

## HackNUthon

A 36 hours long hackathon where the participants come in a maximum team size of 3 and minimum team size of 2.

Certain technology tracks will be floated and the shortlisted teams will have to develop a module or a project in a given time duration which will be judge on a set of criteria by a panel.

The shortlisting will be done on the quality and feasibility of the idea submitted, technical profile of the team members and their past experience. The details of tracks and idea submissions will be shared with the participants at least 1.5 weeks before the event later via emails.

## Web-a-thon

Team of max 2 participants or individual can take part. Team has to go through a quiz which will be elimination round. Selected teams will proceed to next round where participants compete to make the best website. There will be one winner and a runner up.

## Project-O-Gram

Team of max 3 participants have to present a project that they have prepared. The project can cover any topics ranging from automation, AI, virtual reality, mechanical design, plant design, structures etc. Participants from all branches and years are invited. Projects will be judged by expert faculties. Two projects will be selected, one runner up and one winner.

## Workshops

### 1. Blockchain (Daxeel Soni)

A one-day workshop on blockchain technology. This workshop is to be dedicated on basics of blockchain, which is the underlying

technology for secure distributed storage systems. Also, it is the driving force behind crypto currency.

## 2. Molecular Simulation

Molecular simulation is a less explored topic in India, although globally it has garnered special attention. It is not only useful to visualise newly discovered molecules along with its molecular parameters, but also to determine and visualise the reaction progress frame by frame on the screen. Also, bond parameters are now being used to accurately determine the interactions between molecules and other properties.

We wish to probe through the unending depths of this field and possibly stir an interest into more minds.

We are organising a 2 days' workshop on "Basics of molecular simulation using VMD" in Nirma University on 1 & 2 November, 2018.

Be it a researcher, a student, a beginner or an expert, it will help every professional by reducing his/her efforts to carry out various analyses to determine structure of a substance encountered in his/her process.

Various features like electron mapping, bond angle determination, bond length determination, etc. can be done. Moreover, broad application in visualizing filtration through carbon nanotubes will be discussed along with basic principle behind this software.

By the end of this session it will have opened a new realm of research for interested minds.

## 3. GIS & Remote Sensing

A brief overview of how datasets acquired from satellites can be used for various applications and using geographical information system (GIS) for generation of spatial datasets. Introduction to

various tools and techniques of QGIS software and exploring various concepts of GIS.

#### 4. Zero to Hero: Python

A one-day workshop on basics of Python. Python is interpreted programming language which is being used by the developers worldwide to develop various things like websites, machine learning algorithms, game development and also simplifying and automating day to day tasks. The workshop is aimed to benefit students from all the branches.

#### 5. Google Smart Home

An IOT workshop which will leave participants with enough knowledge to be able to interconnect smart devices in and around their homes and workplaces with something as simple as a light or fan switch using Arduino and wireless control.

#### 6. Prodhyam Mula

(Technical traffic light control; Software Used-Tinkercad)

This workshop is based on the Basic fundamental knowledge for simulation of any small circuit and giving the challenging task for the formation of a big circuit.

This will require basic and thorough understanding of the c programming and logic development and problem solving attitude. The event mainly focus on developing a spark within participants for the development of big project and taking initiative in innovation.

Flow of the event will start from giving brief of the software and starting from formation basic circuit and ending with the typical big circuit for traffic light control and will require good knowledge of Arduino as well.

We will give challenging circuit to form to the participants that will provide required steps to reach the final circuit of the technical

traffic light control. The final circuit contain use of more than two advanced microcontrollers and synchronizing them to full fill the final requirement and form the final circuit of the workshop.

## 7. Image Processing (Prof. Harsh Kapadia)

This workshop will focus on the basic image processing techniques on Open-CV python.

## 8. EC Workshop

A Workshop based on IOT / Machine Learning / AI / Cloud Computing.

## 9. Automobile

A one-day workshop on all the basic components of an automobile giving insights into the suspension, drive train, wheel assembly and chassis design through interactive and practical session. For better understanding of the concepts and real-life applications students will be shown a cut section of Maruti OMNI and will also interact with the SAE BAJA Team who would demonstrate their ATV and provide them with some basic insights. To make it a two-way interaction a small quiz will also be arranged.

## 10. Astronomy

The famous astronomy club 'BRAHMAND' will be demonstrating about making telescope and the software- 'STELLARIUM'. The participants will be provided kits to make telescope of their own. The kits will be taken back after the workshop. Participants should bring their own laptops.

## 11. Solidworks

A one-day workshop on basic knowledge and insight about the tools of solidworks which will be helpful to improve the designing skills, resume training or design modelling.

## 12. IIoT Workshop

This is going to be focused mainly on the recent trends of IoT and IIoT. The expert is a highly skilled professional in IoT who is running his firm in Bangalore.

## 13. Robo Sapiens

Robo kits will be provided to develop a small interactive robot that would be compact and can be assembled in the specified timeframe.

## 14. Machine Learning with Python

# Chemozale

### 1. Snake-o-Mystery:

An individual will be playing the well-known game “Snake and Ladders” with a bit of twist. As the name suggests, here 5/6 will start on the S&L base. Firstly, a question will be asked to each participant and then if the answer is correct then one chance will be given to him/her to throw a dice. Then the participant will be asked to move on the S&L base times the numbers that appear on the dice. If the participant fails to answer the question, then he will be sent back by one step.

### 2. Electrolight

Each team is required to build a salt water battery with the help of materials provided. There will be two rounds, the first round will consist of building a battery with the specified conductance / potential with the help of given data. In the second round, the participants will be required to make a battery with the highest potential in the given conditions. The batteries will be tested with LEDs. Each team should consist of maximum two members.

### 3. Chem-o-Cannon

Each team has to build a cannon powered by a chemical reaction. The cannon's purpose is to shoot a ping pong ball. There will be three rounds. The first round will be a disqualification based round judged by how far one can shoot the ping pong ball. Top of five teams from this round will move to the next round. In the second round, the team has to try and reach a particular distance given to them. The team closest to the specified distance wins the event. Each team should consist of maximum two members.

#### 4. Poster Presentation

The event will consist of two rounds. Abstract selection round: - Each team must submit an abstract of their research work, based on which the teams will be shortlisted. The selected teams will then be asked to present their poster in the poster presentation round.

Poster presentation round: - Shortlisted teams will be eligible to present their posters during the event. Each team should consist of maximum two members.

#### 5. Saponify

In this event participants are supposed to make soap in the college premises. The soaps are to be prepared by saponification process. Participants should have to make soap by minimizing the use of chemicals by making soap from natural products. The participants are supposed to bring the oil, fragrance, color, additives etc. The organizers would provide NaOH, beakers etc. Each team should consist of maximum three members.

#### 6. Scavenger Hunt

Everyone will be provided the clue to the first location at the starting point. Every team would be given a map for guidance. Once you reach to the location, you would have to answer the question given by the assigned volunteer to collect your element. On receiving your element, you would also get the clue of the next location. In the

map, each location has a number marked against it. Using the answer of the numerical puzzle and the map, they can then go to the next location. The team which collects all the 11 elements within least duration will be awarded the treasure. Each team should consist of maximum four members.

## Code-o-Crats

### 1. Code Jam

A coding event targeted towards the students of 1st and 2nd year to give them a taste of competitive coding. The event will be hosted on Hackerrank.

### 2. Cipher Charades

Event is divided into 3 rounds. Round 1 will be an aptitude test with a twist (the questions of every round were interconnected, i.e. the answer of the previous question was necessary to solve the subsequent question), round 2 will be a pen and paper based event which required contestants to use their deduction and logic to decipher text from the given information and round 3 will be a combination of dumb charades and competitive coding.

### 3. ML Run

The participants would be given a train dataset pertaining to a problem. The one who can train a model and get the prediction on an unknown input wins the contest.

### 4. Code Run

A coding-based event which amalgamates coding, encryption and clue hunt together in a nutshell. The event shall proceed in 2 rounds, first being elimination round testing the basic coding and encryption knowledge of the participants and the second being final round where the participants will have to search for the clues in the

campus which they will have to decrypt to find the answer to the asked question whose successful completion will lead them to solve a coding question.

## 5. CodeZilla

A competitive coding contest targeted for students of all years. It will have two rounds. The first round will be an offline pen paper selection round. The second round will be an online coding round, where the participant needs to solve the given problems in the language of their choice. The contest will take place on hackerrank.

## 6. Tech Hunt

Tech Hunt is basically a technical Treasure hunt, there will be clues given and these will lead the participants to different places in the university. The fastest to complete the hunt Wins! The clues will be technological i.e. code, algorithms, etc. which needs to be solved amongst the team of 4 people.

# Noesis

## 1. India Quiz

A quiz about Indian history, culture, mythology, sports, films and much more. A final round will follow after a preliminary round.

## 3. General Quiz

A general quiz about current affairs and various other topics such as sports, politics, films, world affairs, etc. A final round will follow after a preliminary round.

## 4. Biz-Tech Quiz

This quiz will test your knowledge of the worlds of business and technology. The questions may be about famous companies, logos,

and latest development in the field of technology. A final round will follow after a preliminary round.

## 5. Treasure Hunt

The titular theme based treasure hunt in which participants will have to solve clues and find special objects around the campus premises.

## 6. Beg, Borrow, Steal

A non-technical event where the participants are supposed to gather maximum number of items in the minimum amount of time. The participants are required to perform in groups of 3 to 4.

# EleCtronica

## 1. Surgical Strike 2.0

Event is designed to make a line following robot which follows a path to make the surgical strike (attack) at the end. The robot to be made before hand and should be brought at the day of competition.

## 2. Enigma

The imitation game, you are a spy working as an undercover agent intelligence officer. In a team of two, one agent will be sending an encrypted numeric message to the other member. The number is the GPS coordinates of a place. The member on receiving end needs to find the name of the place located at coordinates using GPS system. And they have to reach that particular place on Nirma Campus.

## 2. Build-O-Duino

Standalone implementation of Arduino. AT-mega chip will be provided along with electronic components like capacitors and resistors and students have to implement a particular circuit which will be provided. Also they have to run a code based on the circuit to complete the task.

### 3. DigiSquad

Bring your squad of two and solve digital circuits under time limit to defuse the bomb. The second round consists of questions based on a dart game, where you shoot a dart to choose your question and accordingly earn points.

### 4. VeriHawk

The event is based on Verilog Programming wherein the participants will be provided with real life problem which they have implement in Verilog code and produce the desired output. The participants only require a basic knowledge of Verilog. There will be multiple rounds based on elimination.

## Electrocacy

### 1. Trade War

A competitive event based on the stock market where participants will be given the basic introduction to working and mechanisms of the share market, with the knowledge of which they'll have to use the resources given to them in the best possible way to maximize their values and holdings. The winner will be the one that ends up with maximum value of shares using the best strategy.

### 2. Graphic Designing

Participants will be taught software based 3-D modelling after which they'll compete with each other to come up with the best design for the given task at the day of the event.

### 3. Nerd Quiz

Pop Quiz based in DCEU, MCU and comic books from the same universe.

### 4. Vijay Stotram

Basically By this event we wanted to develop awareness about the defence technologies used across the world by the armies including India. The students will be briefed about the Different Missiles and anti ballistic missiles developed by the different countries. And also we will brief about the manufacturing process basic overview.

Operation of the whole basic defence system of Anti ballistic missile and different parts of technology including signal processing, Space tracking and surveillance system, radar technology, use and operation of Quadcopters, as well basic coding and simulation on normal prototype circuit which can be used in between The process of a ballistic missile's operation. Students will be given guidance to contribute through a technical mind we have and we will try to motivate to do projects related to defense applications which at last can be represented to Indian Defense And Research Development Organization. At the end the student will be given a problem statement and a small circuit to solve using simulation and coding. The best idea will be given First price and The best circuit will be given second price and according certificate and price will be given.

## 5. Sanrakshan Vidyut

This event is to give students the knowledge of different electric based defence equipment used by the army or by the police. We will give The basic idea of shock machine manufacturing, operation and applications. Also given the knowledge of the electric fines used at borders and what knew ideas can be implemented. The third portion will be the use of different new technologies at rock climbing vehicles used for defence and upcoming new projects Implemented for the same ultimately this new vehicles can be used at high altitude for India. Then we will give Students a indd of problem statement and they will require to give their solution ideas. And the best idea will be given the price and winning certificate.

## Mechatrix

## 1. Robo War

Dimensions: MAX. 30\*30\*30 cm (any l b h) (Corresponding to Arena)

Voltage of Battery: MAX. 12 V

Point system:

- There will be some finite difficulties having different points.
- Total points of difficulties - Z
- In addition, we have decided one time constant (T sec) which is ideal for any run.
- Some bonus points will be given according to the time taken and T.
- So total points earned = (Points you gained by overcoming difficulties) + Bonus Points.

Whoever is having highest points will be declared winner.

No points will be given based on design.

Skip and Technical Timeouts:

- If your bot cannot overcome any of the difficulties then you can skip it.
- Total 2 skips are allowed.
- In 1<sup>st</sup> skip there will be no minus points but for the 2<sup>nd</sup> skip points will be deducted.
- Total 2 technical timeouts are there. Each timeout is having 30 secs.
- Total 3 hand touches are allowed.
- In skips and technical timeout, there is no time penalty but in hand-touches time penalty is there. In any of the hand-

touch, time penalty is up to the participant that how much fast he/she can use the hand touch.

**NOTE:** There will be difficulty in which the bot has to pass through/above a bath of water, so arrangements to protect the circuits and bot must be there.

## 2. Robo Race

Dimensions: MAX. 30\*30\*30 cm (any l b h) (Corresponding to Arena)

Voltage of Battery: MAX. 12 V

Point system:

- There will be some finite difficulties having different points.
- Total points of difficulties - Z
- In addition, we have decided one time constant (T sec) which is ideal for any run.
- Some bonus points will be given according to the time taken and T.
- So total points earned = (Points you gained by overcoming difficulties) + Bonus Points.

Whoever is having highest points will be declared winner.

No points will be given based on design.

Skip and Technical Timeouts:

- If your bot cannot overcome any of the difficulties, then you can skip it.
- Total 2 skips are allowed.
- In 1<sup>st</sup> skip there will be no minus points but for the 2<sup>nd</sup> skip points will be deducted.

- Total 2 technical timeouts are there. Each timeout is having 30 secs.
- Total 3 hand touches are allowed.
- In skips and technical timeout, there is no time penalty but in hand-touches time penalty is there. In any of the hand-touch, time penalty is up to the participant that how much fast he/she can use the hand touch.

**NOTE:** There will be difficulty in which the bot has to pass through/above a bath of water, so arrangements to protect the circuits and bot must be there.

### 3. Water Rocket

A 1 litre bottle rocket with certain amount of water in it that has to be launched by actuating a foot pump.

Participants have to come with their rocket-model.

#### Rules

- Rocket need to be manufactured before the event by the participants on their own.

“STAND FOR LAUNCHING THE ROCKET” need to be prepared by participants.

#### Instructions

- A 1 litre bottle (soft drink) rocket with certain amount of water in it that has to be launched by actuating a foot pump and compressing the fluid inside bottle.
- Based on the max length covered upon firing winner will be decided.
- The rocket should have the ability to be fired at different angles.

- Pressure limit 80 psi & design should withstand the applied pressure. You have to manufacture the water rocket before the event on your own.
- Also, the “**STAND FOR LAUNCHING THE ROCKET**” need to be prepared by you. The **height of the stand** should be less than 0.75m

Pump would be provided by us. However, it is recommended that if it is possible bring your own pump.

#### 4. CAD Master

This event will test the AutoCAD designing skills of the contestants. Participants will be given a drawing which they will have to replicate in AutoCAD in minimum possible time. The result will be declared on the basis of accuracy and time.

#### 5. Aeromobile Quiz

A 2-stage quiz to test general knowledge in the fields of aerospace and automobile. The details will be announced on spot by the event head.

### Civil Clusters

#### 1. Stabilize

*Round 1:* Team have to create a tower using 30 wooden blocks (16 cm ×3.3 cm ×3.3 cm) in given area (16cm ×16cm).

*Round 2:* Team has to modulate the supports (any structural entity) of table out of given fixed sheets of newspapers.

*Round 3:* Teams will be given a specific topic for presentation which will be conducted on next day of previous round.

#### 2. Visco Wizard

*Round 1:* Teams have to prepare a viscous liquid using given materials.

*Round 2:* Team has to prepare a soil profile out of given materials.

### 3. Civil Hunt

*Round 1:* Quiz of 10 questions regarding building construction materials in the form of riddles will be given. Participants are required to guess the materials from the riddles.

*Round 2:* Teams have to search and find the materials for which they have answered in round one, riddles for location will also be provided to the winners of round one. Participants have to bring a photo or material from different locations of the campus as a proof as fast as possible.

### 4. Obey the Rule

*Round 1:* Participants have to answer the questions based on Regional Transport Office (RTO) in the limited time period.

*Round 2:* One of the team members need to draw "8" on ground with the help of a vehicle. Only one chance will be given to the team.

*Round 3:* Team have to make a roadway between origin and destination and the testing of the same will be done by blindfold.

### 5. Placement Guru

*Round 1:* IQ (Technical) test

*Round 2:* Group Discussion

*Round 3:* Personal Interview

## Technofora

### 1. E-Placement

A simulation of the whole placement process from Aptitude test to Personal Interview for both Tech and Non-Tech categories.

## 2. RoboClimb

Making a robot which should be able to overcome the obstacles like small bumps, hill, potholes.

## 3. Automation Quiz

A quiz based on automation subjects.

# Mind Your Business

## 1. Sell it Your Way

Marketing: An Art only the shrewdest and most cunning can master and administer. Do you have what it takes to stand in these exploding marketing conditions? Do you feel you can advertise anything and everything that you can get your hands on? E-cell, Nirma University presents you with this opportunity to test your marketing skills at Sell it your Way.

So prepare yourself for the biggest marketing challenge in campus where you will compete by making marketing and demonstrating strategies for products before a panel of the industry's finest marketers. Register yourself as soon as possible and stand a chance to win lucrative prizes.

May the best marketer win!

## 2. War of Words – ENT Way

An Entrepreneur? An Aspirant? A Platform to test you from the Core, engage yourself in this War of Words - The ENT Style! Crack the crossword, and bang, you are good to go! Battle in this one of a Kind Entrepreneurship Debate. E-cell, Nirma University promises this to

be a once in a Lifetime Experience. Come prepared, the Battlefield awaits your presence!