



Ingenium 2021

April 2nd - 4th, 2021



Introduction

Ingenium is the official technology festival of Ahmedabad University, hosted by the School of Engineering and Applied Science each year since 2016. It is a platform to provide opportunities to young and aspiring students to compete in various innovative events. Ingenium inculcates the core university values of Project Based Learning and multidisciplinary approaches to real life problems. This year Ingenium was conducted virtually from 2nd April to 4th April with its precursor workshops commencing from 12th February. We engaged students from across the country in our extremely successful three day festival. Our flagship events, Hackathon and Mechathon, had international participants as well.

A concept of Tech-March was introduced this year to engage students even more. Our target audience was the first year students. This year, seniors were not able to cultivate the idea of “college”, which is why we planned to organise podcasts (Talking Tech with Tech Ingenium), along with hands-on sessions on an array of topics. These sessions were informal, friendly and interactive and essentially covered general queries about the topic. The speakers we invited for the talks were very professional and mindful.



Ingenium Team

Faculty Mentors

- Professor Sanjay Chaudhary,
Interim Dean, School of Engineering and Applied Science, Ahmedabad University and Dean of Students, Ahmedabad University
- Professor Gaurav Goswami
Professor, School of Engineering and Applied Science, Ahmedabad University
- Professor Akhand Rai
Professor, School of Engineering and Applied Science, Ahmedabad University

Support

- Mr. George Varughese
Senior Manager - Administration
School of Engineering and Applied Science, Ahmedabad University
- Mr. Jayesh Bhatt
Accountant
School of Engineering and Applied Science, Ahmedabad University
- Mr. Rahul Bhatiji
Technical Support
School of Engineering and Applied Science, Ahmedabad University

Committee Roster

Head	Kaushal Patil	Nisarg Thoriya					
Co-Head	Jeet Shah						
Secretary	Prachee Javiya						
Treasurer	Prachee Javiya						
ICT event head & team	Arpitsinh Vaghela	Bhumiti Gohel	Devam Shah	Miracle Rindani	Devanshu Magiawala	Meet Akbari	
Mech event head & team	Divye Kanwala	Aashman Dave	Himanshu jain	Dirgh Rami			
Chem event head & team	Viraj Boghani	Dharav Patel	Kenil Gondaliya	Saurav pajvani	Dhrumil patel	Param naik	Hitendra dhandhlya
Content head & team	Sanket B Shah	Mananshi Vyas	Harsh P. Patel	Nandini Bhatt	Kashish Jivani		
Hackathon Team	Harsh Patel	Tirth Kanani	Meet Akbari	Yash Patel			
Marketing head & team	Panth Patel	Harsh Patel	Neel Popat	Poojan Sheth	Malav Doshi		
Registration head & team	Ankit Devani	Mithilesh Parmar	Pranav Gandhi	Tirth Kanani	Aaryan Mori		
Sponsorship head & team	Samkit Kundalia	Anshul Mehta	Parth Shah				
Design head & team	Sanket J Shah	Shubham Jain	Bhavya Peshavaria	Pratik Rajpara	Krina Khakhariya		
Technical team	Arpitsinh Vaghela & Kaushal Patil	Vinay Kakkad	Forum Shah	Shail	Shubham Jain	Yash Longani	Ankit Devani
Video Editing Team	Darshan Navadiya	Nilay Gandhi					



Participation

This year, at Ingenium 2021, we had a total footfall of around 1200 students, participating from across the globe. We held around 10 workshops & talks over 6 weeks, with an immense participation from students.

Precursor Events participation

Event	Participation
Voyage into UI/UX	172
Exploring Web Development	89
MATLAB Workshop	60
Hands on Developer Console	81
CNC Machining Workshop	70
Talk on Industry 4.0	136
Kickstart IOT	68
Talking Tech with Tech Ingenium - Ep 1	164
Talking Tech with Tech Ingenium - Ep 2	125



Festival Events & Talks

Event	Participation
Project Management & Smart Career Choice talk	83
E-treasure hunt	528 (176x3)
Machine Fault Diagnosis Workshop	60
Robotics Workshop	75
Application of FEA	53
Road to treasure	118
IOT Auction	120
Codefi	81
Need for Solution	49
Kaggle Competition	65
Careers in CSE talk	122
Chemical Hunt	54
R & D in Agrochemical	89



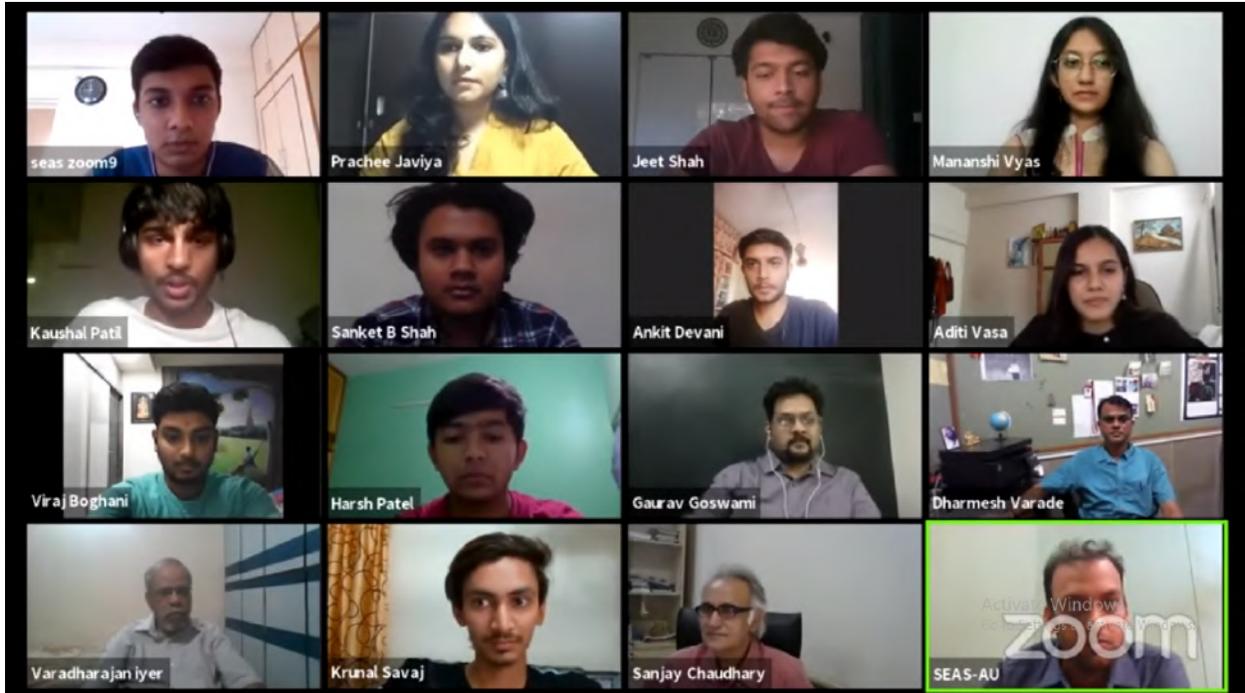
Inauguration Ceremony

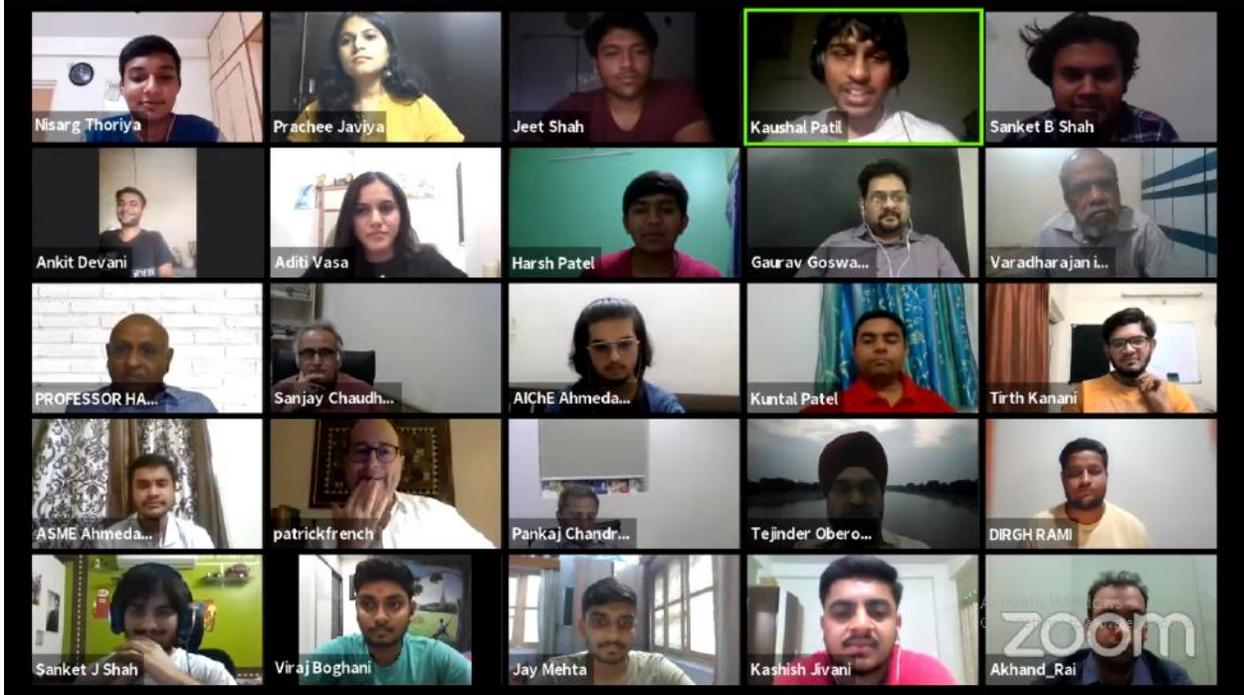
Date: 1st April, Thursday

Time: 6:00 PM onwards

A formal inauguration of Ingenium, hosted by students of Engineering School, Prachee Javiya and Mananshi Vyas, was held which was presided by Dr Pankaj Chandra, Vice-Chancellor and Chairman, Board of Management, Ahmedabad University and Professor Sanjay Chaudhary, Interim-Dean of School of Engineering and Applied Science. Shri Tejinder Oberoi, Director & Chairman of GESIA IT Association joined us as the Chief Guest at the event. Professor Sanjay Chaudhary formally introduced Ingenium. Dr Pankaj Chandra shared his vision of Ahmedabad University and the importance of interdisciplinary learning practised at Ahmedabad University. Mr. Oberoi discussed the importance of engineers in today's era and the skills required for them to step in the market. He kindly offered help to all students who would be soon taking up jobs. Finally, the faculty mentors, Prof Akhand Rai and Prof Gaurav Goswami, and Dr. Patrik French gave a speech about emerging technologies and engaged the audience with relevant examples. Ingenium was finally declared open by Dr. Pankaj Chandra. Ingenium 2021 head, Kaushal Patil and Aditi Vasa described their University experience and the event was concluded by an amazing performance by Kaavya Patel.

[Link](#)







Weekend Workshop Series

1) A Voyage into the UI/UX World

Date: 13 Feb 2021

Time: 9 p.m.

Speaker: Anmol Anubhai

UI design and UX design are two of the most often confused and conflated terms in web and app design. The user interface(UI) is the graphical layout of an application. It consists of the buttons users click on, the text they read, the images, sliders, text entry fields and all the rest of the items the user interacts with. User experience(UX) of the application is determined by how users interact with it. UI designers are tasked with deciding how the UI will look, UX designers are in charge of determining how the UI operates. The session included the basics of UI/UX and how these are related.

2) Web Development/ Technology: First podcast of “Talking Tech with Tech Ingenium”

Date: 10th March 2021

Time: 9:30 p.m.

Speaker: Aman Dave

To answer some questions and to enlighten the students about Web Development, Aman Dave remained present as a speaker in the first episode of the tech talk. He went through basics of how to proceed in web development and answered the questions of the participants



3) Hands on Google Developer Console

Date: 13th March 2021

Time: 4:00 p.m.

Speaker: Harsh Shah

The Developer Console is an integrated development environment with a collection of tools you can use to create, debug, and test applications. Ingenium presents to you a workshop on Developer Console. To make students familiar with this useful tool, we had Harsh Shah as the speaker of the event

4) Kick start Docker

Date: 14th March 2021

Time: 3:00 p.m.

Speaker: Jimesh

Docker is an open platform for developing, shipping, and running applications. Docker enables you to separate your applications from your infrastructure so you can deliver software quickly. With Docker, you can manage your infrastructure in the same ways you manage your applications. By taking advantage of Docker's methodologies for shipping, testing, and deploying code quickly, you can significantly reduce the delay between writing code and running it in production. In this session students learned about Docker and applications.

5) MATLAB Workshop

Date: 13th March 2021

Time: 10:00 a.m.

Speaker: Dr. Ruchi Gajjar

MATLAB is a high-performance technical computing language and has numerous applications across the engineering spectrum. From data analytics, to project modeling, simulation and GUI building to math and computation, MATLAB sneaks in a way to be useful. This workshop helped students gain familiarity with the language, learn the basic syntax, and apply it to chemical engineering applications.



6) Talk on Industry 4.0

Date: 14th March 2021

Time: 11:00 a.m.

Speaker: Chintan Joshi

The Industrial Revolution was the era in the history of technology and advancements that forever changed the way we perceive technology. It introduced us to some of the best technologies like IOT, automation, smart factories, etc. This revolution is going to rule the world of Science for the coming decades. Ingenium presented a talk where we had the General Manager of Manufacturing and Operational Excellence at Ammann Group as our speaker. This is one of the rare opportunities where you are getting the chance to interact with the industry expert.

7) CNC Machining

Date: 20th March 2021

Time: 10:00 a.m.

Speaker: Vinay Patankar, Sanket Mehta, Prakash Gawad

CNC machining is a manufacturing process in which pre-programmed computer software dictates the movement of factory tools and machinery. Various instruments and systems like Lathe and Milling help to precisely take decisions in the software and handle operations smoothly. Both of these were explained by the speakers and demonstrated in a live session.



8) Data Science: Talking with Tech Ingenium - Ep:02

Date: 19th March 2021

Time: 9:30 p.m.

Speaker: Bhargav Patel

To answer some questions and to enlighten the students about Machine Learning and Data Science, Bhargav Patel remained present as a speaker in the first episode of the tech talk. He went through basics of how to proceed in ML/DS and answered the questions of the participants

9) Internet of Things

Date: 21st March 2021

Time: 4:00 p.m.

Speaker: Kevin Naik

The Kickstart IoT workshop introduced students to the world of Internetworked physical devices. The participants were given a brief introduction to IoT, its applications, architecture, and much more. Moreover, the workshop included a hands-on session wherein they learned how to create their own IoT Networks with connected devices that can be accessed from anywhere in the world.

10) Careers in CSE

Date: 27th March 2021

Time: 12:00 p.m.

Speaker: Aman Sharma

This event was based on various career options available in CSE along with explaining what skills one must need to opt for a specific career. So to guide the students through this, we had Aman Sharma as speaker for the event. Aman Sharma is the CoFounder and CTO at Twimbit. He is also a founder and lead at Mobile-web.dev.



11) Arduino Workshop

Date: 24th March 2021

Time: 6:00 p.m.

Speaker: Prof. Jaina Mehta

The Arduino Workshop introduced students to a new technology wherein they were exposed to IoT with a rare experience by learning about Arduino microcontrollers. The participants were informed about how to make interesting and fun gadgets.



Ingenious Hackathon 2.0

Date: 26th-29th March

Time: 5:00 PM onwards

No. of Participants:

Hackathon was a coding competition organized in partnership with IEEE and which spanned over a duration of 48 hours. This competition dealt with solving problems that were of a wide range and designed while keeping in mind an industry-oriented approach, with support from many partner companies. Every team worked on the selected problem and was evaluated for their progress, innovation, and the practicality of their work, at regular intervals. We received registrations from numerous universities.

The problems statements here spanned through various tracks:

- Open Source
- Business
- Greater Good
- Safety Net
- Fun



Ingenious Mechathon 2.0

Date: 27th-28th March

Time: 3PM onwards

No. of Participants:

This competition dealt with the issues relevant to the industry that revolve around Mechanical Engineering. The Ingenious Mechathon allowed students to work on projects that effectively provide a creative solution for the pertaining industrial problems. Given a problem statement from industry experts and leaders, the students in a team of 4 had 36 hours to design and simulate a practical solution using software like Solidworks, ANSYS, Inventor, etc. The teams were given problem statements not just limited to the mechanical engineering industry in general but other diverse applications as well such as:

- Industrial Solutions
- Robotics
- Renewable energy



Day 1 (April 2, 2021)

Kaggle Competition

Duration: 3 days

No. of Participants: 65

This data science competition tested the participants' caliber on various techniques of Machine Learning. Across the span of three days, each team competed on whose model performed the best on a specific dataset.

Machine Fault Diagnosis Workshop

Time: 3:00 - 5:00 PM

Speaker: Prof. Akhand Rai

No. of Participants: 121

The seminar focused on discussing efficacious condition-monitoring tools and solutions with an aim to eradicate the catastrophic failures in roto-mechanical equipment before it occurs and thus prevent the related damaging consequences.

Industrial Talk - Project Management

Time: 3:00 - 4:00 PM

Speakers: Shri Sanjay Sengupta Sir, Senior Vice President-Operation and Falak Barot Sir, Sr. Manager Projects of GSPC.

No. of Participants: 194

This workshop covered topics addressing the role of chemical engineers in different companies, the challenges faced by them in the beginning of their career and the skills required to work as an industrial engineer.



Day 2 (April 3, 2021)

Codefi

Time: 2:00 - 5:00 PM

No. of Participants: 81

In this event, all the teams were given a set of problems that they were supposed to solve under the given time constraint. The platform used for this competition was Hackerrank. Team members were allowed to discuss the problems amongst them and use resources available on the Internet.

Application of FEA in Space Talk

Time: 2:00 - 3:00 PM

Speaker: Dr. Srinivas Sir

No. of Participants: 169

Associate director of ISRO, Dr. Srinivas addressed the participants and enlightened them about Finite Element Analysis (FEA) and its applications. FEA uses mathematical models to understand and quantify the effects of real-world conditions on a part or assembly. These simulations, which are conducted via specialised software, allow engineers to locate potential problems in a design, including areas of tension and weak spots.

E-Treasure Hunt

Time: 5:00 - 7:00 PM

No. of Participants: 176

A competition where the hunters apply all the techniques known to them and obtained from the internet to reach the goal. The event tested the participants' smartness and needed them to solve the clues to search for the prize.



R & D in Agrochemical

Time: 5:00 - 7:00 PM

Speaker: Dr. Bhavesh Vyas

No. of Participants: 89

This event was a virtual industrial visit, in one of the biggest R&D centers of Gujarat named Meghmani Organics limited. Dr Bhavesh Vyas addressed the talk and made the participants go through it's Agrochemical sector. Main agenda talked on were discovery, development, evolution & trials, scale up, regulatory and manufacturing.

Need for Solution

Time: 1:00 - 3:00 PM

No. of Participants: 49

This competition tested the participants' problem-solving and tactical skills to overcome obstacles in context of safety, cost effectiveness, etc.. Participants prepared a presentation on the subject provided to them 24 hours before the presentation day. The teams presented their solutions using any comfortable manner including the prototype, model, presentation, proof of concept, and project. Judging rubrics were mainly based on the sustainability of the solution, limitations of the proposed solution, business plan on paper, presentation skills, etc.

Chemical Hunt

Time: 10:00 AM - 12:00 AM

No. of Participants: 54

A quiz-based event that contained the structure of testing wits, strategies, and knowledge of a true Chemist/Chemical Engineer. One answer contained the key to another question or one question unlocked some other answer. The quiz was divided into 3 sections. The team scoring the highest points was considered the winner.



Day 3 (April 4, 2021)

IoT Auction

Time: 10:00 AM - 6:00 PM

No. of Participants: 47

Every team was provided with a decided amount of virtual currency to participate in the auction. They used that currency to buy the necessary tools and equipment to build the prototype they were working towards. The participants were later judged on how good their prototype turned out to be using the parts they bought in the auction. The event, being conducted in online mode, the designs of the prototypes were mainly considered for evaluation.

Road to Treasure

Time: 10:00 AM - 12:00 AM

No. of Participants: 130

Road to treasure was an ultimate competition where teams competed with each other to reach the treasure. There were questions regarding general chemistry, logical questions, pictorial questions, etc. There was a format in which teams had to compete with each other. Format and the usage of the “surprise box” were disclosed on the day of the event.

Talk on Robotics

Time: 11:00 AM - 12:00 PM

Speaker: Prof. Harshal Oza

No. of participants: 232

The Talk on Robotics covered the basics and also the nitty-gritty of creating a task-oriented robot from scratch. The participants were informed about the vast field of robotics along with brief knowledge about building their robot.



Ending Ceremony

Date: 4th April

Time: 6:00 PM

Ingenium, continuing with the tradition, conducted a mega-event to conclude the festival that was conducted virtually as well, like the rest of the events. This year Infinity band of Ahmedabad University gave a marvellous performance. This event was attended by numerous students and faculties via the Youtube Live and a Zoom meeting. The event was concluded by declaring the winners for all the events and with astounding speeches by some of the team members of Ingenium.

Youtube Link

<https://www.youtube.com/watch?v=d0ZO22G9A-E>