

NEWSLETTER

METALLURGY DEPARTMENT

July 2021 to December 2021



METALLURGY

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.	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

INDEX

SR. No.	CONTENT	PAGE No.
1	ACHIVEMENTS OF THE FACULTIES	5
2	PEDAGOGY SESSION	6
3	GLIMPSES OF “WEBINARS”	7
4	GLIMPSES OF “WEBINAR SERIES/CONFERENCE”	9
5	GLIMPSES OF “GURU POORNIMA CELEBRATION”	10
6	SIGNING OF M. O. U.	10
7	GLIMPSES OF “INDUSTRY-INSTITUTE MEET”	11
8	GLIMPSES OF “ENGINEERS DAY CELEBRATION”	13
9	GLIMPSES OF “VIRTUAL ALUMNI MEET 2021”	14
10	FELICITATION OF ALUMNI	15
11	RESEARCH ACTIVITIES	16
12	PARENTS-TEACHERS MEET	17
11	STUDENT ACHIEVEMENTS	18
12	TRAINING/ACTIVITY ATTENDED BY FACULTY MEMBERS	19
13	MEDIA COVERAGE	20
14	TECHNO RIDE	21
15	ART GALLERY	24

ACHIVEMENTS OF THE FACULTIES



Dr. I B Dave Contributed as resource person at AICTE approved ATAL FDP on "Metallurgical Testing and Failure Analysis of Metals".

2 research paper publications. (Details are available in research activities).

Mr. Vishal Kaila received his Ph.D (Metallurgy) under the supervision of Dr. I. B. Dave.



Dr. D G Sharma delivered talk on Corrosion and its Prevention to diploma metallurgy students at S & S S Ghandhy college Surat.

Topper of NPTEL-AICTE approved 12 week Faculty Development program on "Aqueous Corrosion and its Control".

1 E-SCI indexed Research paper publication (Details are available in research activities).



Prof. H H Jadav completed NPTEL-AICTE approved 12 week Faculty Development program on "Aqueous Corrosion and its Control".

1 research paper publication (Details are available in research activities).



Dr. P K Nanavati delivered expert talk on Basic and advancement in metallurgy in Fronius digital internship program.

Contributed as resource person at AICTE approved ATAL FDP on "Metallurgical Testing and Failure Analysis of Metals".



Prof. D V Mahant completed NPTEL-AICTE approved 12 week Faculty Development program on "Aqueous Corrosion and its Control".



Prof. H H Thakar completed NPTEL-AICTE approved 4 week Faculty Development program on "Welding of advanced high strength steels for automotive applications" with Silver Elite certification.

Successfully coordinated for restructuring of Students Society of Metallurgy Engineering Gandhinagar (SSMEG).



Prof D A Patel completed NPTEL-AICTE approved 8 week Faculty Development program on "Advances in welding and joining technologies".

2 Scopus index research paper publication (Details are available in research activities).



Dr. M S Dani delivered expert webinar on "Fe Fe₃C diagram and Heat treatment of steels" organized by SSEC Bhavnagar.

2 research papers publication (Details are available in research activities).

PEDAGOGY SESSIONS

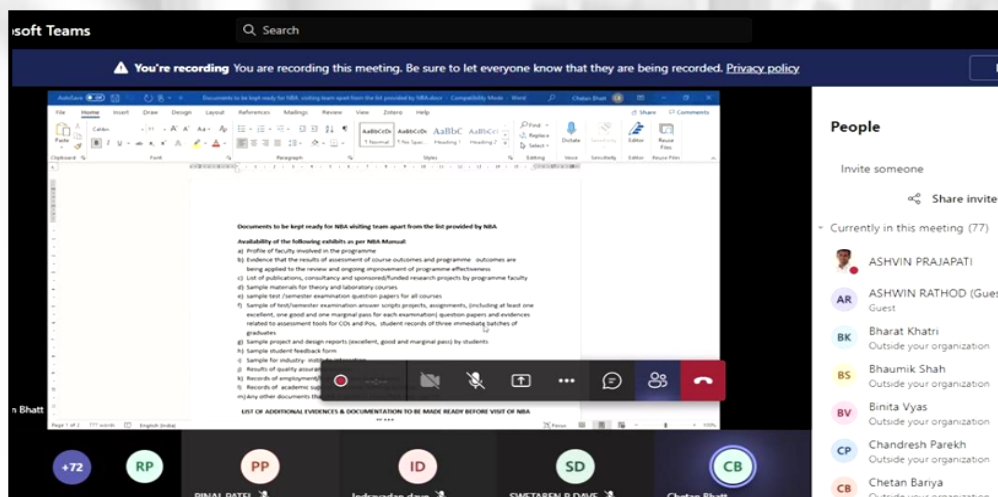
Sr. No	Name of Speaker	Department	Topic Delivered	Date
1	Dr. D .G. Sharma	Metallurgy	Research Proposal writing	17/7/2021
2	Dr I.B.Dave	Metallurgy	Discussion regarding NBA visit With Govt. Polytechnic Surat	22/09/2021
3	Dr I.B.Dave	Metallurgy	Experience sharing regarding interaction with NBA Team Visit	30/09/2021
4	Dr P.K.Nanavati	Metallurgy	Pedagogy Session on Teaching without Teaching- IPDC GTU Program	30/10/2021
5	Dr. D .G. Sharma	Metallurgy	Aqueous Corrosion Protection	04/12/2021
6	Prof. S I Patel	Metallurgy	Secondary Steel Making	24/12/2021

PEDAGOGY ON OUTCOME BASED EDUCATION

Government Engineering College, Gandhinagar and Government Engineering College, Modasa arranged a webinar on "Outcome Based Education.", On the 12th of August, 2021, at 3 p.m. This session featured Dr. C. B. Bhatt sir, Principal, Government MCA College, Maninagar, Ahmedabad as an expert. Dr. C. B. Bhatt explained about the requirements of the documentations to be fulfilled at the time of NBA Visit and also explained about how an Institute can achieve outcome based education using defined process of teaching and learning.

There were nearly 67 faculty members were present from both of the institutions and had very healthy interaction regarding OBE and documentation part.

Vote of Thanks was given by Dr.I.B.Dave, Head, Metallurgy Dept, GEC, Gandhinagar



GLIMPSES OF “WEBINARS”

Sr. No	Date/Time	Speaker	Topic	Organizing Partner	Coordinator
1	13-7-2021	Mr. Yakshil Chokshi	Introduction to Ellingham diagram	SSMEG	Dr. M S Dani
2	17-7-2021	Dr. Vishal Patel	Contributor Personality Development Program	-	Prof. H H Jadav and Prof. S I Patel
3	22-7-2021	Mr Manish Mehta	Welding Metallurgy of Austenitic SS	SSMEG	Prof. H H Thakar/ Dr. P K Nanavati
4	22-7-2021	Dr. G D Acharya	Market expectations from fresh graduate engineers	SSMEG	Dr M S Dani / Prof D D Mevada
5	29-7-2021	Dr. Hitesh Panchal	How to write Research Article	SSMEG	Prof D D Mevada / Dr M S Dani
6	29-7-2021	Dr. S D Kahar	Working of Potentiostate	IIM Baroda Chapter, SSMEG	Dr. D G Sharma
7	02-08-2021	Dr Mrunal Chaudhari	Optical and Electron Microscopy	IIM Baroda Chapter, SSMEG	Dr. D G Sharma/ Prof B R Rana
8	05-08-2021	Dr. G H Upadhyay	Nano materials and its applications	SSMEG	Dr. P K Nanavati/ Prof. B R Rana
9	05-08-2021	Mr Urvesh Vala	Corrosion Damage Mechanism and it's Prevention for Oil and Gas Refinery Application	IIM Baroda Chapter, SSMEG	Dr. D G Sharma
10	06-08-2021	Dr Sujoy Chaudhari	Effect of different process parameters on the productivity and quality of pig iron	SSMEG	Dr. P K Nanavati/ Prof. B R Rana/ Prof. S I Patel
11	07-08-2021	Mr. Siddhesh Jambekar	Metallurgical practice in Failure Analysis (Through Case Studies)	SSMEG	Dr. P.K.Nanavati/ Prof. H H Thakar
12	06-10-2021	Vishal Kaila	Casting process	SSMEG	Dr. D G Sharma

GLIMPSES OF “WEBINARS”

This screenshot shows a Microsoft Teams interface during a webinar. The main content area displays a slide titled "Gibbs free energy" with the equation $\Delta G_f^\circ = \Delta H_f^\circ - T\Delta S_f^\circ \dots(4)$. Below this, it explains the straight line equation $y = mx + c \dots(5)$ and relates it to the Gibbs free energy equation. A graph of ΔG_f° vs T is shown, illustrating the Ellingham diagram. The right sidebar lists participants, including Minal Dani (Organiser) and several attendees with IDs like 3-MET-A-1-190130121001.

This screenshot shows a Microsoft Teams interface during a webinar. The main content area displays a slide titled "Content" with a bulleted list: Introduction of Stainless Steel, Types of Stainless steel, Effect of Alloying Element on Stainless steel, Austenitic Stainless Steel, Welding Metallurgy of Austenitic Stainless Steel, Weldability of Austenitic Stainless Steel, Selection of Welding Wire for Austenitic Stainless Steel, and References. The right sidebar lists participants, including Minal Dani (Organiser) and several attendees with IDs like 3-MET-A-1-190130121001.

This screenshot shows a Google Meet interface during a webinar. The main content area displays a slide titled "OVERALL EXPECTATION OF MARKET FROM YOU" with a central image of two hands shaking. Surrounding the hands are words: LEARNING, KNOWLEDGE, EXPERIENCE, SKILLS, ABILITY, COMPETENCE, TRAINING, and GROWTH. The right sidebar shows a grid of participants, including Principal AITS, Harshad Jadhav, Minal Dani, Indravadan Dave, Mevada Dinesh, Pooja Solanki, Devang Mahant, and 66 others. The bottom status bar shows the time as 12:08 PM and the title "Expert Lecture on Market expectation from...".

This screenshot shows a Google Meet interface during a webinar. The main content area displays a slide titled "Journals for beginners – Asia pacific journal science and Technology" with a logo for APST (Asia Pacific Journal of Science and Technology). The slide includes text about the journal's focus on research and innovation. The right sidebar shows a grid of participants, including Indravadan Dave, Bhargav Thakur, Maulindu Patel, Devang Mahant, Lokesh Choke, Raj Kumar, and 67 others. The bottom status bar shows the time as 4:17 PM and the title "Expert Lecture on How to Write Research Art...".

GLIMPSES OF “WEBINAR SERIES”

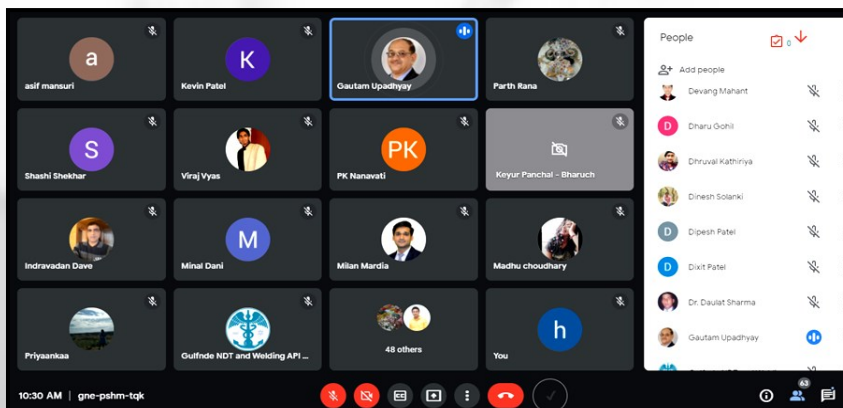
One Week National Webinar Series "Processing and Characterization of Materials" (PCM 2021), organized at Metallurgy Department, Government Engineering College, Gandhinagar in collaboration with IIM (Indian Institute of Metals), Baroda chapter during 20-24 September 2021 as a part of "Aazadi ka Amrut Mahotsav", was coordinated by Dr. Daulat Sharma and Prof. Devang Mahant. The National Webinar Series was inaugurated by Dr. Sweta. P. Dave, Principal, Government Engineering College, Gandhinagar; Dr. I. B. Dave, Head of the Metallurgy Department; Dr. S. D. Kahar, Chairman, Indian Institute of Metals, Baroda Chapter and Dr. Nirav Jamnapara, Scientist, IPR, Gandhinagar. 90 participants from various NITs, Engineering Colleges & Universities and Industries of all over India have participated. We are thankful to Mr. Krutik Shah, Proprietor, SVNDT Services, Vadodara, Dr. Arun Sinh Zala, Postdoc Fellow, Institute for Plasma Research, Gandhinagar, Ms. Riddhi Shukla, Ph.D. Scholar, Teltech, Estonia, Mr. Shubhneet Tyagi, CEO, Australian Institute of Technology, Australia and Dr. Nirav Jamnapara, Scientist, Institute for Plasma Research, Gandhinagar for sharing their knowledge and expertise in the area of Processing and Characterization of Materials.

Date	Name of Expert	Title
20-09-2021	Mr. Krutik Shah (Proprietor, SVNDT, Vadodara)	Advanced Non-Destructive Testing
21-09-2021	Dr. Arunsinh Zala (Postdoc Fellow, IPR, G'nagar)	XRD & SEM Techniques
22-09-2021	Ms. Riddhi Shukla (Ph.D. Scholar, TalTech, Estonia)	Powder Metallurgy
23-09-2021	Mr. Shubhneet Tyagi (CEO, AIT, Australia)	Industry 4.0 and Welding Technology
24-09-2021	Dr. Nirav Jamnapara (Scientist, IPR, G'nagar)	Advanced Materials

GLIMPSES OF “GURU POORNIMA CELEBRATION”

Virtual Gurupournima celebration was organised by Metallurgy Department, GEC Gandhinagar via <https://meet.google.com/gne-pshm-tqk> on 24-7-2021 from 10:00 am to 11:00 am under the guidance of Dr. S P Dave, Principal GEC Gandhinagar and Dr. I B Dave, HOD Metallurgy Dept. Semester 5 student Madhu Kumari has successfully hosted the event. Celebration was started with prayer by Sem 5 student Priyanka Jani followed by Welcome address by Dr. M S Dani and introductory speech of HOD Metallurgy Dept. Dr. I B Dave about various activities at the department. Participants were blessed by words of Dr. G H Upadhyay (Ex HOD Metallurgy Dept. GEC Gandhinagar). Sem 5 student Kevin Petel gave speech on importance of Guru and celebration of Gurupournima. Mr. Viraj Vyas (Alumni) introduces Alumni Association (SSMEG) reforms and various activities under its banner. Celebration was continued by introduction of various alumni working on good positions at national / international level in metallurgy field followed by good interaction with current students of Metallurgy Department. Session was concluded with vote of thanks by Prof. H H Thakar. This event was coordinated by Dr. M S Dani and Prof. H H Thakar. More than 140 alumni, current students and faculty members have attended the program.

Mr. Asif Mansuri, Mr. Viraj Vyas, Mr. Hardik Patel, Mr. Ashish Patel and Mr. Milan Maradia and many other alumni have given their feedback for nurturing teaching learning experience to make students of metallurgy department industry ready. As an outcome of the activity it was decided to plan a meeting of all post bearers of SSMEG association for planning of a webinar/seminar series related to Current industry practices like Artificial intelligence, CP, CPK, PP and PPK, Lean Six Sigma, Pokayoke and its importance in metallurgy in January 2022.



SIGNING OF M.O.U.

A memorandum of Understanding (MOU) is made on 06/08/2021 between I INSPIRE FOUNDATION(IIF) and Government Engineering College (GEC), Sector 28, Gandhinagar with intention like scheduling expert lecture as per the planned academic calendar by virtual or classroom trainings by Visiting Industrial Faculty to establish close and continuing interaction to improve industrial exposure to the students of GEC, Gandhinagar.



GLIMPSES OF “INDUSTRY-INSTITUTE MEET”

An Industry – Institute Meet was arranged by Metallurgy Department, Government Engineering College, Gandhinagar on **4th September 2021** to discuss the “Students Internship program” for the BE Metallurgy final year students with the industrial stakeholders invited from all over Gujarat. Under the guidance of Patron Dr. S P Dave and HOD Dr. I B Dave, this programme was coordinated by Dr. D G Sharma, Dr. M S Dani and Dr. P K Navati.

The purpose of this meeting was to strengthen the Industry –Institute bond and to carry out the open discussion on common platform to implement the “token amount stipend” to be payable to the intern by the industry to develop proper work environment, boost student confidence, and to see whether, it matches the expectations of the student & industry both. Under this program, students have to undergo 12 weeks Industrial training in their 8th semester. The main benefits of an internship are in career exploration, leadership and skill development, networking, establishing mentors and resume enhancements.

Representatives from professional bodies like ASM international Gujarat Chapter, IIW Baroda chapter, IIM Baroda chapter, IIF Ahmedabad and Baroda chapter and industries from all over Gujarat like L&T Chiyoda Ltd, RBD Engineers Pvt. Ltd, RNG Exports private limited, Mett -Bio Metallurgical Testing and Service, Kastwel Foundries, TDC Alloys, M/s. Prathana Alloys Pvt Ltd. GulfNDE services Pvt. Ltd., Keepsake Industries, Bhagwati Autocast Ltd., Bhagwati Spherocast Pvt Ltd., Devashree Aluminium Pvt Ltd, Honest Metal Cast, Crestt Innotech Pvt Ltd., AVIS India, Technospark actively participated in the meet. There was very positive and open discussion with regards to this scheme. Industry personals from various reputed industries have shown rediness to offer paid internship to almost 40 final year students of Metallurgy Department.



LIST OF STUDENTS SELECTED FOR PAID INTERNSHIP

Sr. No.	Name Of Company	No. of Student selected	Enrolment No.	Name of Student
1	Jindal Saw Ltd., Mundra	6	190133121005	Lokesh Namdevrao Dhoke
2			190133121007	Saurabh Gawande
3			190133121011	Prashant Sudhakar khedkar
4			190133121017	Jaykumar C. Sankhavra
5			190133121018	Dinesh Solanki
6			190133121019	Shubham Talekar
7	RBD Engineers, Khatraj Gandhinagar	5	180130121028	Akhil Patel
8			180130121036	Kramik Patel
9			180130121050	Ayush Shah
10			180130121053	Naman Shah
11			180130121057	Nishant Solanki
12	AIA Institution, Ahmedabad	2	180130121015	Aradhya Khare
13			180130121045	Janvi Rathod
14	Bhagwati Spherocast Pvt. Ltd. Ahmedabad	3	180130121019	Abhishek Mori
15			180130121061	Manan Thekdi
16			190133121008	Shivam Hirani
17	Grey Nodules, Kathwada Ahmedabad	2	180130121002	Nrupesh Bhakhart
18			180130121003	Ayush Bhuva
19	Sahjanand Laser Tech. Ltd. Gandhinagar	2	180130121054	Manishekhar Shahi
20			180130121055	Parimalkumar Sharma
21	Devine Metallurgical Services Pvt. Ltd, Ahmedabad	1	180130121048	Jainam Sakariya
22	Met Heat Engineers Pvt. Ltd., Vadodara	1	180130121058	Pooja Solanki
23	Gujarat Metal Cast Pvt. Ltd., Vadodara	2	190133121003	Nevil Barvaliya
24			190133121006	Bhargav Dudhat
25	L&T Ltd. (Defence IC), Surat	1	180130121010	Smit Devganiya
26	Ocean Steels Pvt. Ltd., Changodar	2	190133121009	Uddesh Rahendra Joshi
27			170130121055	Amitkumar Vinzuda
28	Amcon Casting Pvt. Ltd. , Rajkot	2	180130121020	Nakum Prashant
29			180130121043	Pipaliya Uditkumar Subhashbhai
30	Microfab Engineering (L&T Contract Surat)	1	190133121014	Dipesh Patel
31	RNG Exports Pvt. Ltd., Bhayala	1	180130121029	Avi Patel
32	PM Casting Pvt. Ltd., Vaghodiya Baroda	2	180130121056	Parth Sharma
33			180133121019	Jeet Rawal
34	Gulf NDE services Ahmedabad	2	190133121020	Thummar arpit niteshbhai
35	Pioneer Engineering Services, Ahmedabad	2	180130121042	Yatin Patel
36			180130121021	Vraj Nayi
37	Anup Engineering Ltd., Ahmedabad	1	190133121015	Jignesh Patel
38			190133121012	Nirmal Manan Arunkumar
39	MG Motors Pvt. Ltd., Halol	1	170130121006	Nirajkumar D chaudhary

GLIMPSES OF “ENGINEERS DAY CELEBRATION”

To enhance the various Skills set like. Project management, communication , lifelong learning, presentation skill, etc; The Metallurgy Department, Government Engineering College, Sector 28, Gandhinagar and Student Society of Metallurgy Engineering, Gandhinagar had jointly organized the “**State level poster presentation competition**” on occasion of Engineers’ Day 2021, on 15/09/2021 in association with Metallurgical and Materials Engineering Department, Indus University, Ahmedabad, Metallurgical and Materials Engineering Department ,The Maharaja Sayaji Rao University of Baroda, Vadodara , Vigyan Gurjari, sponsored by IIM Baroda Chapter.. Total 52 entries were registered for the event out of which 41 had presented the posters. The program inaugurated at 10:30 A.M. by Prof. H. H. Thakar with welcome address to the Participants, Guests, and jury members. Dr I. B. Dave, H.O.D, Metallurgy Department, had introduced about the Department and the program. Dr S. D. Kahar, Chairman, IIM Baroda Chapter, had highlighted about the importance of Engineers ‘Day Celebration. Prof. Chaitanya G. Joshi, President, Vigyan Gurjari, Gujarat Prant, had encourage the participants by highlighting “Swatantrata ka Amrit mahotsav” celebration. Dr. D. G. Sharma, Assistant Professor, GEC, Gandhinagar had given the Vote of Thanks to the event. Dr. D. G. Sharma, Prof. B. R. Rana and Prof. H. H. Thakar had coordinated the entire event. The event was Very interesting, informative and fruitful in terms of achieving the targeted objectives.

Diya is presenting

12:23 PM | aww-yjkm-yha

Krutik Mistry is presenting

9 AM | aww-yjkm-yha

hementthakar@gecg28.ac.in metal is presenting

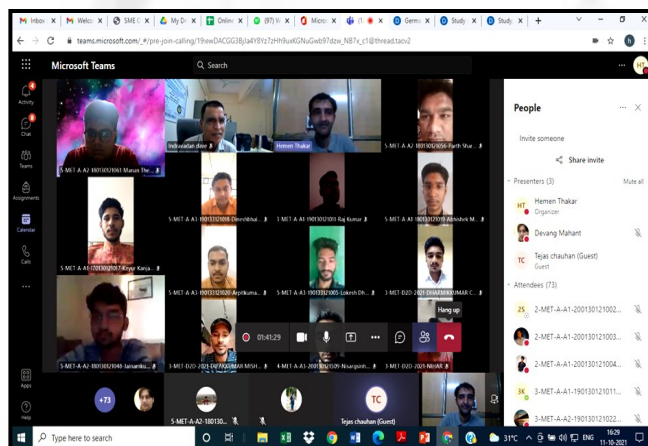
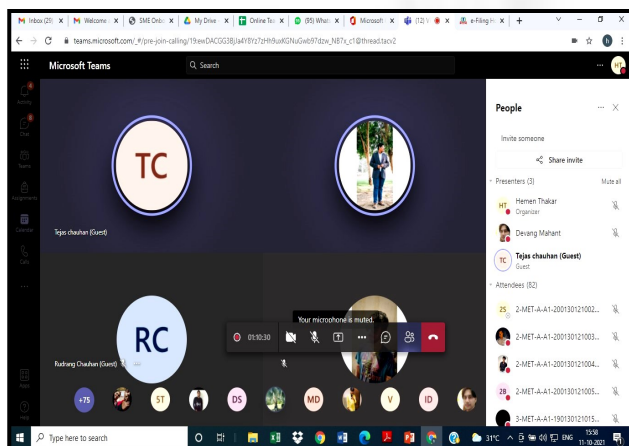
10:38 AM | aww-yjkm-yha

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 October 2021** on the MS Teams Platform 3:15 pm onwards. The meeting started at 3:15 p.m. with welcome introduction by Metallurgy Department alumni coordinator Prof. H H Thakar. Dr. I B Dave encouraged participants and enlightened the importance of alumni to the department with remarkable words. An expert sessions by Alumni of the department was then conducted. 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 At the end, Prof. H H Thakar ,sincerely expressed vote of thanks to honorable Principal Madam , Dr. I B Dave sir Head of Metallurgy Department for their guidance and support to make this event a grand success and thanks to Dr. M S Dani for background support, all Faculties, students ,Staff Members of metallurgy Engineering department and Alumni for attending Alumni Meet.

Sr. No.	Time	Expert Details	Topic
1	3:15 pm to 4:30 pm	Mr. Tejas Chauhan M.Sc.(Materials Engineering and Metal Forming) University of Duisburg Essen, Working as Technical Inspector, ITS, Germany. Alumnus of 2014 batch	“Study and Scope in Germany”



STUDENT'S SOCIETY OF METALLURGY ENGINEERING GANDHINAGAR (SSMEG)

FELICITATION OF ALUMNI

Alumni association has always been an utmost part of the institution. In many ways it can help the department connect with the current and graduated engineers to bridge recent technological advancements. On 4/9/2021 at Metallurgy Dept. Government Engineering College Gandhinagar, Student's Society of Metallurgy Engineering association has been formally restructured and post were distributed to the new office bearers in a meeting organised by alumni coordinator prof H. H. Thakar. Meeting of SSMEG trustees held on 4/9/2021 for distribution of various responsibilities. It was finalized to work for betterment of metallurgy engineering fraternity by organizing various technical activities by alumni of Metallurgy department. SSMEG is feeling proud to felicitate Dr. Arunsinh Zala (Batch 2008-12) for completing his Ph.D and joining Institute for Plasma Research for his Post Doctoral research.



Student Society of Metallurgy Engineering Gandhinagar (SSMEG) general meeting was organised by Prof. H H Thakar on 18/12/2021 at GEC, Gandhinagar under the guidance of Dr. I B Dave, Head Met dept & Dr. G H padhyay (Ex- Head Met dept GEC Gandhinagar) to felicitate our Alumni Mr. Dhruv Patel , for their innovative research & start up , Mr. Ravi Tavethiya & Mr. Bhargav Khunt for their successful entrepreneurship (2 consecutive firms). Metallurgy Department is feeling proud for their success in career. Healthy discussions was held to promote Metallurgy discipline interest among freshly admitted students. Extended Career guidance & support from alumni was being received. Planning was done for conduction of webinar series in 2nd week of February 2022.



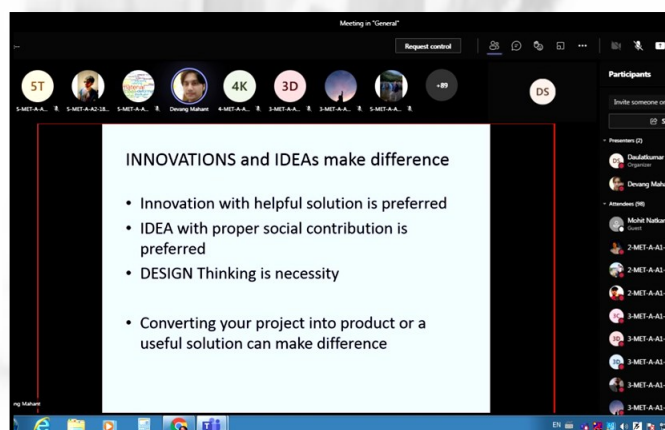
RESEARCH ACTIVITIES

Research Paper counter (Jan 2019 –Dec 2021)	Previously published	Addition	Total
	27	6	33

Sr. No.	Title of the Paper	Authors	Publication
1	Thermal spray coating replacing the traditional hot dipped galvanizing process in present industrial scenario	Urvesh Vala, Indravadan B Dave	NACE International
2	Effect of Friction Stir Processing on AZ91 Mg-alloy: A Review	Samir Rathod, Daulat Kumar Sharma, Minal Dani, Paras Rank & Nikunj Savaliya	Jurnal Kejuruteraan
3	Performance of weld bead profile during A-TIG welding on nitrogen alloyed stainless steel	Akash Deep, Vivek Singh, Som Ashutosh, M. Chandrasekaran, Dixit Patel	Engineering Research Express, IOP publishing
4	Develop a sustainable welding procedure for chromium manganese austenitic stainless steel using the ATIG process	Dixit Patel, Suketu Jani, Vivek Singh, Som Ashutosh	Engineering Research Express, IOP publishing
5	Improvement In Corrosion Resistance Of Magnesium-Aluminum Alloy Via Friction Stir Processing	Minal S. Dani, I. B. Dave and Alphonsa Joseph	Jurnal Kejuruteraan
6	Dissimilar welding of magnesium alloy to aluminium alloy: a review	Harshadkumar Jadav, Vishwesh Badheka, G H Upadhyay, Kush Mehta	Advances in Materials and Processing Technologies

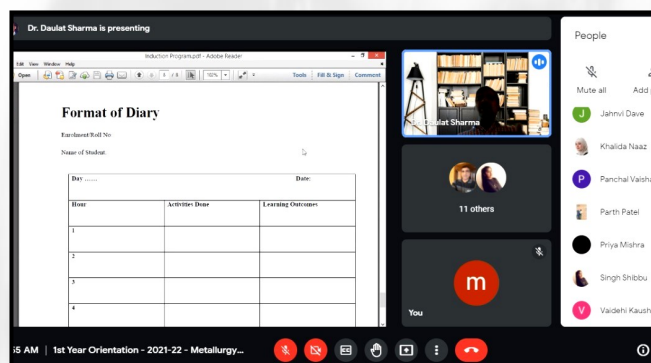
SSIP SENSITIZATION

An expert session was delivered by Dr. P K Nanavati regarding Sensitization for SSIP projects on 04/10/2021. This activity was organised by Dr. D G Sharma and Prof. D V Mahant. Students of Metallurgy department were encouraged to participate for SSIP projects.

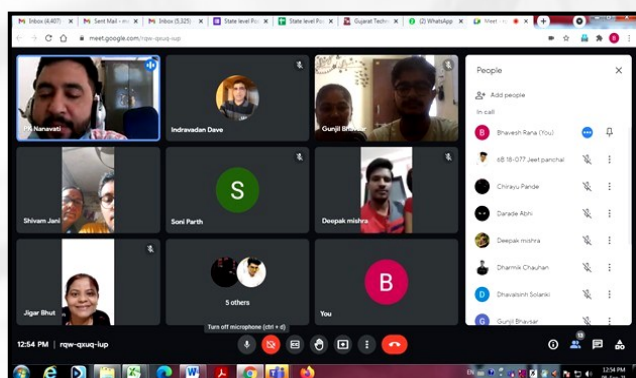


1ST YEAR ORIENTATION

An orientation session was delivered by Dr. D G Sharma and Prof. D V Mahant on 28/09/2021 for 1st year students regarding Metallurgy department and various academic activities at GEC Gandhinagar under GTU.

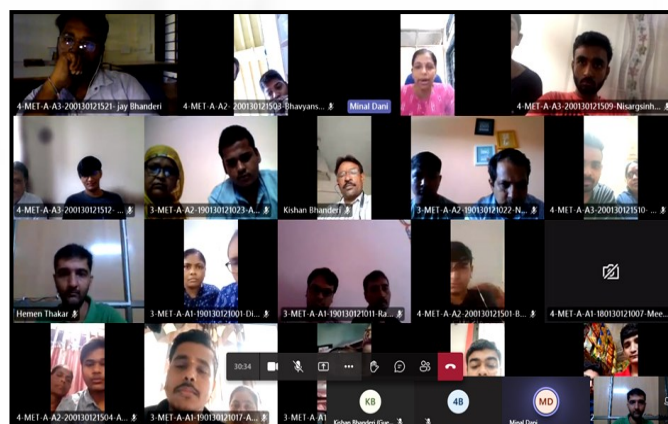


PARENTS-TEACHERS MEET

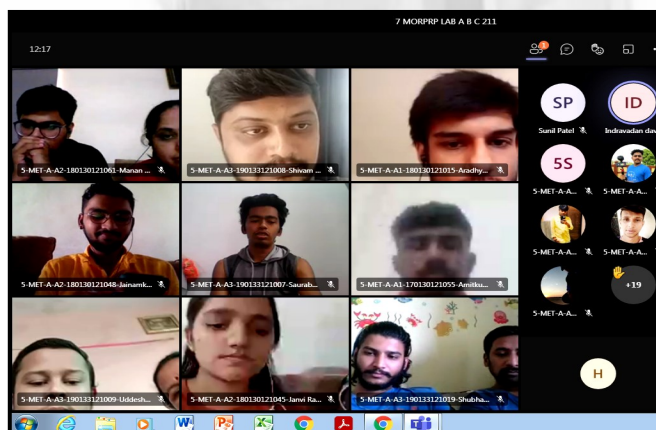


Parents Teachers meet was for **Sem 5** students was organised by Metallurgy Department, GEC Gandhinagar on 8/9/2021 from 11 to 12:30 PM. Students with their parents have participated in the meeting. Parent were informed that Metallurgy department has applied for NBA accreditation and doubts were resolved by Dr. P K Nanavati and Prof. R Rana

Parents Teachers meet was for **Sem 5** students was organised by Metallurgy Department, GEC Gandhinagar on 18/9/2021 from 11 to 12:30 PM. 39 students with their parents have participated in the meeting. Parent were informed that Metallurgy department has applied for NBA accreditation and they were informed about NBA accreditation and its importance. Parents were reported with each student's progress and important instructions were given regarding attendance of the students. Doubts of students and parents were resolved by Prof. H H Thakar and Prof. M S Dani.



33 students with parents participated meeting with faculty on dt.: 16/09/2021 at 01:00pm. Prof H H Jadav initiated the meeting with the purpose of interaction with parents and students, briefed about attendance, NBA etc. Dr. I B Dave head motivated students and briefed them about attending offline classes, **Sem 7** internship in industry, department initiative for students like expert lecture, online lab, lecture and seminar series etc. prof S I Patel concluded the meeting with vote of thanks.



STUDENT ACHIEVEMENTS

The following is the List of student awardees for the odd term 2020 (academic year 2020 2021) who obtained highest SPI in GTU end semester examination conducted in winter 2020. They have been awarded certificate of appreciation on 15/08/2021.

Sr. No.	En. No.	Name of Student	Semester	SPI (out of 10)
1	170130121038	PATEL MANAN KIRITKUMAR	7	9.60
2	180130121053	SHAH NAMAN DINESHBHAI	5	8.75
3	190130121001	CHURAKKATE DIYA SUBHASH	3	8.83



The following is the list of winner students of state level poster presentation competition organized on Engineer's Day 15/09/2021.

Sr. No.	En. No.	Name of Student	Title of Poster	Rank
1	200130121005	GUNJIL BHAVSAR	Top Down and Bottom Up Approach	2
2	200130121004	CHIRAYU PANDE	Top Down and Bottom Up Approach	2
3	200130121510	RAHUL YADAV	Heat treatment of steel with respect to Iron- Iron carbide diagram	3
4	190130121001	DIYA CHURAKKATE	Heat treatment of steel with respect to Iron- Iron carbide diagram	3
5	190130121033	SHRUTI SHRIVASTAVA	Heat treatment of steel with respect to Iron- Iron carbide diagram	3

TRAINING/ACTIVITY ATTENDED BY FACULTY

Sr. No.	Name of the Faculty	Title of Training/Activity	Duration	Organizer
1	Dr. D. G. Sharma	"Advanced Functional Nanomaterials for Air Pollution Control"	17-07-2021	Maharaja Agrasen University
2	Dr. D. G. Sharma	"Nanotechnology versus nanowaste and their interaction with environment: Global framework and sustainable development"	16-08-2021	Maharaja Agrasen University
3	Dr. D. G. Sharma	Appreciation for coordinating One week Webinar Series: PCM 2021	20/09/2021 - 24/09/2021	GEC Gandhinagar, IIM Baroda
4	Dr. D. G. Sharma	"Aqueous Corrosion and its Control"	Jul-Oct-2021	NPTEL-AICTE Faculty Development Programme
5	Dr. D. G. Sharma	Appreciation for coordinating State level poster presentation competition on Engineer's day	15/09/2021	GEC Gandhinagar, IIM Baroda, SSMEG, Vigyan Gurjari
6	Prof. H.H.Jadav	"Aqueous Corrosion and its Control"	Jul-Oct-2021	NPTEL-AICTE Faculty Development Programme
7	Prof. P.K. Nanavati	"Teaching without Teaching"	18-10-2021	GTU in Collaboration with IPDC
8	Prof. D.V. Mahant	"Aqueous Corrosion and its Control"	Jul-Oct-2021	NPTEL-AICTE Faculty Development Programme
9	Prof. D.V. Mahant	Appreciation for coordinating One week Webinar Series: PCM 2021	20/09/2021 - 24/09/2021	GEC Gandhinagar, IIM Baroda
10	Prof. B. R. Rana	Appreciation for coordinating State level poster presentation competition on Engineer's day	15/09/2021	GEC Gandhinagar, IIM Baroda, SSMEG, Vigyan Gurjari
11	Prof. Dixit. A. Patel	"Advances in Welding and Joining Technologies	Jul-Sep-2021	NPTEL-AICTE Faculty Development Programme
12	Prof. Dixit. A. Patel	Jury member at National Children Science Congress 2021	19/12/2021- 20/12/22021	Dept. of Science and Technology
13	Prof. H.H. Thakar	"Welding of Advanced High Strength Steels for Automotive Applications"	Jul-Aug-2021	NPTEL-AICTE Faculty Development Programme (IIT Madras)
14	Prof. H.H. Thakar	Appreciation for coordinating State level poster presentation competition on Engineer's day	15/09/2021	GEC Gandhinagar, IIM Baroda, SSMEG, Vigyan Gurjari

[illegible]

ગાંધીનગર, તા. ૪
ઉચ્ચ સિદ્ધિજ્ઞના તાબા
હેઠળના મેટલજી વિભાગ,
સરકારી ઈજનેરી કોલેજ, સેક્ટર-
૨૮, ગાંધીનગર ખાતે ઈન્ડસ્ટ્રી-
ઈન્સ્ટીટ્યૂટ મીટ”નું આયોજન
તાજેતરમાં કરવામાં આવ્યું હતું.
ઈન્ડસ્ટ્રી - ઈન્સ્ટીટ્યૂટ મીટમાં
ગુજરાત રાજ્યની વિવિધ
સંસ્થાઓના પ્રતિનિધિઓ અને ડૉ.
સ્વેતા. પી. દવે, આચાર્ય, સરકારી
ઈજનેરી કોલેજ, ગાંધીનગર; ડૉ.
બીતમ ઉપાધ્યાય, ચેરમેન,
બીઓએસ, મેટલજી, જીડીપી; ડૉ.
આઈ.બી. દવે, મેટલજી
વિભાગના વડા અને મેટલજી
વિભાગના પ્રાધ્યાપક ડૉ. દીલિપ

၂၆၂၈၁၆၅၂, ဘဏ်ကလေး

The screenshot shows a Zoom meeting in progress. The main content area displays a presentation slide with the following text:

WELCOME TO EDUCATION FOR ALL
 Ensuring Quality and Inclusive Education for All
 10th October 2021
 Ministry of Education, National Center for Educational Research

The slide also features logos for UNICEF, the Ministry of Education, and the National Center for Educational Research. Below the main text, there are three columns of information, likely listing speakers or participants, though the text is small and partially obscured.

The Zoom interface includes a grid of participant video feeds on the right side, showing several attendees. At the bottom, there is a toolbar with various icons for meeting controls like mute, video, chat, and screen sharing.

પોલીટીકનીકો અને ઈન્ડસ્ટ્રીજ ખાતેથી ૧૨૮ સહભાગીઓએ નોંધણી કરાવેલ છે જેનો મુખ્ય હેતુ સહભાગીઓને મટિરિયલ્સની આધુનિક પ્રક્રિયા અને તેના વિવિધ કેરક્ટર ઈજેક્શન વિષયનું તજજ્ઞનો દ્રશ્યતાલીપ આપવાનું છે. નેશનલ વેબીનાર સીરીઝનું ઉદઘાટન શ્રી. શ્રી. ડૉ. આચાર્ય, સરકારી ઈજનેરી કોલેજ, ગાંધીનગર; ડૉ. આઈ. બી. દવે, મેટલ્સ વિભાગના વડા; ડૉ. એસ. ડી. કહાર, ચેરમેન, ઈન્ડિયન ઈન્સ્ટિટ્યૂટ ઓફ મેટલ્સ, બરોડા ચેરટર અને ડૉ. નીરવ જનનાપરા, સાઈન્ટીસ્ટ, આઈપીઆર, ગાંધીનગરના હસ્તે વિવિધ પ્રાધ્યાપકો અને મહાનુભાવોની ઉપસ્થિતિમાં કરવામાં આવ્યું હતું.

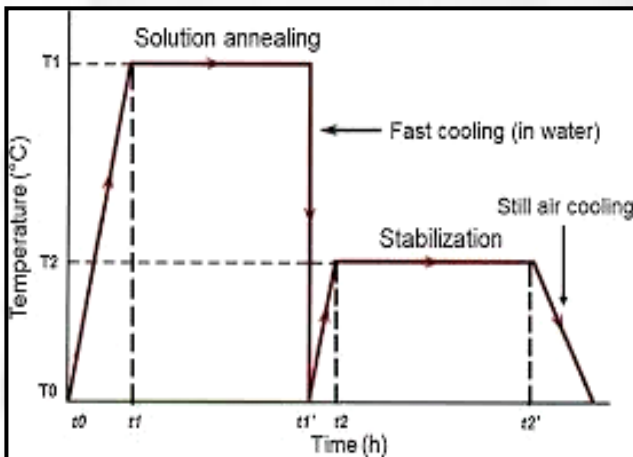
ગાંધીનગર, તા. ૨૭
સરકારી ઈજનેરી કોલેજ,
ગાંધીનગરના મેટલર્જી વિભાગ
ખાતે "સ્વતંત્રતાનું અમૃત
મહોત્સવ" ના આયોજન ભાગ
રૂપે સાપ્તાહિક નેશનલ વેબિનાર
સીરીઝ "પ્રોસેસિંગ અને
કેટરરારીઝેશન ઓફ
મટિરિયલ્સ" ૨૦૨૧નું
આયોજન આઈઆઈએમ
(ઈન્ડિયન ઈન્સ્ટિટ્યૂટ ઓફ
મેટલર્સ) ખરોડા ચેપ્ટરના
સંયોજન થી તારીખ ૨૦ થી ૨૪
સપ્ટેમ્બર, ૨૦૨૧ દરમિયાન
કરાયું હતું. જેમાં મુખ્ય હેતુ
સહભાગીઓને મટિરિયલ્સની
આધુનિક પ્રક્રિયા અને તેના વિવિધ
કેટરરારીઝેશન વિષયનું
તજજનો દ્વારા તાલીમ આપવાનું
હતું. નેશનલ વેબિનાર સીરીઝના
સંયોજક મેટલર્જી વિભાગના
પ્રાધ્યાપકોએ તાલીમ આપી હતી.
આ સીરીઝનું ઉદઘાટન ડૉ. ચેતા
દવે, ડૉ. આઈ.બી. દવે, ડૉ. એસ.
કલ્હર, ડૉ. નીરવ જગમણપરાહસે
કરાયું હતું. જેમાં ભારતની વિવિધ
અને આઈ.ઈ. ઈજનેરી કોલેજો,
યુનિવર્સિટીઓ અને ઈન્ડસ્ટ્રીઓ
ખાતેથી ૮૦ સહભાગીઓએ ભાગ
લીધો હતો.

“ડૉ. હિતેશ એન. પંચાલ” સહાયક પ્રાધ્યાપક, મિકેનિકલ ઇજનેરી વિભાગ, સરકારી ઇજનેરી કોલેજ, પાટણ (2% scientist in Energy Category, published by Stanford University, California)એ વ્યાખ્યાન આપ્યું હતું. આ સમગ્ર પ્રોગ્રામનો મુખ્ય ઉદ્દેશ વિદ્યાર્થીઓ, શિક્ષકમિત્રો તેમજ રીસર્ચસને પોતાના સંશોધન દરમ્યાન સંશોધનપત્રો કઈ રીતે બનાવવા અને પ્રકાશિત કરવા એ હતો. આ સમગ્ર Expert Talkનું સંચાલન મિકેનિકલ અને મેટલર્જી વિભાગના વડા ડૉ. આઈ. બી. દવે. એ અભિનંદન પાઠવ્યા હતા.

Heat Treatment of Stainless Steel

-By Chauhan Dharmik N. (Sem 3- T En No- 2021100103)

Heat treatment methods, such as stress relieving, hardening and annealing, strengthen the ductility and corrosion resistance properties of the metal that is modified during fabrication, or generate hard structures capable of tolerating abrasion and high mechanical stresses.



Solution Annealing & Heat Treatment :-

Heat Treating is the heating and cooling of steel to manipulate the desired properties. As a stainless steel supplier, it's only natural to offer stainless steel heat treating as a secondary service. To save you time and money, Best Stainless offers a variety of inventory in heat treated steel conditions. In addition, we also keep inventory on hand capable of heat treating per specification. Heat treatment services include solution annealing, quenching, tempering and stress relieving.

MECHANICAL PROPERTIES

Typical compositions, annealed mechanical properties and hardening response for the various Allegheny Ludlum martensitic stainless steels are presented below.

Stainless Steels	Typical Composition (Weight Percent)			Typical Annealed Properties				Hardening Response HRC
	C	Cr	Mo	HRB	0.2% Offset Yield Strength Ksi (MPa)	Tensile Strength Ksi (MPa)	Elongation, Percent in 2" (51 mm)	
Type 440A	0.64	16.5	--	95	62 (427)	104 (717)	20	57-60
Type 425 Mod	0.55	13.5	1.0	93 89*	55 (379) 45 (310)	94 (648) 86* (593)	24 25*	57-60
Type 420HC**	0.44	13.0	--	88	45 (310)	87 (600)	28	56-59
Type 420	0.38	13.0	--	87	45 (310)	85 (586)	29	53-57
Type 410HC**	0.21	12.5	--	83	43 (310)	78 (538)	30	45-52
Type 410	0.14	12.5	--	82	42 (290)	74 (510)	34	38-45

* Fine blanking quality

**HC means higher carbon version of standard grade

Types of stainless steel

Austenitic steels usually have the highest corrosion resistance. They contain 16 to 26 percent chromium and up to 35 percent nickel, and they are not hardenable by heat treatment and are nonmagnetic. The most common type is the 18/8, or 304, grade, which contains 18 percent chromium and 8 percent nickel.

Types of stainless steels

Austenitic stainless steel	Martensitic stainless steel	Ferritic stainless steel	Duplex stainless steel
----------------------------	-----------------------------	--------------------------	------------------------

References :-

<https://www.paulo.com/university-resources/heat-treating-annealing-stainless-steel-impacts-corrosion-resistance-polishing/>

<https://images.app.goo.gl/uq11hanBt2uf69JV9>

TECHNO RIDE

Industrial application of Mg & its alloys

- By, Mishra Dipak Manojbhai, (Sem 3 T En No.- 2021100109)

Magnesium alloys are used for both cast and forged components, with the aluminium-containing alloys usually used for casting and the zirconium-containing ones for forgings; the zirconium-based alloys can be used at higher temperatures and are popular in aerospace.

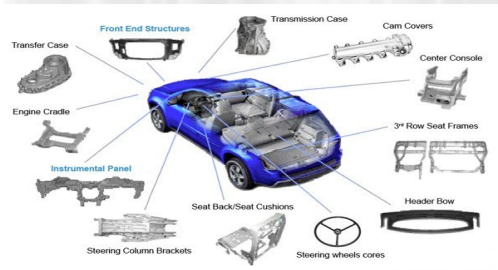
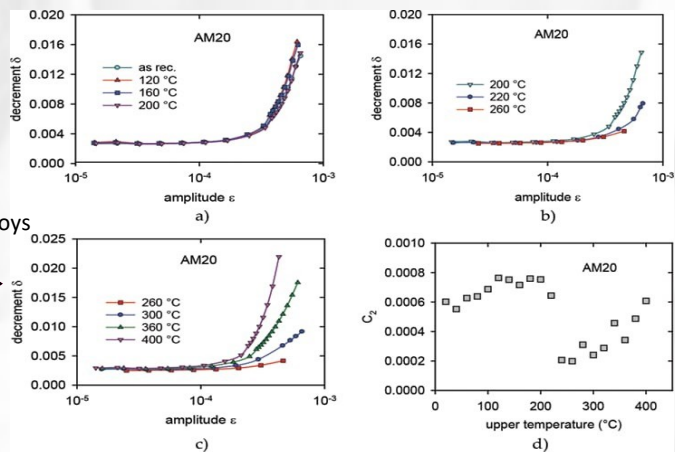


Fig. shows some of the automotive components made from Mg alloys

Amplitude dependence of decrement measured in the AM20 alloy after thermal cycling: lower (a), medium (b), higher (c) upper temperatures of the thermal cycle, temperature dependence of the C₂ parameter (d).



(AM60B), steering wheel armatures (AM50 [Mg-5Al-0.3Mn], AM60B) and valve and cam covers (AZ91D).



Magnesium is a critically important metal in design of aerospace and automotive parts because of its desirable mechanical properties. The low density, good heat dissipation, good damping and good electro-magnetic shield all make it a top choice for design of aerospace and automotive parts.

However, the varying operational environments require a material that is more corrosion resistant. Therefore, magnesium is alloyed with other materials (metals and rare earth elements) to provide the best material for aerospace and automotive parts. This article provided the selection of an alloy type depends on how the part will be made (cast or wrought), the strength required, and the operational environment.

	Ammonium NH ₄ ⁺	Group I Alkali Metals	Group II Alkaline Earth Metals	Transition Metals	Post-transition Metals	
Fluoride F ⁻	soluble	slightly soluble	soluble	soluble	soluble	Fluoride F ⁻
Chloride Cl ⁻	soluble	soluble	soluble	soluble	soluble	Chloride Cl ⁻
Bromide Br ⁻	soluble	soluble	soluble	soluble	soluble	Bromide Br ⁻
Iodide I ⁻	soluble	soluble	soluble	soluble	soluble	Iodide I ⁻
Chlorate ClO ₃ ⁻	soluble	soluble	soluble	soluble	soluble	Chlorate ClO ₃ ⁻
Hydroxide OH ⁻	---	soluble	soluble	insoluble	insoluble	Hydroxide OH ⁻
Sulfite SO ₃ ²⁻	soluble	soluble	soluble	insoluble	insoluble	Sulfite SO ₃ ²⁻
Sulfate SO ₄ ²⁻	soluble	soluble	soluble	slightly soluble	insoluble	Sulfate SO ₄ ²⁻
Carbonate CO ₃ ²⁻	soluble	soluble	soluble	insoluble	insoluble	Carbonate CO ₃ ²⁻
Nitrite NO ₂ ⁻	soluble	soluble	soluble	insoluble	soluble	Nitrite NO ₂ ⁻
Nitrate NO ₃ ⁻	soluble	soluble	soluble	soluble	soluble	Nitrate NO ₃ ⁻
Phosphate PO ₄ ³⁻	soluble	insoluble	soluble	insoluble	insoluble	Phosphate PO ₄ ³⁻

SOLUBILITY RULES CHART

Letter	Alloying Element	Letter	Alloying Element
A	Aluminium	L	Lithium
B	Bismuth	M	Manganese
C	Copper	N	Nickel
D	Cadmium	P	Lead
E	Rare earth	Q	Silver
F	Iron	R	Chromium
H	thorium	S	Silicon

Table:-An ASTM code for magnesium's alloying elements

There are other considerations made in designing each specific part to help select between several very similar alloys.

REFERENCES:-1-L. Ćirković, et. Al. -Study of selected properties of magnesium alloy AZ91 after heat treatment and forming, 2004 Elsevier.

Introduction to Powder Metallurgy

-(By, Kasundra Manthan Mukeshbhai, Sem 3 T En No.- 2021100108)

Introduction:

Science of producing metal powders and making finished /semi finished objects from mixed or alloyed powders with or without the addition of non-metallic constituents. The P/M process is a rapid, economical and high volume production method for making precious components from powders. New types of powder allow the production of larger and higher strength materials. P/M is a choice when requirement for strength, wear resistance or high operating temperatures exceeds the capability of die casting alloys.

Mechanical Methods:-

It is the cheapest powder production methods. These methods involve using mechanical forces such as compressive forces, attrition, shear or impact to facilitate particle size reduction of bulk materials. Eg- Milling, Grinding etc. These processes are not used as primary methods for the production of metal powders. Such methods have been used as the primary process for the following cases:-

1. Material which are relatively easy to fracture.
2. Reactive materials.
3. Common metals which are required in the form of flake powder.

Physical Method:-

Under this, two methods are prevalent.

1. Electrolytic Method
2. Atomization Method

Electrolytic Method:-

In this method, the processing conditions are so chosen that metals of high purity are precipitated from aqueous solution on the cathode of an electrolytic cell. This method is mainly used for producing copper, iron powders. This method is also used for producing zinc, tin, nickel, cadmium, antimony, silver, lead, beryllium powders.

Powder metallurgy treatments :-

1. Annealing
2. Powder mixing

Various method of size reduction can be classified as :-

- Crushing
- Ball milling
- Disc grinder
- Attritor milling

References :-

Fabrication of Microwave Sintering Setup for Powder Metallurgical Components

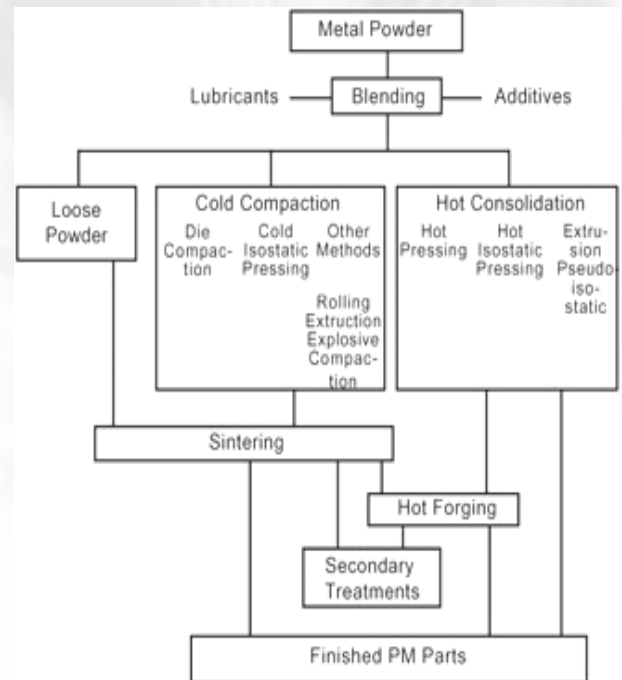


Fig: Basic steps of powder metallurgy

ART GALLERY

-Art performed by Diya Churakkate Sem -5 (190130121001)



"The Pink Evening Sky"

*"Kathakali-
Classic Indian Culture"*



"Butterfly Night Scenery"

ART GALLERY

बेचैन मन मे खयाल तो बोहत आते है,
उन खयालों मे कई सवाल सवर जाते है,
माना कि बोहत अच्छी जिंदगी मिली है,
लेकिन वो जिंदगी अच्छे से कहा जी पाते है?
बेचैनी तो होगी ! ये जिंदगी जो ठहरी,
मरते वक़्त कहा कुछ साथ ले जाते है ?
जिंदगी लंबी लेकिन छोटी ही है,
तो बेचैनी को केहदो ,
हम भी कुछ कम नहीं !
लो तुम्हारे बिना जीकर दिखाते है ।

-Written by

Jainam Sakariya Sem-7 (180130121048)



EDITORIAL BOARD

Chairman

Dr. Sweta. P. Dave
Principal,
GEC, Gandhinagar

Editor

Dr. I. B. Dave
Prof. & Head, Metallurgy,
GEC, Gandhinagar

Associate Editors

Prof. H. H. Thakar
Asst. Prof., Metallurgy,
GEC, Gandhinagar

Members

Prof. S. I. Patel
Dr. D. G. Sharma
Prof. H. H. Jadav
Dr. P. K. Nanavati
Prof. D. V. Mahant
Prof. B. R. Rana
Prof. D. A. Patel
Dr. M. S. Dani

Student Members

Parth Parmar
Jay Bhandari
Rahul Yadav
Dipak Mishra

COPPER



Metallurgy Department

