



**Ahmedabad
University**

Ingenium'20



Organisers:
Team Ingenium

Venue:
**School of Engineering and Applied Science,
Ahmedabad University Central Campus,
Navrangpura**

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INTRODUCTION

Ingenium is the Annual Technology Festival of Ahmedabad University. Started in 2016, Ingenium offers students the opportunity to showcase their technical skills and creative mindset. It is a platform to test their caliber while maintaining a healthy and competitive spirit. Ingenium inculcates the core university values of Project Based Learning and Multidisciplinary approaches to real life problems. This year though, Ingenium had to be postponed indefinitely and eventually cancelled before the inauguration or the main events could take place due to the unforeseen COVID-19 situation. The events scheduled before the lockdown did take place successfully. For the same, Ingenium promoted its events and sponsors in 17 leading technological institutes of India, receiving zealous participation from over 850 students in the pre-Ingenium events. Ingenium was originally scheduled to be organised during 21st-23rd March 2020 with its precursor workshops commencing from 8th January. The fest was planned to be conducted at the GICT Building, Central Campus, Ahmedabad University.

PARTICIPATION

Ingenium'20 hosted 14 technical events/workshops with a total attendance of approximately 997 and an unique footfall of 858.

Event	Participation	Event	Participation
IOT workshop	58	Robotics workshop	33
Blockchain workshop	24	Hands-on Arduino workshop	51
ReactJS beginner workshop	68	Hyperworks workshop	17
ReactJS workshop	88	RC car with bluetooth module workshop	52
JAMSTACK and Gatsby workshop	91	MATLAB workshop	30
MLH local hackday	120	Computational fluid dynamics workshop	25
Ingenious Mechathon	40		
Ingenious Hackathon	120 Teams(2-3 members per team)		
Total attendees	997		
Unique footfall	858		

(*The numbers are approximate with an allowable error)

LIST OF PARTICIPATING INSTITUTES

We received a response from over 30 institutes all over Gujarat and other states for the events that did take place. Promotional activities had been carried out by establishing registration desks, appointing campus ambassadors and putting up posters.

- | | | |
|--|---|---|
| ● Vellore Institute of Technology | ● VVP, Rajkot | ● Gujarat Technological University, Ahmedabad |
| ● SRM, Chennai | ● RK College of Business Management, Rajkot | ● AIE, Ahmedabad |
| ● SGSITS, Indore | ● RK College of Engineering, Rajkot | ● Adani Institute, Ahmedabad |
| ● Terna Engineering College, Nerul, Maharashtra | ● Parul University, Vadodara | ● LJiet, Ahmedabad |
| ● Pacific College of Engineering, Udaipur | ● Babaria Institute of Technology, Vadodara | ● Indus Institute of Technology, Ahmedabad |
| ● K.C. College of Engineering and Management Studies and Research, Thane | ● BVM, Vidhyanagar | ● SOCET, Ahmedabad |
| | ● AD Patel Institute of Technology, Vidhyanagar | ● ASOIT, Ahmedabad |
| | ● Charotar Institute of Computer Application, Changa | ● St. Xavier's College, Ahmedabad |
| | ● Charotar University of Science and Technology, Changa | ● Nirma University, Ahmedabad |
| | ● Ganpat University, Mehsana | ● Sal Institute of Technology, Ahmedabad |
| | ● DAIICT, Gandhinagar | ● LDCE, Ahmedabad |
| | ● LDRP, Gandhinagar | ● Government Polytechnic, Ahmedabad |

TOTAL: 31

MLH Local Hack Day

Date: 12th October, 2019

Time: 9AM to 5PM (with a break between workshops)

Venue: DevX, Vastrapur

Faculties: Harsh Shah, Daxeel Soni, Jimish Parekh

Number of Participants: 120

MLH Local Hack Day was a great kick-start to the Workshop series of Ingenium and served as the announcement of Ingenium to the developer communities. Ingenium served in collaboration with DevX in conducting this event. This full day event consisted of three back to back workshops which guided students by introducing different skills regarding development. The three workshops were titled as:

1. Google Assistant Skill
2. Build Flask Application and host on AWS
3. IoT : Secure MQTT/HTTP APIs using Node



WEEKEND WORKSHOP SERIES

- **ReactJs Beginner Workshop:**

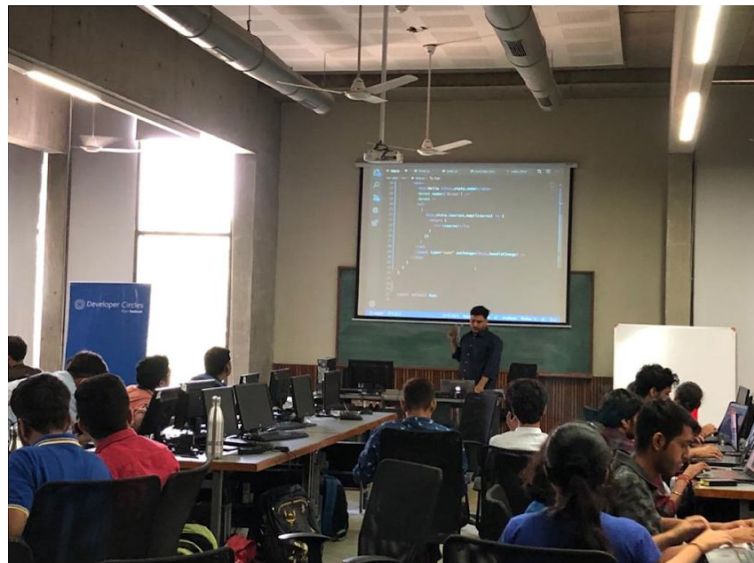
Dates: 23 Oct 2019 **Time:** 2:30 PM to 5:00 PM (On 23 Oct)

Venue: 215-216, GICT Building

Faculties: Divye Shah

Number of participants: 68

This workshop was aimed at helping the students get equipped with the basics of ReactJs, an important tool that helps developers build user interfaces in Javascript. As a popular workshop and being helmed by an industry expert, it attracted a good number of curious students from multiple universities of Ahmedabad.



- **ReactJs Advanced Workshop:**

Date: 25 Jan 2020 **Time:** 9:30 AM to 5:00 PM (On 25 Jan)

Venue: 215-216, GICT Building

Faculties: Prem Patel

Number of participants: 88

This workshop was an extensive workshop which stretched through the whole day along with lunch provided to the participants. This workshop helped students cover more advanced topics in ReactJs. This workshop proved to be more popular than the beginner's workshop and garnered participation from various institutes from in and around the city.

- **JAMstack and Gatsby Workshop:**

Date: 11th January, 2020

Time: 10:00 AM - 1:00 PM

Venue: 106

Faculty: Harsh Shah

Number of participants: 91

Ingenium conducted this workshop in association with PyData Ahmedabad Community.

This workshop introduced students with JAMstack, a modern web development architecture based on client-side JavaScript, reusable APIs, and prebuilt Markup and also Gatsby which is a React-based, GraphQL powered, static site generator. This workshop was received with great interest by a huge number of participants from multiple universities and the faculties, being from the industry, did their part very well.



- **Intro to HYPERWORKS**

Date: 8th Feb, 2020

Time: 10AM - 5PM

Venue: 315, GICT Building

Faculty: Veeshal Suthar

Number of participants: 17

In this full day workshop, the participants were given an elaborate introduction to the HyperWorks software. Hyperworks is a complete CAE software consistent with all the modules of CAE i.e. modelling, meshing, solver. It is a complete package of finite element procedure. It helps in developing a simulation driven design to problems.



- **Blockchain Workshop**

Date: 15-16th February, 2020

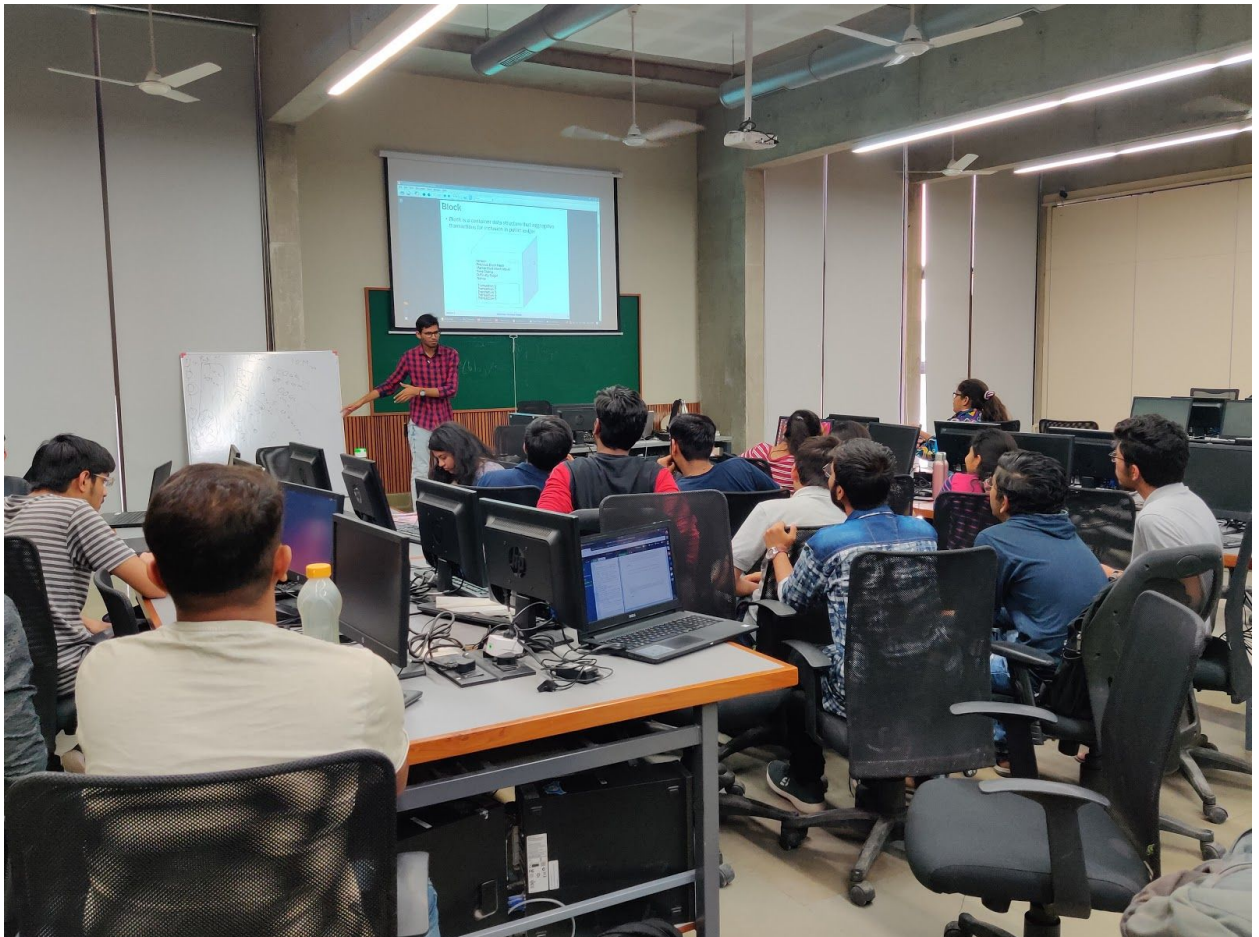
Time: 2:30-7PM on Saturday, 9:30-4PM on Sunday

Venue: 215-216, GICT Building

Faculty: Raj Dhamsaniya

Number of participants: 24

Blockchain is a technology to create and maintain a cryptographically secure, shared, and distributed ledger (a database) for transactions. Blockchain brings trust, accountability, and transparency to digital transactions. This two-day workshop covered the basics of blockchain theory and gave the participants a chance at a practical hands-on experience of how to implement blockchain.



- **Robotics Workshop**

Date: 29th February 2020

Time: 10AM - 6PM

Venue: GICT Building and Workshop

Faculties: Devashish Patel (with guest lecture by Professor Harshal Oza)

Number of participants: 33

Through this workshop, the students learned how to model their design and how to perform 3D assembly of a robotic arm on SOLIDWORKS, which is a solid modeling CAD and CAE computer program that runs on windows. The students were later moved to the workshop where they got to actually build and control the robotic arm that they had designed.

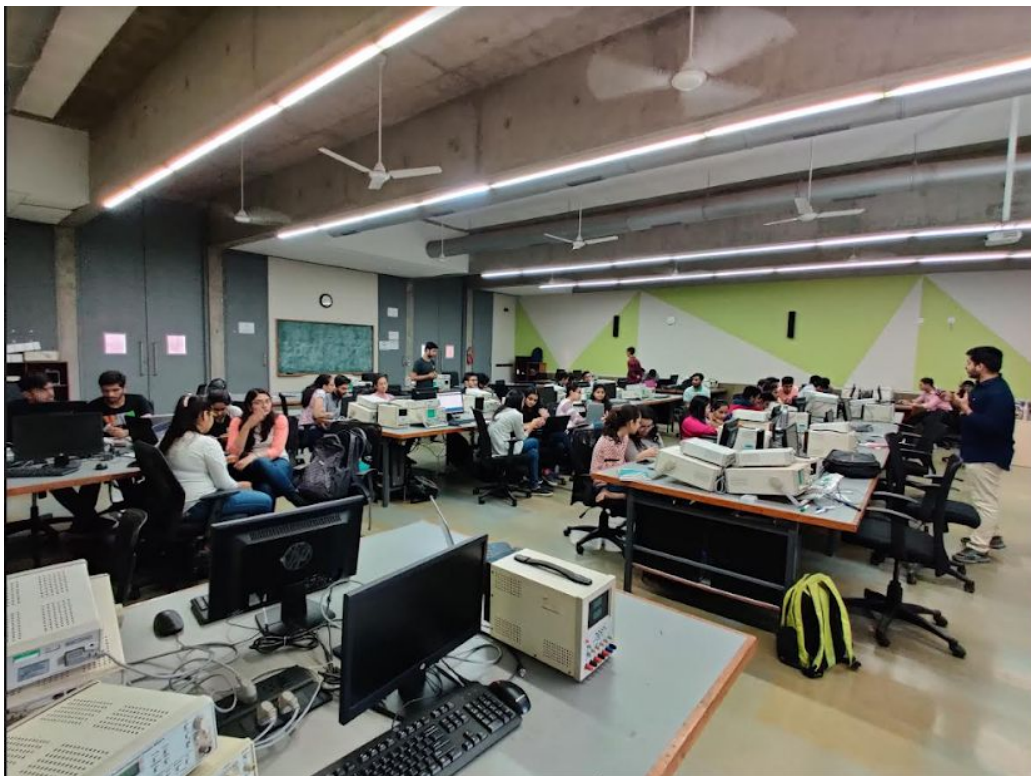


- **Hands-on Arduino Workshop**

Date: 1st March, 2020

Number of participants: 51

In this workshop, the participants were practically taught how to use and interface with Arduino microcontrollers and use various modules such as motors, keypads, and many more add-ons with it to create different systems and devices.



- **IoT Workshop**

Date: 7th-8th March, 2020

Number of Participants: 58

This workshop will introduce you to the world of Arduino microcontroller and will open you to a galaxy of opportunities to create an IoT device or system. There were a good number of people from other universities as well as the instructors were from the industry.



- **Computational Fluid Dynamics**

Date: 7th March, 2020

Time: 9.00AM - 5.15PM

Venue: 315, GICT Building

Faculties: Dr. Arijit Ganguli (Professor at Ahmedabad University)

Number of participants: 25

This workshop was conducted to introduce the students to the concept and applications of Computational Fluid Dynamics. It is a science of understanding dynamics and transport phenomena by solving partial differential equations. The partial differential equations are converted to linear algebraic equations and solved simultaneously to give velocity, temperature, concentration fields. Applications range from Aeronautics, mechanical engineering, chemical engineering, etc.



- **RC Car with Arduino**

Date: 7th March, 2020

Time: 9.30AM - 5.00PM

Number of participants: 52

This workshop focused on introducing students to applications of Arduino like constructing a remote-controlled vehicle. The participants of this workshop learnt how to make a remote-controlled car using the Bluetooth module and other electronic components. The scope of this workshop also covered:

- Joystick Control
- Concluding the workshop with an obstacle race with the cars made by the participants.
- Collision detection in autonomous vehicles



- **Applications of MATLAB in Chemical Engineering**

Date: 29th February, 2020

Time: 9AM - 5PM

Venue: 215, GICT Building

Faculties: Dr. Milind Joshipura (Professor at Nirma University)

Dr. Dharamshi Rabari (Professor at Ahmedabad University)

Ms. Vini Daliala (Research Scholar at Nirma University)

Number of participants: 30

MATLAB is a highly useful and demanded software which can make a lot of tasks of an engineer simpler, efficient and accurate. It facilitates simpler plotting of graphs, easy solving of humongous equations and simplification of arithmetic. The workshop taught the concepts of MATLAB from scratch, hence creating strong building blocks for integrating codes with chemicals. The first session aimed at clearing fundamentals of MATLAB which was covered by Professor Dharamashi Rabari. The second session was conducted by Professor Milind Joshipura who taught 'Process Optimization'. The third session elaborated on the application of Simulink in Chemical Engineering which was conducted by Professor Nitin Padhiyar.

THE INGENIOUS HACKATHON

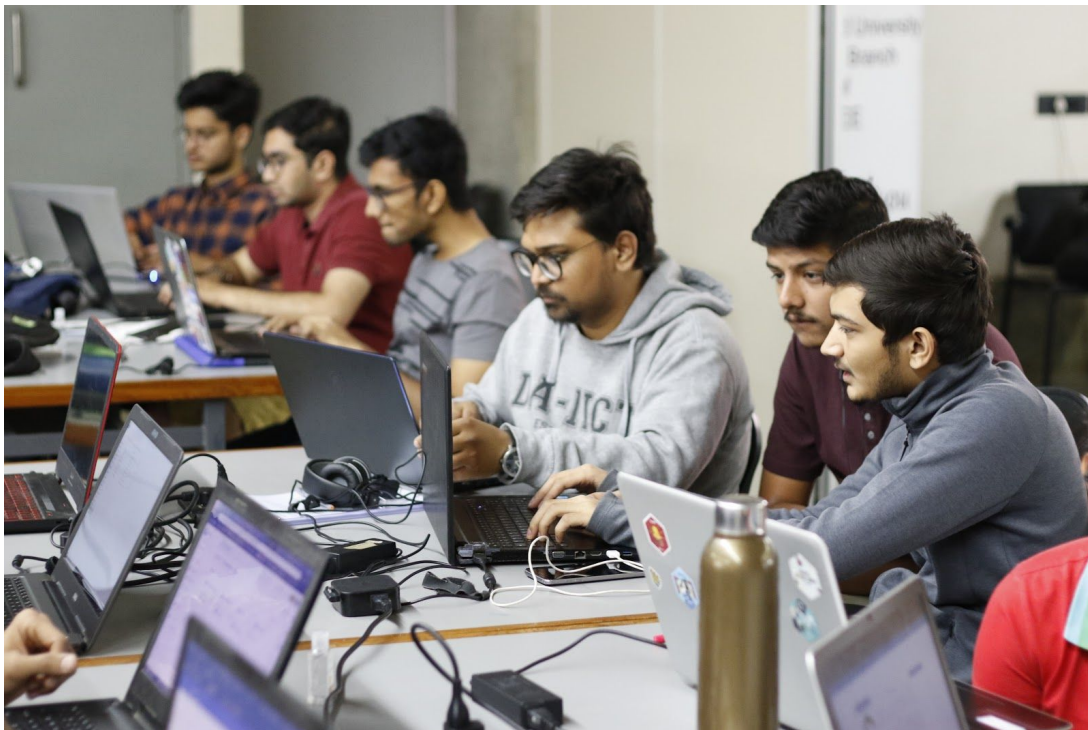
Date: 14-15th March

Time: 8:30am (14th March) - 6:30pm (15th March)

No. of Participants: 120 Teams(2-3 members per team)

Hackathon was a coding competition organized in partnership with IEEE and which spanned over a duration of 36 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 VIT, SRM, SGSITS, IIT-Mandi, IIITs, SVNIT, DAIICT and many more institutes nationwide. The problems here spanned through various fields like

- Healthcare Tech
- EduTech
- AgroTech
- FinTech
- Mobility
- BlockChain



THE INGENIOUS MECHATHON

Date: 14-15th March

Time: 8:30am on 14th - 6:30pm on 15th

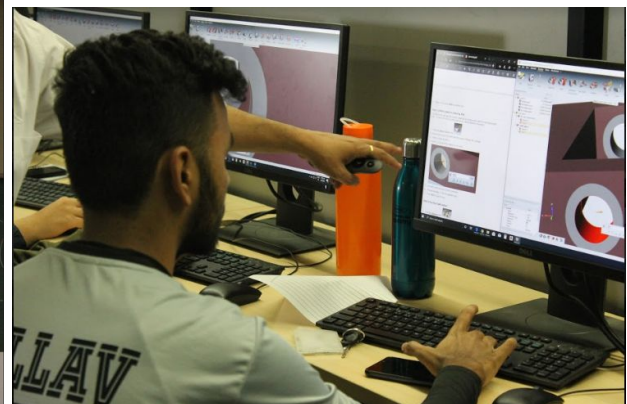
No. of Participants: 40

The Ingenious Mechathon was a 36-hour competition where teams competed to formulate the most creative and practical industrial solutions to mechanical problems. Conducted as a part of Ingenium, this event was organised **for the first time in Gujarat**. Every team worked on the selected problem and was evaluated for their progress, innovation, and the practicality of their work, at regular intervals. The problems were wide-ranged and designed while keeping in mind an industry-oriented approach, with support from many partner individuals such as faculty and alumni working in the field. The problems here spanned through various fields such as:

- **Industrial Solutions:** Real-life issues in everyday applications
- **Robotics:** Use of industrial automation and robotic technology
- **Renewable Energy:** An efficient approach to Renewable energy technology



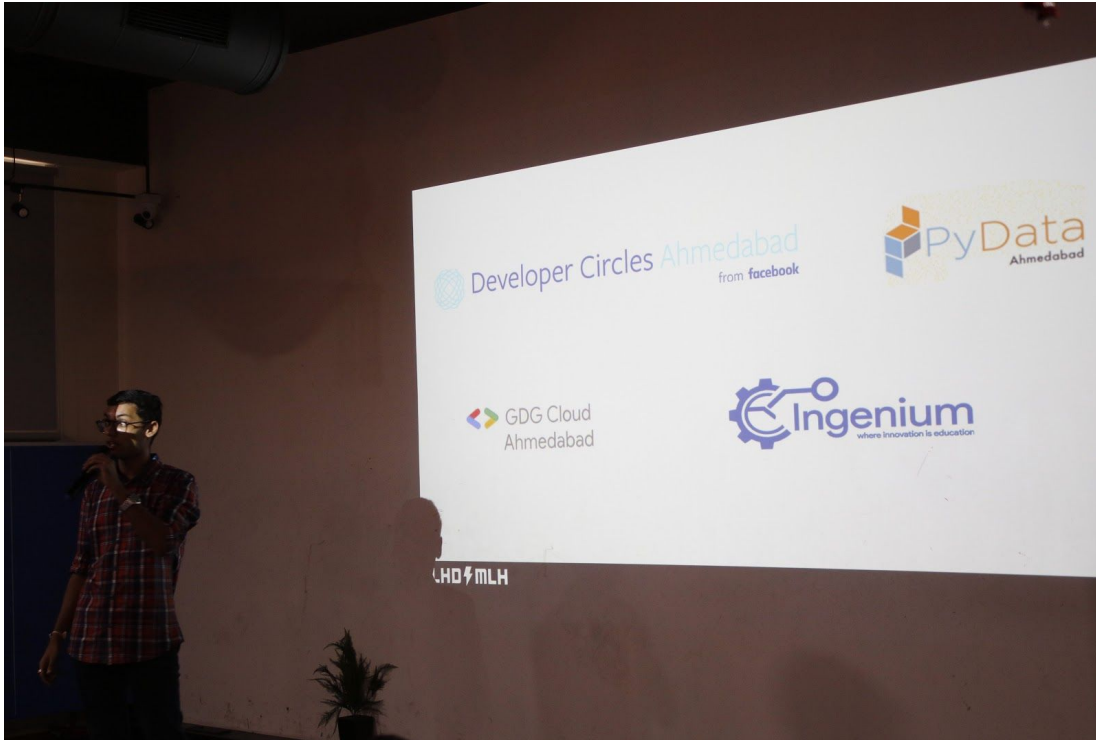
GLIMPSES FROM INGENIUM'20





MLH: Local HackDay





Ingenious Hackathon and Mechathon:









PLANNED EVENTS

These events were planned to take place in the three days of Ingenium 2020 but were postponed.

- **IOT Auction**

Every team will be provided with a decided amount of virtual currency to participate in the auction with. They will be using it to buy the necessary tools and equipment to build the prototype you are working towards. The judging will be based on the ingenuity of their process of building the system as well as how visionary the final product is.

Date: 21st March

Time: 9:30am

- **Codefeeder**

Codefeeder is one of our more unique events, just a basic coding competition with some twisted rules. It is basically a timed relay. A team of 3 people: all get to code, but in a manner that no two members get to interact with each other.

Divided into 4 slots of 15 minutes each, every participant gets one slot. The final half-hour comes as a bonus slot which can be used as the team wishes.

Date: 21st March

- **Does Gray Matter?**

Does Gray Matter is a Science and Technology quiz. It is to test the participants' knowledge with a bunch of questions from the tech world.

Date: 22nd March

- **Codefi**

A standard Coding competition of 3 hours with a team of 3. The said team in coordination will apply their knowledge of algorithms alongside keeping a check on the time complexity of the solution coded and the guidelines in mind. Points will be awarded on the basis of the time complexity and memory utilization; basically the more optimum the code, the better.

Date: 22nd March

- **Need For Solution**

This competition will give a chance to apply the participants' chemical engineering prowess. They will be given an actual industry-related problem and two days' time. The day of competition would be the deadline where they would present the solution they come up with, using the skills they've gathered.

Date: 21st March

- **Construct-O-Mania**

This competition is about making your own bridge connecting platforms and making it as sturdy as you can. The building material will be provided by the organiser. The one to hold tough wins the prize.

Date: 21st March, 2020

Time: 5PM

- **Quiz-o-mania**

This competition is a quiz, which will be testing your observational skills and general knowledge, and just how up to date you are with the technical and industrial world.

Date: 20th March

- **Make it up**

Basic compounds will be provided to you, of which you'll have to make the asked compound. Everything there is to use are those chemicals and your practical skills in chemistry.

Date: 21st March

- **Poster Presentation**

As the name suggests, this competition is about presenting a poster about pretty much anything the participant likes to. Prize will be awarded according to presentation skills and the quality of content.

Date: 22nd March

- **JunkYard War**

This event is about constructing the best 'Rube-Goldberg Machine' with the given components. Prize might go to the machine with the most runtime.

Date: 22nd March, 2020

- **Change My Mind.**

A piece of information will be given to the participant and they have to point out what's wrong and prove their point with the knowledge they have.

Date: 22nd March

- **RC Race:**

As exciting as it sounds, but not as easy as you think. Build a Robot and join us in this event as you control your robot through our meticulously designed course consisting of a plethora of varied obstacles.

Date: 21st March, 2020

Time: 11AM

- **Robowar:**

The participant is to present a robot constructed by themselves and is to have their model 'fight' with another model in the given arena.

Date: 20th March, 2020

Time: 5PM

- **Soccer Bots:**

This competition is about presenting your robot cars against each other and scoring the most goals in a soccer oriented match.

Date: 21st March, 2020

Time: 2PM

- **Code Villa:**

This competition is a software enhancement competition which is unique and interesting in terms of having pre-coded pieces of software in Java which requires addition, modification and enhancement in some modules as per user requirements in ever changing scenarios. A piece of program will be given which may or may not be working but true to fulfill the task.

Date: 20th March

- **E treasure Hunt:**

A competition where the participants apply all the techniques known to them and advised by Google to reach the goal. To hunt for the hidden treasure one needs to make their mind run and solve the clues to search the treasure.

Date: 20th March

TEAM INGENIUM 2020

- Committee Head: Shivang Gohil
- Committee Head: Nisarg Shah
- Secretary: Parthav Shah
- Content Head: Param Raval
- ICT Events Head: Meet Modi
- Mech Events Head: Maharshi Desai
- Chem Events Head: Manthan Shah
- Marketing Head: Jeet Shah
- Logistics Head: Jaydeep Modi
- Registrations Head: Nisarg Thoriya
- Decorations Head: Prachee Javiya
- Design Head: Kaushal Patil
- Co-ordinating Head: Drashti Shah
- ICT Events Co-ordinator: Shantanu Sheth
- ICT Events Co-ordinator: Varshil Shah
- Mech Events Co-ordinator: Jainam Shah
- Mech Events Co-ordinator: Aarya Gohil
- Chem Events Co-ordinator: Hariyali Patel
- Chem Events Co-ordinator: Anjali Suthar
- Hackathon Lead: Manav Darji
- Hackathon Lead: Devam Shah
- Logistics: Mohit Vaswani
- Decorations Team: Manal Shah
- Decorations Team: Yashvi Pipaliya
- Content Team: Kesha Bagadiya
- Content Team: Sanket Shah
- Design Team: Arpitsinh Vaghela
- Design Team: Nitya Padiya
- Registrations: Mihir Chauhan
- Registrations: Panth Patel
- Marketing: Tirth Vachhrajani
- Marketing: Razin Mansuri

SUMMARY

The workshops and competitions like Hackathon received an astounding response from students all over the state this year. Mechathon did really good considering it was organised for the first time not only at Ahmedabad University but the whole state. Undoubtedly, the COVID-19 Pandemic had a huge effect on Ingenium 2020, postponing indefinitely and eventually cancelling the main three days of the fest but still, the organizing team was successful in implementing all the necessary plans and arrangements to ensure an exponential progress of the festival with each passing year. The events and the festival had been a fun and learning experience for both the participants and the managing committee including the faculty, leaders and volunteers. The students got an exposure to test their management and communication skills in the wide range and variety of tasks that constitute an event of such a big scale.. The team leaders are all set to prepare the upcoming team that will be organising the technology festival and make sure the essence and legacy of Ingenium only gets better each time. The team looks forward to the valuable suggestions from the management, and expresses its gratitude for their boundless support.
