





TECHNICAL FEST OF DTU, 2018



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INVICTUS 2018

Delhi Technological University organised the *first unified Technical fest*, **Invictus** in February 2018. The event was organised jointly by all the technical societies of DTU for three days on *12th-14th February 2018*.

The techfest covered a wide variety of events mainly in technical domain with some other miscellaneous events. The events range from conventional quizzes to advanced games on Aerial Robotics and Machine Learning.

The various events organised during technical fest provided the platform for budding technocrats to explore and put their talent to test and compete with other prodigies.

S.I.T.E

The Society for IT Engineers, under the umbrella of unified techfest, Invictus; organised various technical and non-technical events. The team of more than 30 students from IT branch came together to conduct various events for three days. The events were based on various technical domains like machine learning and cryptocurrency that witnessed participation from various colleges of Delhi.

BUGTRAIL

Bug Trail was an *online debugging event*, organised by S.I.T.E on *12th February 2018, from 12-2 PM in DBMS Lab*, *DTU*. The online test was conducted on platform *HackerRank* wherein the contestants were required to debug the code for various problems without changing the logic of the solution code provided to them .The problems were designed to check the debugging skills of the contestants. There were 5 problems in total in the test.

The event was a great success with a *participation of more than 30 students* out of which there were *2 winners*, selected on the basis of their efficiency in the test.

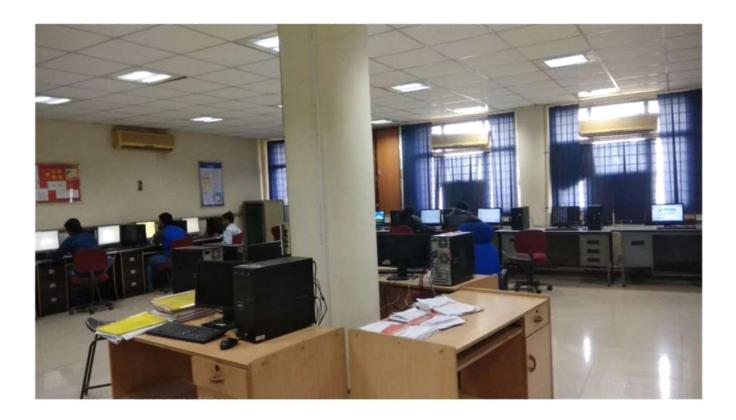
TECHWIZ

S.I.T.E, in association with CSI, conducted its second event named, **TechWiz**. It was a *quizzing competition* based on DBMS, data structure, algorithm design and analysis, operating system, general computer knowledge and recent tech innovations.

Event was organised in two phases:

- 1. *Prelims*: The first round was organised by CSI on 11th February 2018 in TW1 GF3, DTU. It was a pen and paper round with a participation of 45 competitor, out of whom only
- 10 participants were selected for second round.
- 2. Finals: The second round was conducted by SITE on *13th February 2018 in TW1 GF3*. Out of the 10 selected participants, only 3 were selected as winners.

game of dots



Game of Dots is an *interactive coding game* where participants were supposed to code to move ahead in the given software based game and win over the other participant. The event was conducted on *12th February 2018, in DBMS Lab, DTU*. The software for the game was installed by a professional in computers, arranged by S.I.T.E. It was an knockout event where winner from each round qualifies for the next stage.

The event witnessed *more than 25 participants from inside and outside the DTU.*





Space and time

The fourth event organised by S.I.T.E during the *Techfest, Invictus 2018* is **Space and Time**. It was an *offline on-the-spot code optimising competition*. The participants were given with a set of 6 questions and their solutions and they had to improve the space and time complexity of the code. Questions of the test had generic and basic coding problems. The participant with the most efficient code in terms of space and time was to be adjudged the winner. The event was executed on *13th February 2018*.

There was a *participation of 27 competitors* out of which 2 participants were selected as the winners on the basis of the most optimised code.

get an intern

On first day of Techfest, S.I.T.E also organised an event named **Get An Intern**. It was an coding event in which participants developed a working model of an mobile application with in the limited time frame. The event was powered by **ItsBlockChain.com and college based start-up, Easy PG**. It was conducted on *12th February 2018, from 12 PM to 5 PM in WE Lab, DTU*.

The event witnessed the participation of more than 32 developers out of which 2 were selected by the judges from ItsBlockChain.com and were awarded with a paid internship as an app developer with the same.





Know bitcoin, get blockchained

A SEMINAR ON CRYPTOCURRENCY AND BITCOIN





Know Bitcoin, Get Block-chained was conducted by S.I.T.E on 13th February 2018, in Exposition Hall, DTU. It was a seminar based on Cryptocurrency and Blockchain technology.

It was conducted by the society to familiarise the students of various technical colleges (including DTU) with the modern internet based technology. The major focus of the seminar was to get students involved in web based technologies and platforms for the development of technology further and the use and working of Crytocurrency and Bitcoin, addressing questions like how, when and where one should invest in it. The renowned speaker graced the event by sharing their knowledge and experiences with attendees. The speakers for the seminar were:









Opinder Preet Singh

HEAD OF INDIAN SUBCONTINENT ETHLEND, FOUNDER OF BLOCKSLAB AND ZTIPS AND ADVISER AT STREAMITY.

Mr. Opinder Preet Singh, a student of macro economics, has a work experience with MuSigma of 2 years as a Senior Business Analyst. He is a Serial Entrepreneur where right after MuSigma, he launched his first startup as a punjabi fashion brand to take it to the world, during which, he was introduced about bitcoins due to one of the payment options for his international clients. Since then, he explored the field and was involved into mining, trading, studying different blockchains, different usecases and raising an icos.

Presently he is running his blockchain development company Blockslab, advising different ICOs like Ethlend, Streamity and working exclusively on anonymous protocol zTips to solve the problem of crime reporting and corruption controlling. He was also invited by Andhra Pradesh Govt to train students about blockchain in different colleges there and has spoken about blockchain on different events such as at India Blockchain Week, Blockchain Business Conference, Vizag, World Blockchain Summit, Dubai, IMT Ghaziabad, Amity Noida, local meetups, and the Indian blockchain community.





Akshay Aggarwal

NATIONAL HEAD AND CO - FOUNDER AT BLOCKCHAINED INDIA

Akshay is the Co-Founder and National Head of Blockchained India, the single most contributing organisation in India in the field of blockchain with advisers from IBM US, Mahindra, Ministry of Electronics and IT(Govt. Of India), Ethereum, World Bank and Eric Schmidt Foundation. He was responsible for getting the Ethereum Co-Founder for an India tour in January 2018. Also, he is a DFJ fellow and was mentored by legendary billionaire VC, Tim Draper.





CONCLUSION

Meet the dedicated team members of our financial department



At the end, department feels proud to organise such a successful event and would like to convey thanks to management for their timely advice and cooperation for organising successful *Techfest*. Also we need to thanks volunteers and participants for contributing their complete effort for making **INVICTUS 2018** a great success.

SOCIETY OF AUTOMOTIVE ENGINEERS – DTU Chapter

Annual Report

1st April 2017 – 31st March 2018

SAE-DTU

SAE-DTU is an official chapter at University/Institute level and is affiliated to Northern region of SAEINDIA, which is a strategic alliance partner of SAE International registered in India as an Indian nonprofit engineering and scientific society dedicated to the advancement of mobility industry in India.

At present, Prof. Vijay Gautam and Prof. Amit pal are the faculty advisors. Both are professors in the Department of Mechanical, Production and Automobile Engineering, DTU. The mission of SAE- DTU chapter is to enhance the knowledge base of young budding engineers by imbibing them with skill sets, comprising technological and managerial required in the real time work in the Mechanical/ Automotive Engineering domain.



Prof. Vijay Gautam vijaygautam@dce.ac.in



Prof. Amit Pal amitpal@dce.ac.in

The chapter aims to provide an informal forum for students to discuss views and exchange of ideas evolved during brainstorming sessions on the problems related to innovative design, analysis and fabrication of various components.

SAE-DTU chapter supported and actively participated in the International Conferences like RAME-2016, ICAPIE-2017, NFEST-2018 and National seminar on Innovations and Challenges in Thermal Engineering (ICTE-2016), by contributing several technical manuscripts and posters.

Every year, after meticulous scrutiny of applications and based on interview of the students members of SAE, the faculty advisors select a strong and agile team for various

posts of President, Vice-President, Secretary, Jt. Secretary and Finance etc. The team works shoulder to shoulder to pave the way for the success of SAE-DTU chapter.

I.C. ENGINES AND TRANSMISSION WORKSHOP (April 12, 2017)

SAE-DTU successfully organised an insightful workshop on IC Engines and Transmission. Students were educated on a wide range of topics. What goes into Rolls Royce that makes it so expensive? What's the difference between a Mclaren F1 and a Tata truck? The workshop was conducted by the then 4th year student, Vinay Rawat, who had done extensive research on this topic. We had a very eager audience who were extremely enthusiastic to learn, their overwhelming response left us thrilled!



SOLIDWORKS WORKSHOP (August 31 – September 1, 2017)

Society of Automotive Engineers organized a successful workshop about SolidWorks on the **31st of August, 2017** and the **1st of September, 2017** in collaboration with CAD Campus. The event attracted more than 100 eager audience members and benefitted each and every one of them. Professionals held sessions to teach them the essential basic and advanced commands to give the students an elaborate idea of the software. We aimed at giving the students a head start compared to their classmates who normally learn the software in their second year.

Students from all over Delhi and NCR attended the workshop and were all praises for it. The faculty members from other colleges also found it beneficial in terms of the learning experience



ICAPIE' 17 – Knowledge Partner (October 6-7, 2017)

ICAPIE '17 was the second edition of a one of its kind conference which is held every year to promote discovery, innovation and advancements in the various promenades of the colossal field of Production and Industrial Engineering. It also aimed to bridge the far-flung gap between academia and industry and make us abreast with the avant-garde and pioneer technological advancements in the realm of engineering. Society of Automotive Engineers, DTU, acted as the knowledge



partner in the Conference.





ABHIVYAKTI (October 11, 2017)

SAE-DTU has always been focused on creativity and free thinking. Partnering with Kalakriti, the art society of DTU, we organised "Abhivyakti" a large scale event like none other providing anyone and everyone an opportunity to paint their hearts out. We witnessed around 700 art enthusiasts from various colleges, schools and NGOs at our own OAT painting, sketching, colouring, designing and crafting to

express their ideas and convey their opinions. Prizes worth upto INR 10,000 were there to be bagged.

Abhivyakti after movie

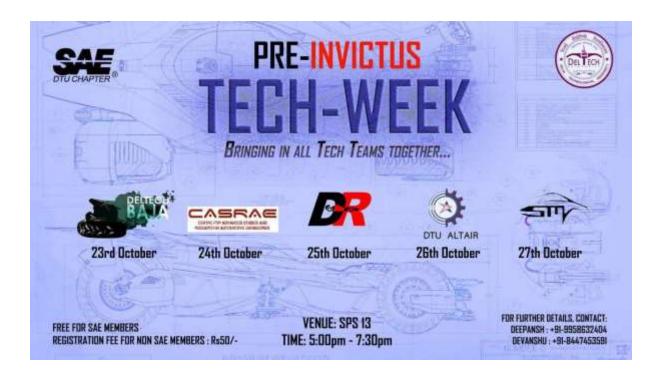


PRE-INVICTUS: Tech week (23 – 27 October, 2017)

SAE-DTU is a diverse society. We believe that exposure is the best method to learn. To give another such exposure to the students of DTU, we invited everyone to a Pre-Invictus (annual Techfest) event. A week full of learning and discovering.

We organized interaction sessions with the Tech Teams of DTU and everyone was invited to attend. The teams explained to everyone about the theoretical and practical aspects of their current projects and the competitions they had participated in and won. We collaborated with Baja, Casrae, Defianz, Altair and Supermileage. It was a very successful event with a large audience who left after a week of learning and fun interaction with seniors.

https://www.facebook.com/saeindiadtu/videos/1321243151332513/



RESEARCH INTERNSHIP PROGRAM (December, 2017)

SAE – DTU helped students get in touch with our faculty advisors, Prof. Amit Pal and Prof. Vijay Gautam to work on research papers under their guidance.

Interviews were conducted by the faculty members themselves to bag an internship. Students worked on their research project for the entire month of December.





NFEST' 18 (8-12 January, 2018) - Partner

Society for Fusion of Science & Technology in association with Delhi Technological University, NIT Kurukshetra, YMCA University of Science & Technology and other premier institutions organised Intl Conference on New Frontiers in Engineering, Science & Technology (NFEST-2018) at New Delhi, India during January 8-12, 2018.

NFEST-2018 invited original research articles/review papers from students, academicians and industry professionals in Engineering, Science, Technology, Social Science & Management.







INDUSTRIAL VISIT

Delhi Metro Rail Corporation (13 January, 2018)

With the commencement of 2K18 SAE- DTU went on its first industrial trip of this year, the DELHI METRO RAIL MUSEUM to learn new things about Delhi metro and its upcoming projects. The members also learnt about the techniques and working of Delhi Metro and expand their technical knowledge about the same. We, at SAE-DTU will continue to organize such endeavours in future to help the students reach their final goal of individual development as a person and as an engineer.



3D Printing Workshop (25 January, 2018)

3D printing has been one of the most perplexing advances in technology which is now used extensively in varying fields to ease the processes once deemed troublesome and exhausting. SAE-DTU conducted a 3D printing workshop and demonstration with SPC and HR Cad Centre at our OAT itself in which students got a chance to not only see one such machine in operation, but also to get any of their designs 3D printed for free for themselves!





INDUSTRIAL VISIT

Auto Expo 2018- Components (11 February, 2018)

Everyone is curious about and fascinated by cars. So, acting on the impression that one learns best by exposure and direct interaction with teachers and seniors, we

organised an industrial visit to one of the most anticipated annual automobile related events, the Auto Expo. Last year, our team of 50 students along with our faculty advisor, Dr. Amit Pal, explored Auto Expo 2018 - Components. From learning in detail about the beautiful cars that we see every day to seeing their working, it was an enthralling experience. The students left after a great day of learning and bonding.



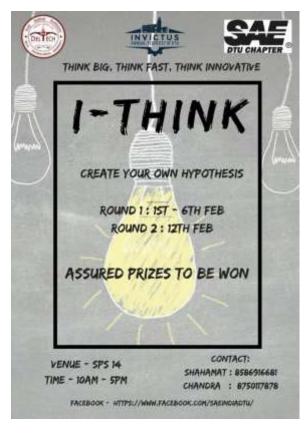


INVICTUS'18

SAE DTU took part in the annual technical fest of the college, Invictus and organised 5 events namely,

- 1. Battle of Brands
- 2. iThink
- 3. Airglider
- 4. Quiznova
- 5. Contraption





iTHINK (February 12, 2018)

iThink, an SAE-DTU organized competition, was a platform where anyone could come up and showcase their idea. The stage was open to all age groups and we received International participation as well. The 10 finalists presented their ideas in front of our judges, Mr Deepak Kathait, who has his own startup since Year 3 of college.





Battle of Brands (February 13, 2018)

This was an SAE-DTU organised event where participants' skills were put to test at various levels by providing them with marketing and advertising case studies associated with some of the most famous companies in the world. Not only did this help them think on their feet, but also forge new bonds and made them admire various view points on a single issue (skills which all companies are on the lookout for these days). In the three round competition focussing on case studies on well-known brand in different fields and their solutions.





SAE-DTU also organized 3 events in collaboration with INNOVA, namely <u>Airglider</u>, <u>Quiznova</u> and <u>Contraption</u>. (12-13 February, 2018)

- 1. Students from various colleges participated in Airglider. They made gliders out of balsa wood in teams of 2.
- 2. Quiznova was a 25 minute quiz comprising of 15 questions related to mechanical engineering.
- 3. Contraption required participants to make a path with waste material(like used PVC pipes and ice cream sticks) which had an object lit on fire kept at the end. They had to place various objects on the path which when hit by the previous object, would travel up to the next object and would eventually result in the body on fire getting put off.









FUSION CONCLAVE (19-20 March, 2018)

SAE-DTU Chapter in association with H.R. CAD Centre organized a two-day **national level AutoCAD championship**. The competition was held over a period of two days with students from all over India coming in to participate. The response was very good and the students gained more than just the prizes from the event. They interacted among themselves and made professional relationships with each other. Furthermore, the students got a chance to interact one on one with teachers authorised by AutoDesk. The competition was held in three rounds of which the

first round took place on the 19th of March, 2018 and the second round on the 20th of March, 2018.





DELHI TECHNOLOGICAL UNIVERSITY

(Formerly Delhi College of Engineering)
Shahbad Daulatpur, Main Bawana Road, Delhi, 110042



TEAM RAFTAAR, DTU

Introduction

Team Raftaar is a team of undergraduate students who share a common vision i.e. to engrain the dynamic concept of Human Powered Vehicles in our day to day lives and thus, promote sustainable modes of transportation for a better world ahead.

We compete in the ASME's Human Powered Vehicle Challenge in both India and the USA where universities across the globe design, manufacture, innovate and finally, race their Human Powered Vehicles and are evaluated on the basis of their safety, robustness, speed, innovation and more importantly our ability to engage the necessary clout to push the concept of Human Powered Vehicles to

new realizable heights. For the same, we design a fully Carbon Fibre faired recumbent bicycle to optimize the aerodynamic and drivetrain related traits and which has bolstered our capabilities to achieve speeds in excess of 70 Kmph purely out of Human Power. For making our vehicle achieve the vision of practical applications, our Electronics team made a Landing Gear Suggestion System (LGSS) for a vehicle that ensures safety along with optimal performance.

This year the competition was held at DTU from March 16th to 18th where we secured overall Joint-Runner up position including the unbeaten First place in both male and female drag race.



Achievements

ASME EFest HPVC Asia Pacific Results 2018

- First Position in Men's Speed Event
- First Position in Women's Speed Event
- Third Position in Design Event
- Overall Runner up





World Robotics Championship Technoxian 2017 was the first international competition that we participated in. The event started on 5th May with opening ceremony and preliminary round for fastest line follower, micromouse and few other championships. There were teams present from Pakistan, Kazakhstan and Europe. The competition was fierce. Final round of micromouse and fastest line follower was conducted the next day along with both rounds of the aviation competitions. First round of the quadcopter championship evaluated build, flight stability, speed and control while the second round tested pilot's skill. The track wasn't easy and many teams crashed their quadcopter. Award ceremony was conducted the following day where it was revealed that we came first in micromouse, second in quadcopter and fourth in fastest line follower championship.

SUPERMILEAGE







TEAM DTU SUPERMILEAGE

PROJECT REPORT

About Us

One of the main concerns of our generation is the gradual increase of the earth's temperature, in other words, the phenomenon called Global Warming. This constant elevation of the earth's temperatures could lead to catastrophic results in a matter of decades, such as the melting of the poles, disappearing of islands and extinction of races.

The DTU Supermileage Team is the first team from India to design a Supermileage vehicle.

The team was established in 2005 keeping in mind the looming threat posed by future fuel crisis. The team aims to develop a vehicle which explores the maximum mileage that can be achieved from a single liter of gasoline and at the same time reduce the impact of gasoline powered vehicles on the environment without the need for major cost. The team has unique technical feats such as designing and manufacturing a custom cylinder head for our vehicle's engine.

- The **DTU Supermileage Team** is the **first team from India** to design a Supermileage vehicle.
- It was established in 2005 keeping in mind the looming threat posed by future fuel crisis.

The team aims to develop a vehicle which explores the maximum mileage that can be achieved from a **single liter of gasoline** and also to reduce the impact of gasoline powered vehicles on the environment without the need for major cost.

Urban Concept Vehicle

Team DTU Supermileage is the first team from India to fabricate an Urban Concept Vehicle, a vehicle which is fabricated keeping the roads in mind and has all the safety features required for urban running.

We designed and fabricate a fuel efficient vehicle powered by a modified, iso-octane burning engine.

- 11 Applying our engineering knowledge and experience to design and build a vehicle with high mileage and adequate safety features.
- 12 Achieving this target by in-house fabricating a composite light weight aerodynamic body that houses a fuel injected engine designed around the existing crankcase.



Prototype (Battery Electric)

Keeping in mind the recent development in the field of automobile, the team decided to build an electric vehicle to contribute to the recent movement of switching to Electric Vehicles.

- 3. We designed an Electric Propulsion system purpose built from Arduino Schematics.
- 4. Fabricating an ultra aerodynamic light weight body using Carbon Fiber that gives strength and help reduce the drag coefficient.
- 5. Applying Ackermann Steering Mechanism and Mechanical Braking system for a safe and efficient drive.



The Competition

Shell Eco Marathon Asia



Keeping in mind the threats our environment is currently under, Shell created an Eco-Marathon competition few decades ago, challenging students to not only look for other alternatives of energy but also, to improve and optimize the ones that can be found today. More than 120 student teams from 18 countries are gathering in Singapore to compete in this year's Shell Eco-marathon Asia. It takes place from March 8 to 11 at the Changi Exhibition Centre as the highlight of Make the Future Singapore – a four-day public festival of ideas and innovation for Asia.

This year's event was held in Singapore at the Changi Exhibition Centre from Mach 8-11.

Team Performance

The team participated in 2 categories namely, Battery Electric Prototype and Gasoline Urban Concept Vehicle.



The Battery Electric Vehicle performed exceedingly well for its debut year finishing 7th with a mileage of 156.9 km/kWh among the 30+ teams that competed in the battery electric category



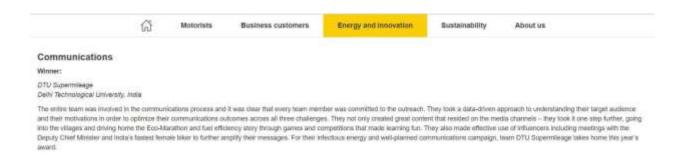
Shell Eco-marathon ASIA 2018 Final results: Prototype Battery electric 14/03/2018

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The team **WON** the **Communication Award Asia** among the 130+ student teams across Asia. The prize is awarded for creating the maximum Awareness among

our community. We also received prize money of **USD 3000** for our achievement. Communication about the team greatly helps in securing sponsors.





The Urban Vehicle passed the Technical Inspection and was deemed safe and fit for running. During the official run for recording the mileage the engine of the vehicle had a malfunction. The vehicle couldn't register an official run in the stipulated time. During the practice runs the team had recorded mileage in excess of 130kmpl.

Future Plans

The team is working to participate in Shell Eco Marathon Challenger Event India to be held in Chennai from 6th December 2018 to 9th December 2018. The vehicles are in the testing phase right now and we are looking forward to achieving podium finishes in the competition. The team will further take part in Shell Eco Marathon Asia to be held in Indonesia in the month of March 2019.



Delhi Technological University



(Formerly Delhi College of Engineering)

Shahbad Daulatpur, Delhi-110042

TEAM INFERNO DTU

Team Inferno DTU, the premier Gokarting team of the University was founded in **September, 2013**. The team designs and fabricates racing Gokarts to take part in multiple national level racing competitions that are held throughout the country. Since then the team has come a long way in building a strong reputation for itself by winning numerous awards. The team took part in the following competitions in the last academic session from April 2017- April 2018:

(1) NKRC Season 4 (National Kart Racing Championship)

NKRC is a national level racing competition where one of the top gokarting teams from across the country take part in. It requires the teams to design and fabricate a fully functional racing gokart according to their rulebook and test it on various aspects both technically and non technically, being a full 3 day tough and rigorous competition. NKRC Season 4 was held in Bhopal on October,2017.

Awards won:

- 5. Secured 1st Position in the Traction Test, cash prize of Rs.40,000/-
- 6. Awarded Best Design Presentation (1st runner up) at the Virtual Round, cash prize of Rs.50,000/-



(2) IKC Season 2 (Indian Karting Championship)

IKC was held in Kolhapur, Maharashtra during the month of January, 2018 where the team took part to compete with multiple teams from India.





(3) IGC 2018 (International Gokart Championship)

The team took part in IGC and was one of the top performing teams in the competition. IGC 2018 was held at Lovely Professional University (LPU), Jalandhar.

Awards won:

- 13 Secured 1st Runner up in the Skid Pad Event, cash prize of Rs.5,000/-
- 14 Secured 1st Position in the Autocross Event, cash prize of Rs.10,000/-



