ye Sons of Strength, ye progeny of Indra, to you the best is offered to delight you.*

The one hymn I found most interesting in the Rigveda mentioned the use of prosthetic leg made of iron granted by Ashvinis (physicians of the gods) to Vispala. '*When in the time of night, in Khela's battle, a leg was severed like a wild bird's pinion, Straight ye gave Viśpalā a **leg of iron** that she might move what time the conflict opened.*'

Other than Rigveda, the Atharvaveda mentions gold, **iron(ayas)**, **rajata** (silver), **trapu** (tin) and **sisā**(lead). Yajurveda mentions metals like iron and gold. It also mentions 'smith' once. Yajurveda and Atharvaveda mentions **kr̥sna ayas** or **syamayās** which means black metal. Whether it refers to iron or not is not clear. Samveda makes one reference to ayas as a wedge. As far as Vedic metallurgy is concerned, I have barely scratched the surface of the vast treasure of ancient knowledge with this article. There is a lot yet to be explored. The aim of this article was to ignite a spark of interest in readers for Vedic metallurgy. I hope I have done that. Thank you for reading.

References:

- 1) The Rig Veda - Translation by Ralph T. H. Griffith.
- 2) The Rig Veda - An Anthology by Wendy Doniger

ART GALLERY

સિધ્ધ કરવું છે.

આજના દિવસને જીવી બતાવો છે
આજ કશુક સિદ્ધ કરવું છે.
કાલે કરીશ કાલે કરીશ
તેમ દિવસો ગણા વિતાવ્યા છે.

આજના.....

સોનેરી આ સવાર છે અને
વાતાવરણ આહલાદક છે
રમ્યમય આ પ્રકૃતિના સહારે
નવો ઇતિહાસ મારે બનાવવો છે

આજના.....

આવનારી કલને કંઈક નવું આપવા
શૂન્યમાંથી નવસર્જન આજ મારે કરવું છે
સમયનો સયો ઉપયોગ કરીને
આ દિવસને ધન્ય બનાવવો છે

આજના.....

વાદળ છાયા વાતાવરણ માં સમીર મીઠો ફૂંકાય છે
આજે મારા ચિત્તમાં સુવર્ણ સંકલ્પો રેલાય છે
કાલ તો જતી રહી અફસોસ નથી કરવો
આવનારા ભવિષ્ય માટે કંઈક મારે કરવું છે

આજના.....

વૃક્ષ ને જોઈને દ્રઢ મારે બનવું છે
નદીના પાણીને જોઈને નવો માર્ગ મારે બનાવવો છે
આજના દિવસને જીવી બતાવવો છે
આજ કશુક સિદ્ધ કરવું છે
આજના દિવસને યાદગાર બનાવી દેવો છે.

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