

ALBEDO

APRIL 2023

**DEPARTMENT OF
AERONAUTICAL ENGINEERING &
DEPARTMENT OF AEROSPACE
ENGINEERING**

2023



**DEPARTMENT OF AERONAUTICAL ENGINEERING
&
DEPARTMENT OF AEROSPACE ENGINEERING**

Dean's Message



Greetings to all!

It gives me immense pleasure and pride that our department is releasing the second issue of its newsletter, "ALBDEO" as a precursor to departmental activities. This newsletter focuses on the activities and accolades of our department students and faculty. It also focuses on the innovation that occurred in the department over the past three months, revealing the major strengths of the department as well as the academic excellence of our students. I would like to thank and congratulate all the students, Heads, faculty members, nonteaching staff, and supporting staff for their limitless support and earnest efforts for the betterment and development of the department. I believe that this newsletter will motivate teachers and students to share their creativity and new ideas with the world and will help in their overall development. I sincerely congratulate all the members of the editorial board and the especially the coordinator, Mr. G. Dinesh Kumar for bringing up this issue in a perfect manner.

Dr. R. Asokan
Dean Aviation

**DEPARTMENT OF AERONAUTICAL ENGINEERING
&
DEPARTMENT OF AEROSPACE ENGINEERING**

About the Department

The Department of Aeronautical Engineering was established in the year 1996. We provide quality technical education in the field of Aeronautical and Aerospace Engineering. The B.Tech programme offered by the department is accredited by the National Board of Accreditation (NBA), National Assessment and Accreditation Council (NAAC) and Institute of Engineering and Technology (IET). This programme has been designed to provide quality education for the undergraduate and postgraduate students through the blend of advanced laboratories and experienced faculties in the field of Aircraft Design, Aircraft Structures, Aerodynamics, Aircraft Propulsion, Aircraft Systems, Avionics, UAV, Aircraft Maintenance, Satellite Technology and the Advanced Materials. Syllabus is regularly revised to meet the industry demands in the Aviation, Space Exploration and Defence Sector. The department encompasses various types of Aircraft, Flight Simulators and Centre of Excellence that can provide real-time experience in handling and familiarizing with the Aircrafts. We take pride in generating the maximum Aeronautical and Aerospace engineers in the country. Many of our alumni work as Engineers, Scientists and faculty in esteemed organizations at the National and International level.

Vision

To excel in education, research and innovation in Aeronautical & Aerospace Engineering.

Mission

To provide every graduate with

- Professionally competent education through a well-designed Teaching and Learning.**
- Research and Innovation process in all spheres of Aeronautical & Aerospace Engineering.**
- Technology combined with professional ethics and training for lifelong learning.**

Undergraduate Program



B.Tech Aeronautical Engineering



B.Tech Aerospace Engineering

Postgraduate Program



**M.Tech Aeronautical Engineering with
specialization in Aircraft Maintenance & Avionics**



M.Tech Defence Technology



EVENTS

February 2023



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ACTIVITIES

Centre for Professional and Career Advancement, HITS & Department of Aeronautical Engineering Organized Boeing Campus Engagement Programme including a Tech Talk followed by a Panel Discussion on "Future of Engineering in India"



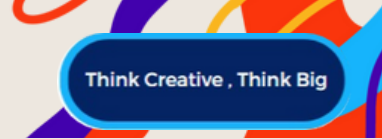
Panel Members

 Krupal Aerpula Director and Chief Engineer, Product Design, Boeing India Engineering, BIETC	 Venkata Babu Pariath Sr. Manager, Support Data Engineering, Boeing India Engineering, BIETC	 Ramanathan Srinivasan Leader - Support Data Engineering, ET&T India, BIETC
 Dr. S. N. Sridhara Vice Chacellor, HITS	 Dr. Kuppan Chetty Professor & Head - Dept. of Mechatronics	

Moderator


Thulasi Krishna Rao Bansirao
 Sr. Manager, Design Engineering,
 Boeing India Engineering, BIETC





EVENTS

April 2023

&

ACTIVITIES

National Seminar on "Small Satellites"

The Department of Aeronautical and Aerospace Engineering, HITS along with the Centre of Excellence in Satellite Technology (CEST) and CubeSat Club has organized a National Level Seminar on Small Satellites and CubeSat workshop on 11th and 12th of April 2023. Alongside this event a Panel Discussion on "The Great Indian Satellite Revolution" was also conducted on 11th April 2023 with high profile panelists from R&D organizations, Industry and Academia. On 12th April 2023, a CubeSat workshop was conducted for the students in which more than 240 students from HITS, KCG Tech and other colleges in and around Chennai has actively participated and got the knowledge on Satellite design, building and testing.



EVENTS

Think Creative, Think Big

April 2023

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ACTIVITIES



CENTRE OF EXCELLENCE IN
SATELLITE TECHNOLOGY

CEST



HINDUSTAN
INSTITUTE OF TECHNOLOGY & SCIENCE
(DEEMED TO BE UNIVERSITY)



The Department of Aeronautical and Aerospace Engineering
Centre of Excellence in Satellite Technology (CEST)

National Seminar on Small Satellites: A Revolution in Space & CubeSat Workshop



Chief Guest
Dr. S Unnikrishnan Nair
Director VSSC,
ISRO



Special Guest
Dr. A Sivathanu Pillai
Founder CEO & MD,
BrahMos, Professor Emeritus (Research), IISc



Special Guest
Dr. Mylswamy Annadurai
Former Director ISAC,
ISRO



Guest of Honour
Dr. S Rangarajan
CMD, Data Patterns,
Chennai

Panel Discussion on **The Great Indian Satellite Revolution**



Panelist - R & D Organisation
Mr. S A Kannan
Programme Coordinator,
ISRO Student Satellite Programme, ISRO



Prof. M Krishnaswamy
Former Programme Coordinator
& Outstanding Scientist, URSC, ISRO



Dr. K Gopalakrishnan
Secretary General,
ITCA / ISC



Panelist - Industry
Mr. K Anand
Director,
NewTech Aerospace Pvt Ltd



Mr. Yogesh Dubey
National Head Sales and Marketing
Ducom Aerospace, Bangalore



Dr. S. N. Sridhara
Vice Chancellor, IISc



Panelist - Academia
Dr. Senthil Kumar
Director Research, IISc



Dr. Mamta Gulati
Assistant Professor, IIT



Moderator
Dr. S Asokan
Dean (AI & AS), IISc

11 April 2023 09:30 AM Andromeda Lecture Theatre

Notable Dignitaries:

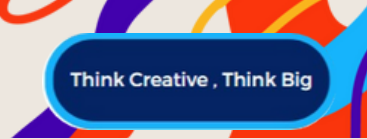
1. Dr. S Unnikrishnan Nair – Director VSSC, ISRO
2. Dr. Mylswamy Annadurai – Former Director, URSC, ISRO
3. Dr. A Sivathanu Pillai – Founder CEO & MD BrahMos & Professor Emeritus (Research)
4. Dr. Rangarajan – CMD, Data Patterns, Chennai
5. Prof. M Krishnaswamy – Former Programme Director, URSC, ISRO
6. Mr. S A Kannan – Programme Coordinator, ISRO Student Satellite Programme
7. Dr. K Anand – MD, NewTech Aerospace, Bangalore
8. Dr. Yogesh Dubey – National Sales Head, Ducom Aerospace, Bangalore
9. Dr. Mamta Gulati – Assistant Professor, Thapar University
10. Dr. K Gopalakrishnan – Secretary General, ITCA

Technical Sponsor



ANANTH TECHNOLOGIES

DATA PATTERNS



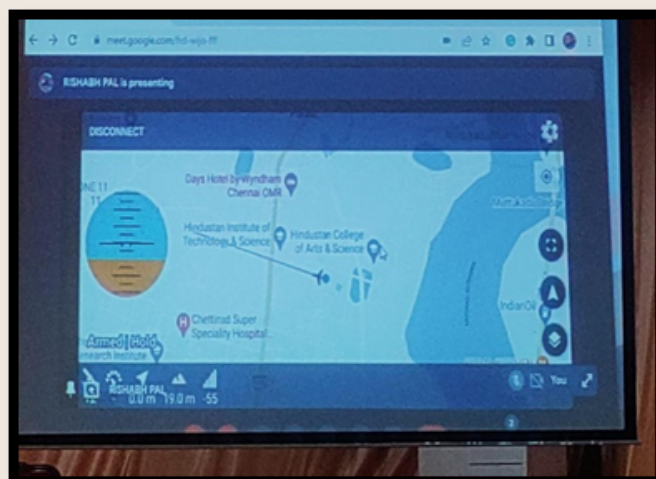
Think Creative , Think Big

EVENTS

April 2023

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ACTIVITIES



EVENTS

April 2023



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ACTIVITIES

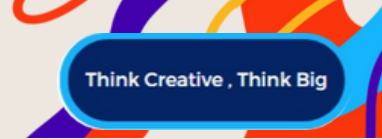
Launch Ceremony - Advanced Masters in "Aviation Safety Management"

Hindustan Institute of Technology and Science (HITS) has added another flagship programme "Advanced Master's Programme in Aviation Safety Management" in collaboration with the Internationally renowned and France based School of Aviation: Ecole Nationale de l'Aviation Civile (ENAC). The launch ceremony of this programme was conducted on 18/04/2023 at the Andromeda Lecture Theatre, HITS which was organised by the department of Aeronautical and Aerospace Engineering. In connection to the launch ceremony A Conclave on "Aviation Safety Management" was also organised in which stakeholders from the different fields of aviation have participated and gave their views on the necessity on Safety Management System (SMS) in the Aviation Safety Management.



Dignitaries participated:

1. Mr. Nicolas Cazalis – Vice President, ENAC, France
2. Capt. Hemant Kumar – Vice President & Chief of Flight Safety, Indigo
3. Dr. Lalit Gupta – Former JDG, DGCA
4. Dr. A Sivathanu Pillai – Founder CEO&MD, BrahMos & Professor Emeritus (Research)



EVENTS

April 2023



&

ACTIVITIES

Launch Ceremony - Advanced Masters in "Aviation Safety Management"



EVENTS



2023

AERO INDIA

The Runway to a Billion Opportunities

ATTENDED**EVENT DATE: 13-17 FEBRUARY 2023**

Hindustan group of institution showcased their various innovative products such as KCG SAT, 3D Printer, Drones etc in the Aero India 2023 at Hall F stall 4.1 which was much attracted by the industry personnel

Key Highlights:

- Theme for 2023: “The runway to a billion opportunities”.
- The Aero India show is held every 2 years.
- It was held by Hindustan Aeronautics Limited (HAL) this year on behalf of the Department of Defence Production of the Ministry of Defence.
- The first edition of the air show was held in 1996.

More than 150 Aero/Aerospace students from HITS visited the expo & Air show along with 4 faculty members on 16th February and got benefitted .



HITS Students Team @ AEROINDIA

EVENTS



2023
AERO INDIA
The Runway to a Billion Opportunities

ATTENDED

EVENT DATE: 13-17 FEBRUARY 2023

"AERO QUIZ" *School Connect Competition*

The AERO QUIZ was conducted for the school students for creating awareness about the Aviation sector as part of AERO INDIA 2023. The competitions was held both online as well in offline mode where more than 300 school students participated actively and won attractive prizes at HITS Stall in AERO INDIA 2023.

The HITS Stall was visited by various officials and eminent persons from industries and they enquired about our area of expertise and other research centers involved in various research projects and product development.



EVENTS



EVENT DATE: 5 APRIL 2023

MoU Signing Ceremony B.Voc. in Aircraft Maintenance

The Department of Aeronautical & Aerospace Engineering , HITS signed 4 MoUs for the B.VoC. in Aircraft Maintenance courses as part of National Skill Development Corporation Program.

1. ST Advanced Composites Pvt. Ltd.
2. Bala Aatral Solution Pvt. Ltd.
3. Felix Aviation Services
4. Dronoid Aerospace Pvt. Ltd.

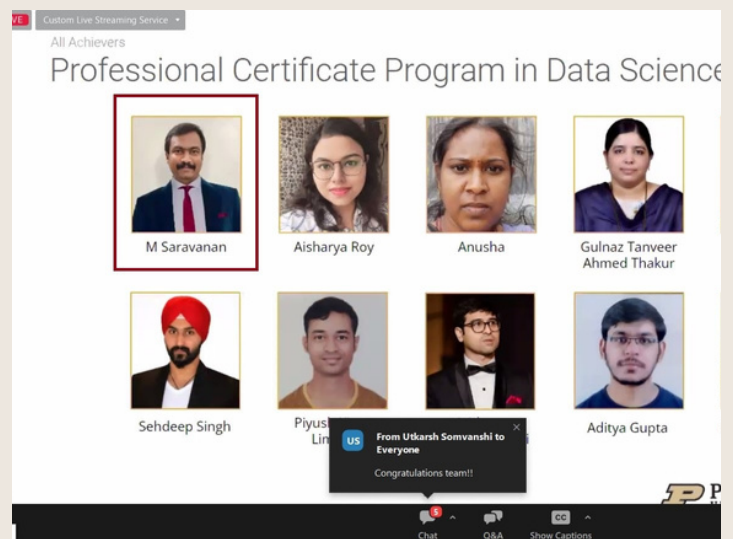
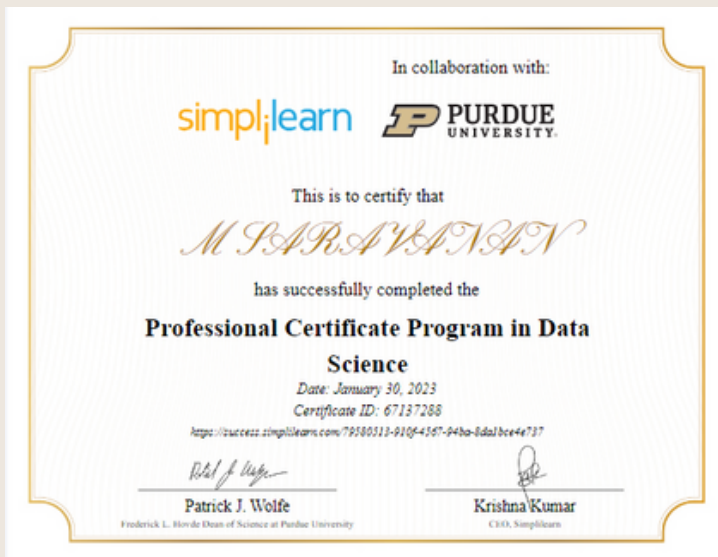



EVENTS

ATTENDED




Dr. M. SARAVANAN attended PURDUE UNIVERSITY Online Convocation 2023 where he received Professional Certification in "DATA SCIENCE" on 23/03/2023

Mr. S .Elumalai, A.P(S.S) & Mrs. T. Sivaganagai attended 9 days FDP in "Design and Development of Industry Led Curriculum in Technological Era" organized by Association of Indian Universities & Amity University



Dr. L. Suneetha, A.P(S.G) attended the IUCEE Engineering Education Research session conducted by IUCEE.



Dr.M.Saravanan published a paper titled "Modelling and analysis of vortex induced vibration in marine risers" in Materials Today Proceedings

Student Achievements



STRIKER

Team Striker won first prize in "FLIGHT FURY" a Aeromodelling Competition conducted by IIT ROORKEE (Cognizance 2023) and bagged cash prize of Rs. 2 lakhs out of 30 participating teams.

The innovation was a blended wing body which was able to do all the given tasks including the aerobatics challenge. The team was successful in demonstrating it practically during Flying Rounds.

TEAM STRIKER BAGS 1ST PRIZE OF "2 LAKHS"



TEAM STRIKER

Shansha (19103043)

Laura Merin D (19103031)

Danush Datthathireyan K (19103016)

AEROTHON'23

For **AeroTHON '23** from the Centre for Autonomous Systems & AERO Club five teams have been registered to take part in the National Level Uncrewed Aerial Vehicle.

SAEINDIA Aerospace Forum is organizing AeroTHON 2023 competition for students with primary focus on developing design, build and piloting skills of Uncrewed Aircraft System (UAS) to prepare them industry ready for the emerging market. The students undertake a full design and build cycle of an Uncrewed aerial vehicle meeting specific mission requirements, culminating in a final fly-off event.

DRONE TRAINING

Centre for Autonomous Systems & AERO Club has started Drone Training for the club members and Interested students. The phase-I training is provided under the Nano category with drone weight of less than 250 g. Around 100+ students have shown interest towards this and training has been initiated.



Mr. G. Dinesh Kumar, A.P has been selected as the Technical Committee member in AeroTHON'23

Student Achievements

CYBROID

Team "CYBROID" participated in SCIMIT'23, a Mega Project Contest held at Manakula Vinayagar Institute of Technology, Pondicherry and the team won 1st place with a cash prize of Rs.25,000.

The project was a small cube sat which detects UV and ozone concentration which can be launched and the data's can be transmitted. These data's can be sold to industries on a monthly basis. Our satellite will use a laser communication system which is more faster than radio com.



TEAM MEMBERS

O.G Ruban Raj (21103059)

N.. Kavya Shree (2113037)



Aparajethaa K of 3rd Year Aerospace participated in "Speak for India - Debate" by Times of India and Federal Bank in District Level.



YARONA'23 Winners Trophy by Department of Aeronautical & Aerospace Engineering



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SEED GRANT SANCTION ORDER DISTRIBUTION CEREMONY

Congratulations



Seed Grant of Rs. 22 Lakhs has been awarded to 16 Faculty members by the Management of HITS for carrying out preliminary research in identified Research Areas. The sanction order was handed over to young research faculty by Vice Chancellor in presence of Registrar on 20.03.2023 at 9.00 am, Conference Hall, Main Building.

Dr. G. C. Vishnu Kumar, Asst. Prof., Aerospace, **Dr. N. Purushothaman**, Asst. Prof., Aero,
Dr. P. S. Joanna, Prof., Civil, **Dr. V. Preethi**, Prof., Civil, **Dr. C. Daniel**, Asst. Prof., Civil,
Dr. Shalini R Nair, Asst. Prof., Civil, **Dr. V. Ceronmani Sharmila**, Prof., IT, **Dr. Rajesh M**, Asst. Prof., Mech,
Dr. D. Balaji, Prof., Mech, **Dr. Janaki Raman S**, Asst. Prof., MCT, **Dr. Pavan Kalyan Lingampally**, Asst. Prof., MCT,
Dr. Ponmudi Selvan T, Asst. Prof., Physics, **Dr. N. Rajeswari Yogamalar**, Asst. Prof., Physics,
Dr. Tejaswi Ashok Hegde, Asst. Prof., Physics, **Dr. Samuel Ayofemi Olalekan Adeyeye**, Associate Prof., FT,
Dr. R. Ramakrishnan, Asst. Prof., PED

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Astrophotography

Nebula Astro Club , Department of Aeronautical & Aerospace Engineering organized Star and Comet gazing for school students & common public using Telescopes

1. Celestron Nexstar 8se
2. GSO 12 inch Dobsonian

A group of 19 students and 2 faculty members from Nebula Astro club went on a two day trip to Vainu Bappu Observatory and Yelagiri Hills. The group explored various telescopes, learned about advanced instrumentation, stargazed overnight, observed celestial objects and learned astrophotography, and went trekking on Yelagiri hills. The trip was a successful opportunity for learning and fun experiences.



Astro Club Team at Vainu Babu Laboratory



Charan Nag
B.Tech Aerospace - 3rd Year

Prakash Navdeep
B.Tech Aerospace - 2nd Year

Terraforming Planets!

You know those science fiction stories where humans make other planets habitable? Scientists are exploring the possibility of "terraforming" other planets, which means modifying their environments to make them livable for humans.

Let's dive a little deeper into the idea of terraforming other planets! It's not just some far-off dream anymore – with the progress we've made in space exploration technology, it's becoming more and more feasible.

So, what makes a planet habitable? There are a few factors to consider, but the most important one is water. For a planet to support life as we know it, it needs to have liquid water on its surface. Other factors include the planet's distance from its star (the "habitable zone"), its atmosphere, and its temperature.

Mars is the planet that scientists are most interested in terraforming right now. Despite being cold, dry, and not very hospitable to human life, it has a few things going for it. For one, it has a day/night cycle that's similar to Earth's, which means it wouldn't be too hard to adjust to for any potential colonists. It also has polar ice caps that could provide a source of water.

So, how would we go about terraforming Mars? One idea is to warm up the planet by releasing greenhouse gases into the atmosphere. This would trap more heat from the sun, raising the planet's temperature and melting its ice caps. As the ice melts, it would release more water vapor into the atmosphere, creating a positive feedback loop that would make the planet more and more habitable.

Another idea is to introduce organisms to Mars that could convert its carbon dioxide atmosphere into oxygen through photosynthesis. This would not only create a more breathable atmosphere for humans, but it would also provide a source of food and oxygen for any potential colonists.

But there are a few challenges to terraforming a planet. For one thing, it's going to be expensive – we're talking billions or even trillions of dollars. It's also going to take a long time – centuries or even millennia. And there are potential unintended consequences, like introducing new organisms to a planet that could become invasive species and disrupt the planet's ecosystem.

Despite the challenges, the idea of terraforming other planets is pretty exciting. It's not just science fiction anymore – we may one day be able to turn barren, lifeless planets into thriving ecosystems that support human life. Who knows, maybe someday we'll be able to vacation on Mars!

by

Aparajethaa K

B.Tech Aerospace Engineering (3rd year)



Photos taken by Dhruvashish Vangala
B.Tech Aeronautical Engg. (3rd Year)



Photo by Aparajethaa K
B.Tech Aerospace Engineering (3rd year)



Art by Oshin
B.Tech Aerospace Engineering (3rd year)



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CHENNAI

Department of Aeronautical & Aerospace Engineering

Congratulations

GATE 2023 All India Rank Holders (AIR)

Name of the Student	AIR
Bhavani Prasad Mandapati	9
Bavesh	31
Jaswant Singh	32
Pawan kumar	138
Akshat Jani	158
Viswa Patel	170
Aditya	536

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