



A Report on

Six Days

Online Faculty Development Programme

on

**“Post Lockdown Trends in
CAD/CAM and Manufacturing
for MSME”**

Organized by

GIT - Mechanical Engineering Department and IQAC

on

18/01/2021 to 23/01/2021

Sponsored by

AICTE, New Delhi & GTU, Gujarat

Gandhinagar Institute of Technology

2020-2021

Level: State Level Programme

Category: Faculty Development Programme

Date: 18/01/2021 to 23/01/2021 (6 Days)

No. of Resource Person: 18

No. of Participants: 59

University Coordinator (GTU): Dr. Sarika Srivastava

Institute Coordinator and Co-coordinator Name: Dr H N Shah and Prof. Amit Patel

Mode: Online Platform (Google Meet)

Inspiration: Dr H N Shah, Director, Gandhinagar Institute of Technology

Objective:

The key focus outcomes of this online Faculty Development Program (FDP) are related to the Vision and Campaign of Honorable prime minister “**Local for Vocal**” and “**Aatma Nirbhar Bharat**” This FDP will develop a better understanding of **POST LOCKDOWN trends in CAD/CAM and Manufacturing for MSME**. How advanced technology improves the production in MSME by integrating design and production system activities. It will accelerate the revolution in MSME regarding various methodologies and technological aspects in the field of manufacturing and automation.

About FDP:

Gandhinagar Institute of Technology arranges different programmes for the benefit of faculty members as well as students. The mechanical engineering department is one of the largest departments of the institute, caters to its students with class tutorials and state-of-the-art laboratories. The department is continuously striving to achieve excellence in education, academic, and industry-oriented research as well as consultancy work with service to the society. Also, GIT has established the Internal Quality Assurance Cell (IQAC) since 14th November 2019. Since last year, IQAC has fetched more than 6 grants from various funding agencies like AICTE and GUJCOST for conducting webinars, STTP as well as a travel grant for publishing research papers outside India. The IQAC of GIT organizes various programmes for faculty members, students, and quality circle members for their upliftment. In regard to this, Gandhinagar Institute of Technology, affiliated to Gujarat Technological University sorted out six days online Faculty development programme (FDP), with the financial support from AICTE, New Delhi on “Post Lockdown Trends in CAD/CAM and Manufacturing for MSME” from 18th January, 2021 to 23rd January, 2021. The FDP was organized for the faculty members affiliated to GTU and industry personnel, on an Online Platform, Google Meet with more than 100 registrations.

Inaugural Session:

Day 1 of FDP started with the **inaugural function**. Prof. Amit Patel, Co-Cordinator, started the programme with an introductory speech. It was followed by virtual lightening of lamp and prayer song. **Dr. H N Shah, Director, GIT** welcomed Hon. **Prof (Dr.) Navin Sheth**, Vice Chancellor, GTU, **Dr. Narottam Sahoo**, Member Secretary & Advisor, GUJCOST, **Shri Deepak Acharya**, CEO, INOX India, & Chairman, Indian Institute of Welding, Baroda and all the experts and participants with a warm welcome speech. Dr. Navin Sheth praised and explained the importance of the topic chosen for this event and requesting all participants to enrich their knowledge from this FDP by effective participation. Dr. Narottam Sahoo appreciated the event and concentrated on the outcomes of the program. He congratulated GIT

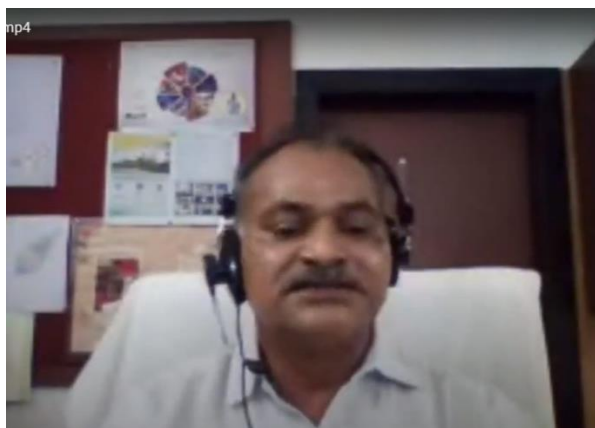
for organizing such a program which indirectly benefits the faculty members and society. Keynote speech was delivered by Shri Deepak Acharya on government policy and future opportunities for MSME. **Prof. Madhuri Chopade**, IQAC coordinator, GIT, gave insights regarding IQAC Cell and concluding remarks of inauguration function.



Prof. (Dr.) Navin Sheth, VC, GTU at the inaugural function



Dr. Narottam Sahoo Member secretary and advisor at GUJCOST, addressing the participants in the inaugural function



Welcome speech by Dr. H N Shah, Director, GIT



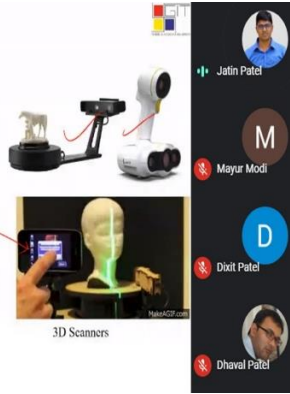
Key note address by Shri Deepak Acharya, CEO-Inox india Ltd, and chairman-IIW, baroda.

Day wise content of speaker:

The First Session on **Day 1** started with an interesting lecture by **Prof. Jatin Patel**, Assistant professor, GIT, Gandhinagar. He shared his projects on 3D printing. He wonderfully explained the household problems solved by the 3D printing by his engineering skills. The participants enjoyed the session with full interest. The Second session was conducted by **Mr. Amit Patel** (MD, PATectual IP Law Services) on, “How manufacturing & Automotive sector stays innovative by **Intellectual property rights**”. He focused on ideas and intellectual property rights. He shared the government policy and government schemes that help the person for start-up and MSME. DAY 1 ended successfully with a lot of knowledge sharing and gaining.

3D Model Creation

- CAD (Computer-Aided Design) software e.g.: SolidWorks, Creo, Solid Edge
- 3D Scanners e.g.: Kinect, Mobiles with Apps
- Visualization software e.g., VTK <http://www.vtk.org/>



Prof. Jatin Patel, GIT
Speaker for Session 1, Day 1

Govt Schemes for Micro, Small and Medium Enterprises (MSMEs)

Atmanirbhar Bharat related announcements in May-June 2020

- Rs 20,000 crores Subordinate Debt for Stressed MSMEs
- Rs 50,000 cr. Equity infusion for MSMEs through Fund of Funds
- Global tenders to be disallowed up to Rs 200 Crore
- New Definition of MSMEs
- Rs 3 lakh crores Collateral-free Automatic Loans including MSMEs



Mr. Amit Patel, PATectual IP Law Services
Speaker for Session 2-3, Day 1

Day 2 of FDP started with a session by **Dr. Satyam Panchal**, Adjunct Professor, University of Waterloo, Canada. He shared research opportunities available at Waterloo university and the future scope of electric vehicles. The second session on the same day was conducted by **Dr. Harshit Dave** (SVNIT, Surat). He conducted a lecture on “3D printing in innovative product design for students & Startups”. He explained basics of the 3D printing and also shared students' products under his guidance. The third session started with an expert from MSME, **Mr. Vipul Thakar**, Director, Aarohi embedded systems, Rajkot. He shared difficulties faced in the industry during covid-19. Also, shared how industry implements innovation in the products and convert in the digitization of the products. The last session of the day was conducted by **Prof. Chandrakant Bhatia**, Assistant Professor, GIT. He explained nicely the concept of Lean and Six sigma in the modern manufacturing and service industry.

On **Day 3**, the session was started by **Dr. Sanket Bhavsar**, Professor and Head, Department of Mechatronics, GCET, Vidhyangar on “Focused Ion Beam (FIB) Milling: A Technology for Micro & Nano Scale Operations”. He explored the principle of macro & micro Machining and the importance of the Focused Ion Beam process in advanced machining. The second session was handled by **Dr. Sanjay Upadhyay**, Professor, IIT Roorkee on “Development of Smart Structures for Space application”. He wonderfully took all the participants on the journey of space. He shared the live projects on the challenges faced in the development of the space structures. He explained the different space structures by exploring the space. Last two practical session was conducted by **Prof. Dhaval Patel** on “capabilities of the SolidWorks software”. He explored the areas and application of SolidWorks in various themes of mechanical engineering. He has tried to touch the entire part from basic to advanced level utilization of software.

GAIA at U of Waterloo



Dr. Satyam Panchal, University of Waterloo
Speaker for Session 1, Day 2

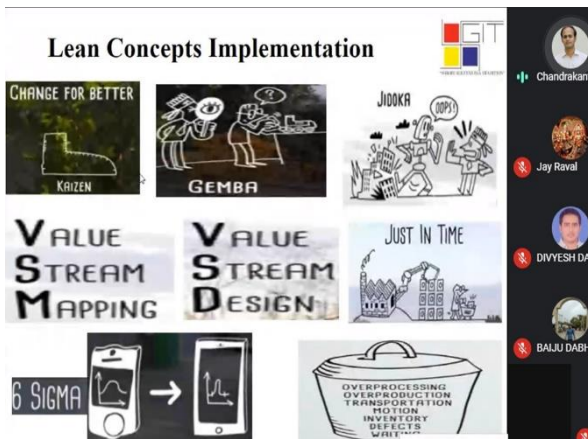
3D Printing in Space



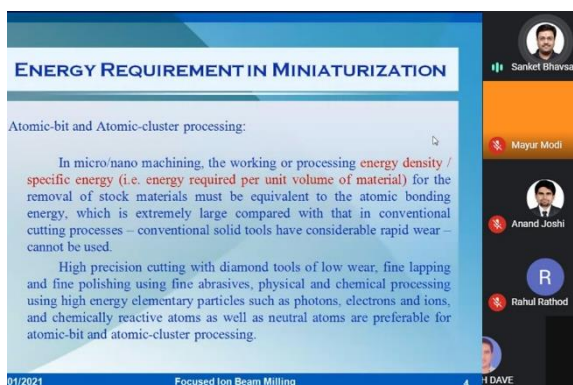
Dr. Harshit Dave, SVNIT, Surat
Speaker for Session 2, Day 2



Mr. Vipul Thakar, Aarohi embedded systems
Speaker for Session 3, Day 2



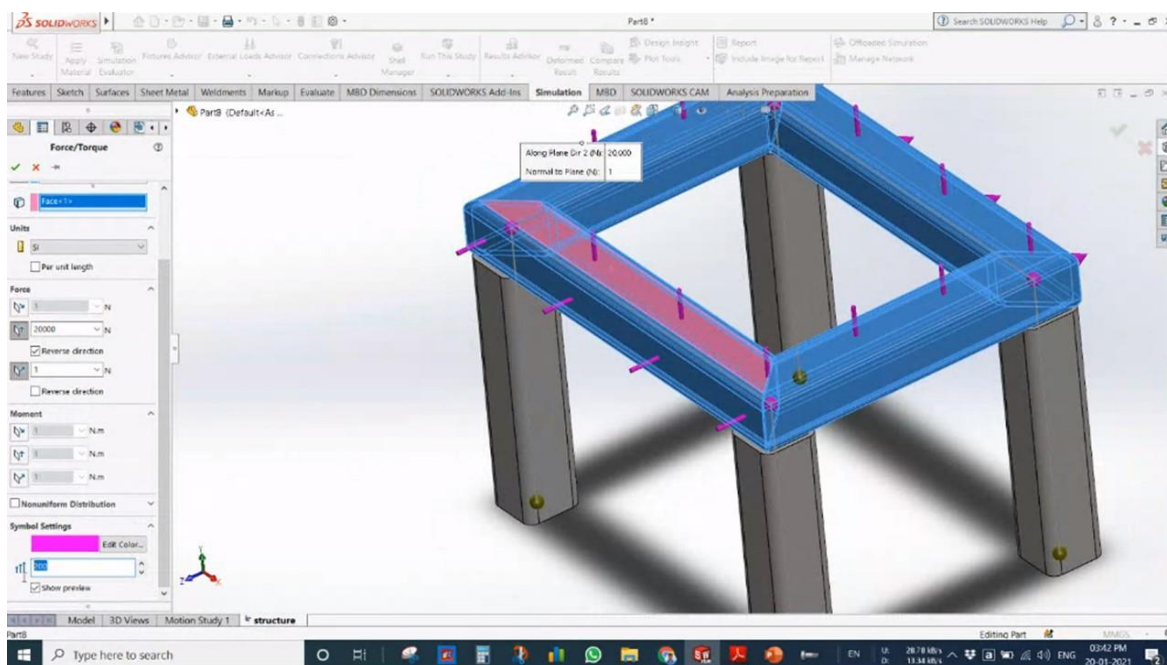
Prof. Chandrakant Bhatia, GIT
Speaker for Session 4, Day 2



Dr. Sanket Bhavsar, GCET Vidhyanagar
Speaker for Session 1, Day 3



Dr. Sanjay Upadhyay, IIT Roorkee
Speaker for Session 2, Day 3



Prof. Dhaval Patel, GIT, Speaker for Session 3 & 4, Day 3

The first session of **Day 4** was started by **Prof. Amit Patel**, Assistant Professor, GIT on “Artificial Intelligence in Robotics”. He covered the basic trends of robotics applications using Artificial intelligence. Languages used, Its imitations, and the ethical policy of artificial

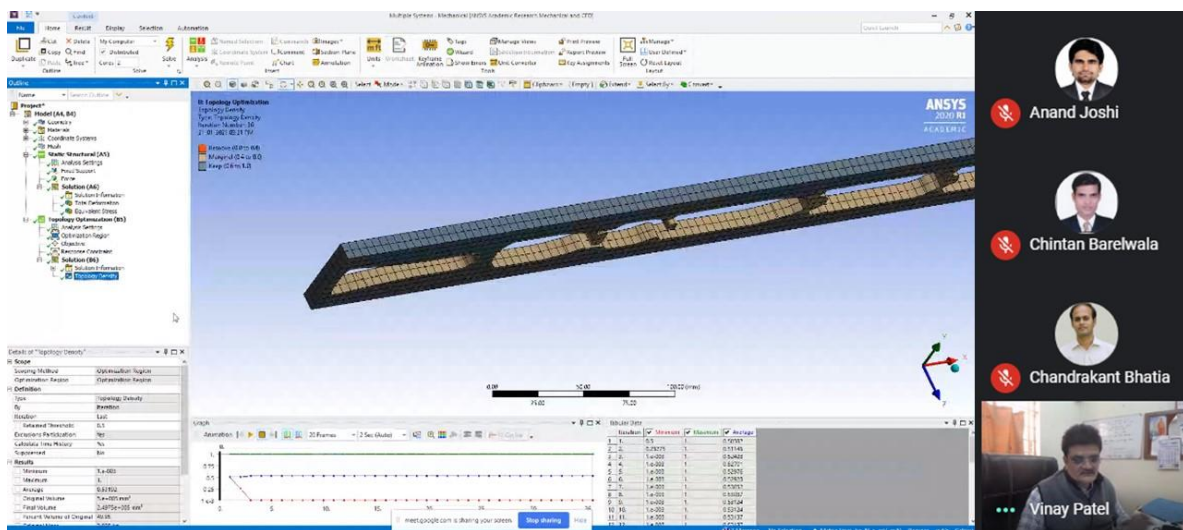
intelligence were also covered nicely. The second session was conducted by **Dr. Ajay Sidpara**, Assistant professor, IIT Kharagpur on “Machining at Micro Scale”. He elaborating on the idea of Micro and conventional machining process. Also, explained nicely about the biomedical application and other metal finishing processes by micromachining. He has explained dimensional importance and error in the automobile and aerospace industry. Last two practical session was conducted by **Dr. Vinay Patel**, Professor, BVM, Vidyanagar on “Parameter Optimization in ANSYS”. He explored the knowledge of finite element analysis and parameter optimization using ANSYS software.



Prof. Amit Patel, GIT
Speaker for Session 1, Day 4



Dr. Ajay Sidpara, IIT Kharagpur
Speaker for Session 2, Day 4



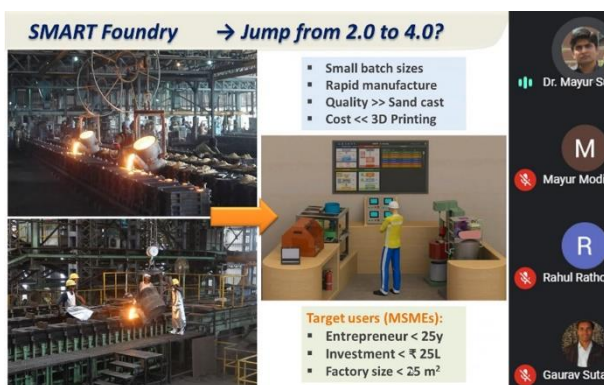
Dr. Vinay Patel, BVM, Vidhyanagar
Speaker for Session 3 & 4, Day 4

On **Day 5**, the first session was started with **Dr. Kaushal Desai**, Associate professor, IIT Jodhpur on “SME4.0: Changing Paradigms for SME/MSMEs in Post-COVID World”. He started the evolution in the field of manufacturing from industry 1.0 to 4.0. The second session was conducted by **Mr. Karmjitsinh Bihola**, Founder, Innodesk, on “Design Thinking”. He explored a process from idea to product in a strategic manner. He told innovation is a structured and thoughtful process. and shows the way from Jugad to innovative products. Also shared the importance of design thinking for any startups. The third session was conducted by **Dr. Mayur Sutaria**, Professor, Charusat University on “SMART Foundry-Opportunities and Aspirations”. He shared difficulties in the field of foundry before and after the lockdown. He also showed the concept of E foundry and Smart foundry. The last session of the day was taken by **Prof. Chintan Barelwala**, Assistant professor, GIT on “Digital Manufacturing”. The necessities and usefulness of digital manufacturing in the future are very well explained by him.



**Dr. Kaushal Desai, IIT Jodhpur
Speaker for Session 1, Day 5**

**Mr. Karmjitsinh Bihola, Innodesk
Speaker for Session 2, Day 5**



**Dr. Mayur Sutaria, Charusat, Changa
Speaker for Session 3, Day 5**



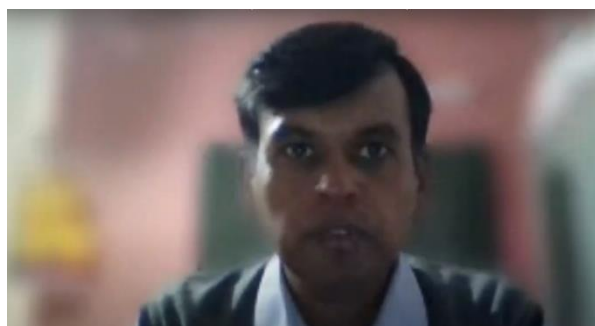
**Prof. Chintan Barelwala, GIT
Speaker for Session 4, Day 5**



**Dr. Kuldeep Rana, CPRI Bangalore
Speaker for Session 1, Day 6**



**Mr. Jignesh Patel, IIW, Baroda
Speaker for Session 2, Day 6**



**Prof. Nirav Joshi, HoD-Mechanical
Department GIT, at Valedictory function**



**Prof. Amit Patel, Co-coordinator
concluding the event**

On the **last day** of the event, the first session started with **Dr. Kuldeep Rana**, Electrical Appliances Technology Division, CPRI Bangaluru on “Energy storage materials and devices for green technology”. He explored the evolution in the E-mobility vehicles and also shared the detail of battery cells, their manufacturing research, and behavior in the vehicles. The last session was conducted by **Mr. Jignesh Patel**, Jt. Secretary, Indian Institute of Welding, Baroda on “ISO Certification programme for fabrication workshop for Welding Quality Management”. He explored the importance of ISO certification and its procedure. Also shared the benefits of students chapter run by a collaboration of Indian Institute of Welding, baroda and various engineering institutes.

Outcome:

After attending the online FDP, the participants have deep knowledge and understanding of the prime minister’s campaign “Vocal for Local” and “Aatma Nirbhar Bharat”. They came to know the latest trends in CAD/CAM and manufacturing field, that has been applied in micro, small & medium enterprise. Participants also learned the development and utilization of CAD/CAM tools like Solidworks and ANSYS. They also came to know the difficulties faced during covid 19 situations in the MSME sectors, and also understand their role to fulfill the government campaign aatma nirbhar bharat. The role of the teacher and how the theoretical knowledge can be useful to the industry to strengthen India were also learned by the faculty participants. Participants also understand the importance of startups to build the nation and how government helps students and faculties through different government schemes and policies.

Feedback:

The feedback link was shared with all the participants at the end of each day. A test of 40 marks was conducted on the last day for the participants. The participants with 60% marks and filling up all the feedback forms were awarded the certificates. Overall, Most of the Participants appreciate the expert talks on the selected topics.

Vote of Thanks:

The **valedictory function** began with concluding remarks by **Prof. Nirav Joshi**, Head of Department, Mechanical Engineering Department, GIT. He thanked the Trust of GIT, the Director, all the experts, and participants for their valuable time. After that, participants gave wonderful feedback regarding the importance of the selected topic in the 21st Century. GIT family conveys a big thankfulness to **AICTE, New Delhi & GTU, Gujarat** for Sponsoring this online FDP. This FDP was successfully completed with the cooperation of the GIT Family. Prof. Amit Patel, Co-coordinator of this event express sincere thanks to the Trustees, Management, Director, Head of the Departments, Faculty Members, Technical Team, and all the participants for their support to make the FDP a grand Success.