AHMEDABAD UNIVERSITY | School of Engineering and Applied Science

Ingenium

March 15th - 17th 2019

Organisers:
Team Ingenium
Venue:
School of Engineering and Applied Science, Ahmedabad University
Central Campus, Navrangpura

CONTENTS

INTRODUCTION

Ingenium is the Annual Technology Festival of Ahmedabad University. Started in 2016, Ingenium offers students the opportunity to showcase their technical skills and innovative bent of mind. It is a platform to test their calibre 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 Ingenium promoted its events and sponsors in 58 leading technological institutes of India, receiving zealous participation from over 4800 students. Ingenium was organised during 15th-17th March 2019 with its precursor workshops commencing from January 2nd. The fest was conducted at the GICT Building, Central Campus, Ahmedabad University.

Event-wise Participation

Ingenium comprised of 26 technical and 3 non-technical events, receiving around 5500 registrations, 4870 attendees, with a unique footfall of 3600.

Event	Participants	Event	Participants
Codefi	150	Need For Solution	60
Codefeeder	85	Chem-O-Car	35
IoT Auction	60	Make It Up	45
Does Gray Matter	130	Poster Presentation	60
Hackathon	160	Quiz-O-Mania	50
IoT Workshop	90	NodeJS	70
ML Workshop	80	Excel POLYMATH	75
Robo War	60	SOLIDWORKS ANSYS	70
Deep Learning with IoT Workshop	77	Competitive Coding Workshop	93
RC Race	108	Matlab for Chemical Engg	46
Construct-O-Mania	116	Web Spin	34
CAD and Create	68	Robo Pult	48
SEAS Burn Out Vol. 1.0	113	SEAS Burn out Vol 2.0	477
FIFA	42	CS Go	53
Live Stand-Up	1700		
Total Registrations	**5496**		
Total Attendees	**4870**		
Unique footfall	**4200**		

(*The numbers are approximate with an allowable error)

List of Participating Institutes

We received a tremendous response from over 58 **institutes** all over Gujarat and other states. Promotional activities had been carried out by establishing registration desks, appointing campus ambassadors and putting up posters.

SVNIT, Surat	PDPU, Gandhinagar	Marwadi University, Rajkot	Sal Institute of Technology, Ahmedabad
DAIICT, Gandhinagar	SVIT, Vasad	RK University, Rajkot	Aditya Silver Oak, Ahmedabad
LDCE, Ahmedabad	MBICT, Vidhyanagar	BVM, Vidhyanagar	Silver Oak, Ahmedabad
VGEC, Gandhinagar	ADIT, Vidhyanagar	Navrachna, Vadodara	Atmiya Institute of technology and science, Rajkot
LDRP, Gandhinagar	AIT, Ahmedabad	Babaria, Vadodara	Indus Institute of Technology, Ahmedabad
Charusat University, Changa	GEC, Valsad	ITMUTC, Waghodia	Apollo Institute of Technology, Ahmedabad
GIT, Gandhinagar	GEC, Bhavnagar	VVP, Rajkot	Shree Swaminarayan Institute of Tech, Surat
SVMIT, Bharuch	GEC, Bharuch	Sarvajanik College of Engineering and Technology, Surat	Jivraj Mehta Institute of Technology, Anand
Nirma University, Ahmedabad	GEC, Modasa	MSU, Vadodara	G.H. Patel college of engineering and tech, Vidhyanagar

Parul Institute, Vadodara	GEC, Bhuj	Shree Swami Atmanand Saraswati, Surat	Darshan Institute of Engineering and Technology, Rajkot
DDIT, Nadiad	GEC, Gandhinagar	GSFC, Vadodara	C.K.Pithawala college of Engineering, Surat
Adani Institute, Ahmedabad	GEC, Rajkot	IIIT, Vadodara	Ganpat University, Ahmedabad
LJIT, Ahmedabad	IIT- RAM, Ahmedabad	Punjab Engineering College, Chandigarh	Bharti Vidyapeeth's College of Engineering
MITS Pune	NIT Kurukshetra	Thapar Institute of Engineering and Technology	Indraprastha Engineering College, Ghaziabad
Guru Nanak Dev University Amritsar	Jaipur National University	Total	58

Inauguration

Date: 14ᵗʰ March 2019
Time: 05:30 - 07:00 PM
Venue: Auditorium, GICT Building

A formal inauguration of Ingenium was held which was presided by Professor Pankaj Chandra, Vice-Chancellor and Chairman, Board of Management, Ahmedabad University and Professor Sunil Kale, Dean of School of Engineering and Applied Science. Shri Sunil Parekh, Advisor at Zydus Group (Pharma, Healthcare and Education) joined us as the Chief Guest at the event. Professor Sanjay Chaudhary formally introduced Ingenium. Professor Pankaj Chandra shared his vision of Ahmedabad University and the importance of interdisciplinary learning practised at Ahmedabad University. Mr Parekh shared an informative presentation about the growth of countries like China and India by embracing technology. He proudly named the singularity point for the technical rise for Ahmedabad University as "Ingenium". Finally, Professor Sunil Kale gave a speech about emerging technologies and engaged the audience with relevant examples. The guests were graced with mementoes and Ingenium was formally declared open.

Weekend Workshop Series:

- ## Competitive Coding

Date: 27th February 2019.

Time: 9:00 AM - 5:00 PM

Venue: Computer Lab 215-216, GICT Building

Facilitator: Mr Parikh Jain

Number of Participants:

This was a workshop for Computer Science students who wished to dig in deeper about Data Structures and Algorithms, and the process of applying the concepts in developing an Application. Students learned how to work their way around with the Android Studio, integrating various libraries of Java to create an App that is not only creative and user-friendly but also system-friendly in terms of speed, efficiency and reliability. The participants were trained by Google Facilitator Pratik Padalia, a 3rd year ICT student of the School of Engineering and Applied Science, Ahmedabad University.

- ## Deep Learning with IoT

Date: 2nd January 2019

Time: 2:00PM-4:00PM

Venue: Multi-Disciplinary Lab 009, GICT Building

Facilitator: Ms Josephine Dula, Quality Engineer at the MathWorks.

Number of Participants:

In this 3 hour workshop, students learned high-level concepts about deep learning and Internet of Things facilitated by MATLAB. They were able to access world-class Deep Learning research models that do object recognition on real objects provided to them during the session like fruits. They were also taught how to send that object recognition data to a data aggregator using the Internet of Things and how to access the data on the data aggregator and analyze it.

● Excel and POLYMATH for Chemical Engineering

Date: 2nd and 3rd February, 2019

Venue: GICT Building

Facilitator: Dr. Nitin Padhiyar, Assistant Professor at IIT-Gandhinagar, Dr Milind Joshipura, Professor in Chemical Engineering Department and Dr Dharamashi Rabari, Assistant Professor at School of Engineering and Applied Science, Ahmedabad University.

Number of Participants:

The two-day workshop covered the applications of different numerical techniques to solve the practical problems taught in Chemical Engineering. The participants were acquainted with Simultaneous Linear Equations, Polynomial interpolation, Linear and Non-linear Regression, Optimization, Ordinary and Partial Differential Equations, hands-on training in Excel and POLYMATH. They took part in solving problems of Mass Transfer, Process Calculation, Heat Transfer, Thermodynamics and Reaction Engineering during the hands-on sessions.

● Machine Learning using TensorFlow

Date: 19th and 20th january, 2019

Time: 1:00PM-6:00PM, 10:30AM-5:00PM

Venue: Electronics Lab, Room 117, GICT Building

Facilitator: Dr. Mehul Raval

Number of Participants:

This 2-day long workshop focused on teaching the students about supervised learning, neural networks and certain deep learning applications. A hands-on experience, of these theories, with Tensorflow/Keras in Google Colab gave the participants a one of a kind experience in this intriguing field. Each day for 6-7 hours, the students were acquainted with the practical applications in the workshop comprise of MNIST digit classification, image classification and visualizations. Conducted by Dr. Mehul Raval, the workshop was a crucial introduction to students willing to explore more in the field.

● MATLAB for Chemical Engineering

Date: 2019

Time: 9:00 AM - 5:00 PM

Venue: Room. 215, GICT Building

Facilitators: Professor Dharamashi Rabari, Professor Milind Joshipura, and Professor Nitin Padhiyar

Number of Participants:

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.

● NodeJS and React JS

Date: 9th February, 2019

Time: 10:00 AM - 5:00 PM

Venue: Computer Lab, School of Computer Studies

Facilitator: Mr. Nirmal Joshi, Founder Director, CEO of Imageio Knowledge Solutions Pvt. Ltd

Number of Participants:

In this workshop, the participants were taught concepts of JavaScript, Designing Responsive and Adaptive Site with React JS and Node.js. The hands-on part included Production Deployment on Dedicated Server and Cloud Server (Heroku) and demonstration of live project implementation with above mentioned tools. The workshop was interactive and was followed by a motivational talk by the facilitator about some important aspects of the web development market.

● Internet of Things with Data Science

Date: 8th and 9th March, 2019

Time: 9:00 AM - 6:00 PM

Facilitator: Mr. Kevin Naik

Venue: Electronics Lab 116 and MD Lab, GICT Building

Number of Participants: 120

Internet of Things brings in this concept where lives are made simpler and more efficient by technology. A workshop on Internet of Things was conducted by Mr. Kevin Naik. The workshop was aimed at understanding the fundamentals of programming on Raspberry PI microcontroller and Raspberry PI basics, LAMP server in Raspberry PI and Making an Android app to collect data and store it on cloud or server.

● SOLIDWORKS and Ansys

Date: 2nd and 9th March, 2019

Time: 9:00AM to 1:00PM

Venue: Mechanical Workshop

Facilitator: Jayesh Patel and Harsh Maniyaar

Number of Participants:

SOLIDWORKS is a solid modeling CAD and CAE computer program that runs on windows.It is currently being used by 2 million engineers and designers at more than 165,000 companies worldwide. The participants learned how to use this tool and had a hands-on experience in making products with it.

Ingenious Hackathon

Date:

Time: 9:00 AM (2nd March) to 6:00 PM (3rd March)

Venue: Multi-Disciplinary Lab, GICT Building

Number of Participants: 120

Ingenious was a brain stimulating event where student teams came and worked on interesting projects for 30 hours. The event hosted some of the best upcoming engineers and developers from across the state to create mobile, web, and hardware hacks. Ingenious aimed at encouraging and kick-starting a culture of innovation and entrepreneurship community among future hackers of the region and is believed to have successfully accomplished the same. The students built many interesting applications based on Internet of Things, Blockchain, FinTech, Machine Learning, Artificial Intelligence and Data Science, etc.
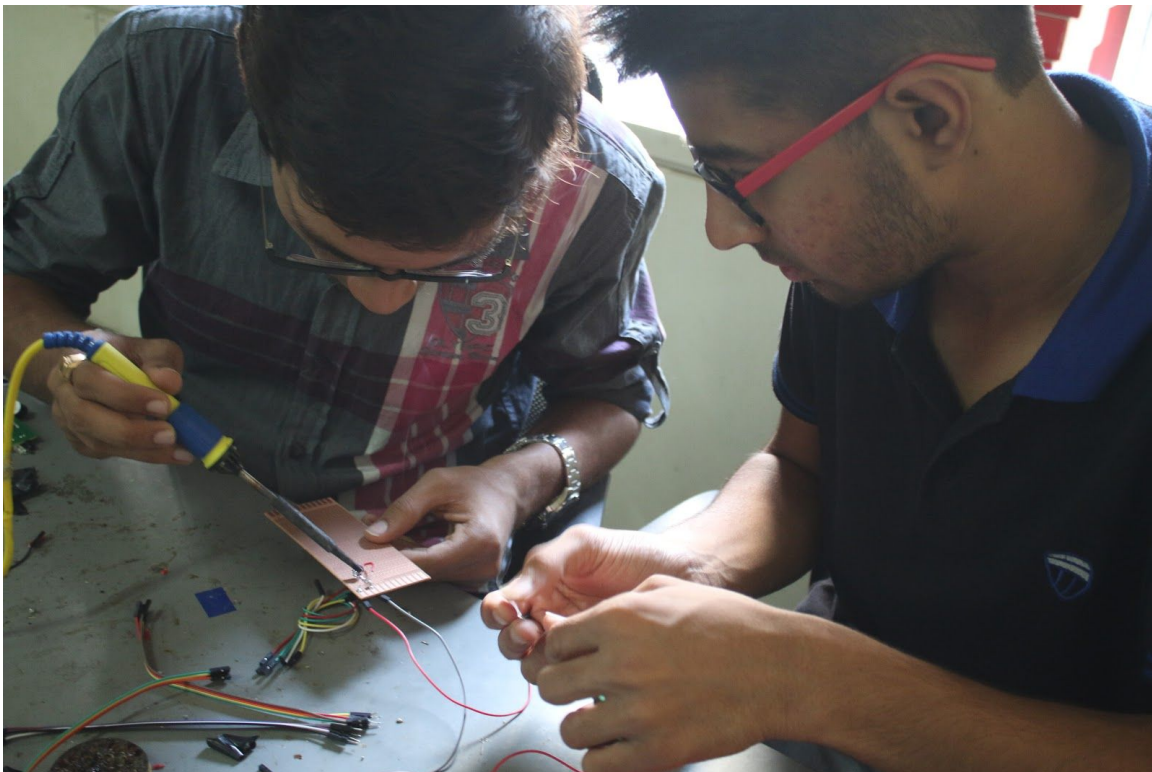
DAY 1: INGENIUM (MARCH 15, 2019)

- **IoT Auction**

Time: 10:00 AM to 06:00 PM
Venue: Lab 116 Electronics Lab, GICT building
Number of Participants: 40

The team at first got virtual currency to participate in an auction and buy sensors and equipment required to build a model/prototype/system. Participants were judged on the creativity and innovation gone into the process of building the system in addition to the final output at the end. This can be considered as a kick-start to entrepreneurial journey with an effective application of technical skills.

- **Construct-O-mania**

Time: 12:00PM-4:00PM

Venue: Airport, GICT building

Number of Participants:

Participants in this unique competition had to make their own bridge to connect to platforms by quantifying the weight it can bear and to construct the model bridges with the material given to them which was 500 ice –cream sticks per team.

- **Code-villa**

Date: 16th March, 2018
Time: 09:00 AM to 12:00 PM
Venue: School of Computer Studies
Number of Participants: 20

It was a software enhancement competition which was unique and interesting in terms of having pre-coded piece of software in Java which required addition, modification and enhancement in some modules as per user requirements in ever changing scenarios. In this competition a piece of program was given which may or may not be working but true to fulfill the task. It was an individual event.

- **Chem-O-Car**

Time: 08:00 AM to 12:00 PM
Venue: Airport, GICT Building
Number of Participants: 45

Participants designed a car propelled by chemical reactions and made it cover maximum distance using limited amount of substances. The teams used different techniques for powering their car. This event helped participants learn about the concepts of chemicals as fuel.

- **Quiz-O-Mania**

Time: 01:00 PM to 04:00 PM

Venue: Room 204, GICT building

Number of Participants: -

This quiz brought participants a set of questions which tested them not only on their technical grip of chemical engineering, but also a general awareness about the industry and its ways.

DAY 2: INGENIUM (MARCH 16, 2019)

- **Codefi**

Time: 01:00 PM to 04:00 PM

Venue: 215-216 Lab, GICT Building

Number of Participants: 120

Codefi was a three-hour ACM ICPC Style coding competition. The questions revolved around the use of efficient coding techniques and algorithmic optimization prepared by students of the School of Engineering and Applied Science. The teams were judged on the basis of time and accuracy.

- **Does Gray Matter**

Time: 10:00AM to 1:00PM

Venue: Room 106, GICT Building

Number of Participants: 80

"Does Gray Matter?" was a science and technology quiz aimed at testing the knowledge of students regarding the hips and happenings in the world of science. Students participated in pairs. The first round was a written round from which 9 teams qualified for further rounds of oral quizzing.

- **RC Race**

Time: 08:00 AM to 12:00 PM

Venue: Courtyard, GICT Building

Number of Participants: 110

This event depended mostly on the choices participant made, the path they chose, for overcoming the obstacles around and gaining points by doing so. Gameplay consisted of bots crossing the dangerous and destructive obstacles in shortest possible time without getting damaged or disabled. Students came up with unique designs with components fashioned out of daily use materials to keep the weight of their robots at a minimum.

- **Robopult:**

Time: 01:00 PM to 04:00 PM

Venue: Courtyard, GICT Building

Number of Participants: 30

RoboPult involved students making robots which had mechanisms that allowed projectiles to be thrown at different angles and velocities. The students made good use of the tools available in the institute workshop to come up with innovative mechanisms for their robots and participated in the event with great enthusiasm and zest.
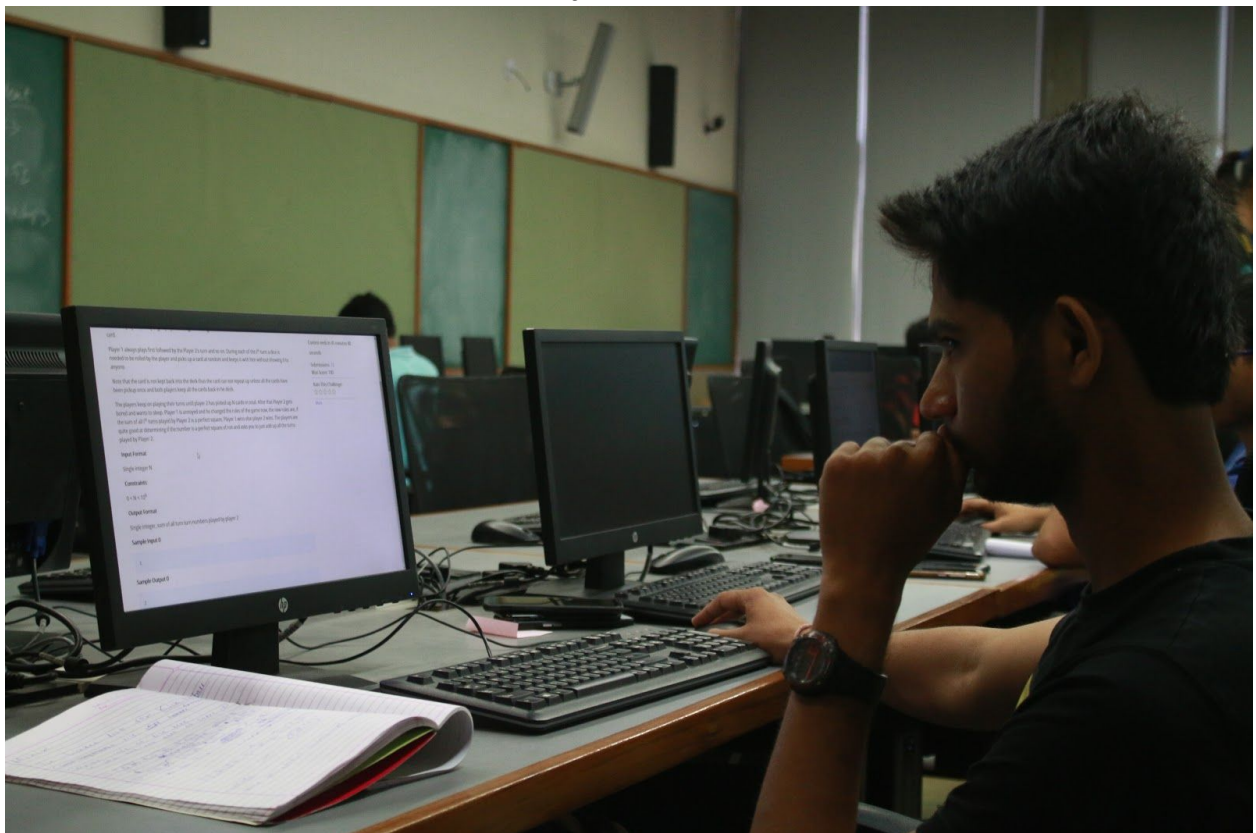
DAY 3: INGENIUM (MARCH 17, 2019)

- **Codefeeder**

Time: 09:00 AM to 11:00 PM

Venue: 215 Lab, GICT Building

Number of Participants: 80

Codefeeder is a coding relay event aimed to develop the programming skills and teamwork of the participants. Students participated in teams of three. Since, it was a relay event each participant from the team was allowed to program for 15 minutes each while the other two would be kept in separate rooms oblivious of what the person was coding. The questions were made by students of School of Engineering and Applied Science, Pratik Padalia, Suraj Patel and Mohit Vachani.

- **Conquer the Throne**

Time: 08:00AM to 12:00PM

Venue: Courtyard, GICT Building

Number of Participants: 60

Conquer the Throne was one of the biggest attraction of the festival wherein manually controlled RC bots battle each other in a 10X10 ft arena. The robot that immobilizes the opponent robot is declared victorious.

● Poster Presentation

Time: 10:00 AM to 02:00 PM

Venue: Room 006, GICT building

Number of Participants: 40

Poster presentation competition provided an excellent opportunity for the emerging generation to present their creativity and innovation through art with a blend of science and technology. Participants reflected their real-time research work on this amazing platform. The topics for the competition were Innovative way to clean Ganges river, Novel clean energy resources and Chemical Technology in ancient times.

● Web-spin (E-treasure hunt)

Time: 12:00 PM to 02:00 PM

Venue: School of Computer Studies

Number of Participants: 20

It was a competition where team of 2 participants applied all the techniques known to them and advised by Google to reach the goal. To hunt for the hidden treasure participants needed to make their mind run and solve the clues to search the treasure.

Live Stand-Up Show by Kenny Sebastian

Ingenium, continuing with the tradition, conducted a large scale finale event to conclude the festival. This year we proudly hosted a live stand-up show by Kenny Sebastian. Kenny Sebastian is an Indian stand-up comedian based in Mumbai. He rose to fame via a YouTube channel and has garnered 160 million view since 2008. Kenny started off as a musician and switched to being a comedian and writer, gaining a strong following online. He has performed more than 500 stand up shows, and toured the US, Abu Dhabi, Dubai, Singapore and Australia. He is currently a judge on the popular comedy web-show Comicstaan. He is well known among the youth for his live shows, performed across India as well, and stand-up clips online because of his versatility and wit.

The live-standup was performed at the lawn of GICT Building and was attended by over 1000 individuals. Kenny Sebastian performed for over 45-minutes in front of an audience of students and faculties. Ahmedabad University's band Infinity opened the evening with a zealous performance.

Kenny Sebastian at Ingenium'19

Media Coverage of Ingenium'19:

અમદાવાદ યુનિ.ના 27 કોલેજના 3500 સ્ટુડન્ટ એક પ્લેટફોર્મ પર

અમદાવાદ યુનિવર્સિટીની ટેકનિકલ ઈવેન્ટ Ingenium 2019 યોજાઈ

સિટી રિપોર્ટર   cbamdavad@gmail.com

27 કોલેજોના 3500 જેટલા સ્ટુડન્ટસ જોડાયા હતાં અમદાવાદ યુનિવર્સિટીની ટેકનિકલ ઈવેન્ટ Ingenium 2019માં. ટેકનિકલ ઈવેન્ટનું આ ચોથુ વર્ષ હતું જેનું સમાપન સ્ટેન્ડઅપ કોમેડિયન કેની સેબસ્ટિને કર્યું હતું. ઓલઓવર સમગ્ર ઈવેન્ટમાં આ સ્ટુડન્ટસએ આઈઓટી ઓક્શન, રોબોવાર્સ, નિડ ફોર સોલ્યુશન એક્ટિવીટીમાં ભાગ લીધો હતો. આ સાથે ઈન્જેનીયમ

2019માં મશીન લર્નિંગ, ડીપ લર્નિંગ વિથ ઈઓટી અને સીએડી વર્કશોપ પણ યોજાયા હતાં. તો બીજી તરફ 150 જેટલા યંગસ્ટર્સે 36 કલાકની કોડિંગ મેરેથોનમાં ઉત્સાહ સાથે ભાગ લીધો હતો.

ટેકનિકલ બ્રાન્ચના સ્ટુડન્ટસ જે સ્ટી કરે છે તેમાં બરાબર ફોકસ કરે અને તેનું પ્રેક્ટિકલી પણ અમલીકરણ કરે તે હેતુથી આ ઈવેન્ટ યોજાય છે. દર વર્ષે નવા ઈનોવેશન્સ અને આઈડિયાને લઈને સ્ટુડન્ટસ તેમાં ભાગ લે છે.

The Team

- ❖ **Raj Shah (Festival Coordinator)**
- ❖ **Haard Shah (Festival Coordinator)**
- ❖ **Dhyey Bhansali (Treasurer)**
- ❖ **Aashka Parikh (Event Coordinator)**
- ❖ **Devashish (Event Coordinator)**
- ❖ **Drashti Shah (Event Coordinator)**
- ❖ **Prashant Bajak (Design Head)**
- ❖ **Shivang Gohel (Committee Secretary)**
- ❖ **Param Raval (Public Relations)**
- ❖ **Chaitya Sanghavi (Marketing Coordinator)**
- ❖ **Nisarg Shah (Hackathon Coordinator)**
- ❖ **Neel Patel (Event Coordinator)**
- ❖ **Mohit Vaswani (Marketing Coordinator)**
- ❖ **Jaydeep Modi (Marketing Coordinator)**
- ❖ **Taha Zanzibarwala (Public Relations)**
- ❖ **Parthav Shah (Mechanical Events Team Leader)**
- ❖ **Aarya Gohil (Design Team Leader)**
- ❖ **Maharshi (Mechanical Events Team Leader)**
- ❖ **Jainam (Mechanical Events Team Leader)**
- ❖ **Meet Modi (Technical Events Team Leader)**
- ❖ **Aman Dave (Web Design Team Leader)**

Glimpses from Ingenium 2019

Summary

The technology festival received an astounding response from students all over the state this year. 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 for the valuable suggestions from the management, and expresses its gratitude for their boundless support.