

Department of Aeronautical Engineering

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Department Activity Report For the Academic Year 2021-22

Sl. No	Date	Event Type	Title of the Event	Resource Person/Organization
1.	08/11/2021	Invited Lecture	A GATE- Aerospace engineering an Gateway of opportunity”	Mr. Manas Jain Research scholar Department of Aerospace Engineering, Indian Institute of Technology, Kharagpur
2.	24/11/2021	Invited Talk	Aeronautical Engineering Industry & Career Perspective	Mr. Girish K E Director BAIL Pvt. Ltd Bangalore
3.	29/11/2021	Webinar	Higher Education Prospects & Opportunities	Mr. Sandeep Nagaraj Design Engineer, Lilium GmbH, Germany
4.	9/12/2021 to 10/12/2021	Workshop	Vayuyana Two day RC Plane Workshop	AIRENO Team in Association with SKYCLAN RC
5.	5/3/2022	Invited Talk	Recent developments in Science and Technology in Indian Defence sector	Mr. Jayaprakash Rao, Former Regional Public Relations officer, DRDO, Ministry of Defence, Govt. of India.
6.	7/5/2022	Invited Talk	Indian Space Programme Perspectives & Opportunities	Mr. E Janardhan Rao Former-Scientist ISRO, Bangalore
7.	10/5/2022	Invited Talk	Challenges and Opportunities in Aerospace and Aviation Industry	Mr. Shashanka R H Manager Helicopter Division HAL, Bangalore
8.	30/06/2022 to 1/7/2022	Workshop	Two days workshop on Virtual Instrumentation for vibration analysis	Dr. K V Gangadharan & Team Center for Systems Design NITK Surathkal
Industrial Visits				
9.	30/06/2022	Industrial Visit	Industrial Visit to Indian Space Research Organization (ISRO), Bangalore	
10.	1/7/2022	Industrial Visit	Industrial Visit to Government Flying Training School , Bangalore	
11.	2/7/2022	Industrial Visit	Industrial Visit to HAL Heritage Centre, Bangalore	

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Sl. No.	Date	Event Type	Title	Resource Person/Organization
1	08/11/2021	Lecture	GATE- Aerospace engineering an Gateway of opportunity”	Mr. Manas Jain Research scholar Department of Aerospace Engineering Indian Institute of Technology, Kharagpur

The Aeronautical Department Organized a Seminar on “A GATE- Aerospace engineering an Gateway of opportunity” under the program “Aeronautical Union of Rising Aviators (AURA) and Technical skill development for 3rd, 5th, and 7th semester AE Students” between 1: 45 PM to 4:00 PM in the Venue of Auditorium-2: Main Block MITE Campus. Over 150 participants registered for the event and participated in the event. Program started with a brief inaugural session at 1:50 PM and was delivered in one session.

The start was the inauguration of GATE classes for all Aeronautical students. The resource person who is working as a Research scholar in the Department of Aerospace Engineering, Indian Institute of Technology, Kharagpur was invited to interact with students. He gave the detailed deliberations on awareness of GATE for 3rd, 5th, and 7th semester AE Students. He interacted with students and motivated them to utilize the time in the best way to enhance their skills and learn to crack the GATE with the Department library. The session concluded with a question and answer session.

Outcomes of the program:

- Basically, It gives the basics of What is GATE, Why is GATE and How to prepare for the exam in an Intelligent way.
- How to prepare subjects like Aerodynamics, Aircraft structures and Aircrafts Materials etc., within a time limit.
- Finally they got the awareness of importance of GATE through this interactive session

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Photographs of the Talk on “GATE- Aerospace engineering an Gateway of opportunity” by Mr. Manas Jain

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Sl. No.	Date	Event Type	Title	Resource Person/Organization
2	24/11/2021	Invited Talk	Aeronautical Engineering Industry & Career Perspective	Mr. Girish K E Director BAIL Pvt. Ltd Bangalore

The Department of Aeronautical Engineering, MITE signed a MOU with Bangalore Aircraft Industries Pvt. Ltd. and organized a Technical Talk on "Aeronautical Engineering Industry & Career Perspective" on 24th November 2021. Mr. K E Prakash, Director of Bangalore Aircraft Industries Pvt. Ltd delivered the talk. Dr. C R Rajashekhar, Vice Principal and Dr. G Purushotham, Professor and HOD were present for the program. The program started with prayer by Ms. Aishwarya and Team and lighting of the lamp. Mr. Ajith Kumar, Senior Assistant professor, welcomed the gathering. Mr. Sharun Divakar gave the annual report. The presidential address was given by Dr. C R Rajashekhar, Vice Principal, MITE.

Department of Aeronautical Engineering, MITE has signed a Memorandum of Understanding with Bangalore Aircraft Industries Pvt. Ltd. at this occasion. Dr. G Purushotham, Professor & Head, briefed about the MOU. This will help the students to have more technical talks, internships, workshops, industrial oriented live projects for upgrading their skill & knowledge.

Mr. K E Prakash addressed the students and explained about Propulsion, Aerodynamics, Avionics and Aircraft Interior design. Then he talked about the two levels of the Engineering Industry, namely Design and Fabrication. He emphasized on the importance of the right job to be done by the right person. The Engineering graduates have to work on Designing the system rather than working on Maintenance and Repair. He also explained about the opportunities that are available in BAIL for students. BAIL has designed Airframe structural components for SARAS, NAL – Hansa, MIG – 21BIS, LCA Tejas etc. They have also designed Engine transportation trolleys, Ground support equipment, Universal Testing Machine etc. They also design structural components for ISRO. He also informed about career opportunities for Aeronautical Engineers in the field of structural design.

The session gave knowledge about career opportunities for the students in the field of structural Engineering. The MOU will help the students to have better industrial exposure. A total of 170 students have participated and benefitted by the program.

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Sl. No.	Date	Event Type	Title	Resource Person/Organization
3	29/11/2021	Webinar	Higher Education Prospects & Opportunities	Mr.Sandeep Nagaraj Design Engineer, Lilium GmbH, Germany

The Department of Aeronautical Engineering Organized a webinar programme on "Higher Education Prospects and Opportunities" under the program "Aeronautical Union of Rising Aviators (AURA) and Technical skill Development for 3rd, 5th and 7th semester AE Students" between 7:00 PM to 8:30 PM through online mode (Google meet). Over 100 participants registered for the event and participated in the event. Program started with a brief inaugural session at 7:00 PM and was delivered in one session.

The resource person who is working as a Design Engineer in the Lilium GmbH, Germany was invited to interact with students. He gave the detailed deliberations on awareness of Higher Education and its importance for 3rd, 5th and 7th semester AE Students. He gave information regarding the importance of higher education, motivation for study, general reasons attributed for studying abroad and ways to get the opportunities for higher education in Germany.

In addition, he gave detailed information about where foreign students face the highest university fees and countries with no tuition fees for the international students. He glanced at the information of Germany with various ideas. He also highlighted the internship and job opportunities for the MS program students. The session concluded with a question and answer session.

Outcomes of the program:

- It gave detailed information about where foreign students face the highest university fees and countries.
- How to prepare for the exam to get a seat abroad for various programmes.
- Finally they got the awareness of the importance of higher education.



MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

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Aeronautical Union of Rising Aviators (AURA)



Presents a webinar on
Higher Education Prospects & Opportunities



HIGHER EDUCATION
A QUEST FOR EXCELLENCE!



Speaker:



Mr. Sandeep Nagaraj
Design Engineer,
Lilium GmbH, Germany

Date: 29th November 2021

Time: 07:00 PM to 08:00 PM



Registration link:

<https://forms.gle/7nrnC2EqZ55c9zcE9>

Event Flyer

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4	9/12/2021 to 10/12/2021	Workshop	Vayuyana RC Plane Workshop	AIRENO Team in Association with SKYCLAN RC

Vayuyana v4.0– A two day RC Aero modeling workshop was held in Mangalore Institute of Technology and Engineering by the Department of Aeronautical Engineering conducted by Team AIREINO for students of MITE on 9th December 2021 to 10th December 2021. The workshop was supported by the AICTE –SPICES and was conducted in association with SKYCLANRC Mangalore.

The workshop was inaugurated by Dr. G L Easwara Prasad Principal MITE. The chief guest, Mr. Mithul Das, Co Founder SkyclanRC mentioned that confidence and determination are the keys to success and he shared his experience of startup SKYCLANRC. Mr. Nihal Rajesh, Mr. Ashwathrama and Mr. Clavin Josep Dsouza cofounders of SKYCLANRC have delivered technical sessions on Aerodynamics, Propulsion, Aircraft structures and Control systems and RC electronics respectively. Further a hands-on flight simulation session was handled by Mr.Nihal Rajesh in which each participant was given training on RC Plane flying.

A total of 22 teams took part in the workshop with 139 participants from various engineering disciplines of MITE. In the two day workshop, the participants gained knowledge on concepts of aerodynamics, propulsion, stability and control, RC Electronic and also learnt how the RC planes are designed. The event was concluded with a flying session in which each team being given a chance to fly planes built by them during the workshop.

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Participants, Team AIRIENO and faculty members with RC Planes built during workshop

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Sl. No.	Date	Event Type	Title	Resource Person/Organization
5	5/3/2022	Invited Talk	Recent developments in Science and Technology in Indian Defence sector	Mr. Jayaprakash Rao, Former Regional Public Relations officer, DRDO, Ministry of Defence, Govt. of India.

Institution Innovation Cell in association with Career Guidance Cell and Dept of Aeronautical Engineering organized a Talk on 'Recent Developments in Science & Technology in Indian Defence Sector', on 05th March 2022 at 11.00 am in the Auditorium-2(Main block). Team AURA welcomed the chief guest and HOD to the Dias. All faculty members, Students of various disciplines were present for the program. The program started with prayer by Ms. Dhanya and Team. Mr. Ajith Kumar, Senior Assistant professor, welcomed the gathering and introduced the chief guest to the participants. The winners and runners of the Vayuyana v4.0, RC-plane modeling competition were awarded with certificates and mementos.

Chief guest of the program, Mr. Jayaprakash Rao Started his talk with former President Dr. APJ Kalam quote, *"A dream is not that which you see while sleeping, it is something that does not let you sleep"*. He delivered a lecture on vision 2020 and shared his work experience with Dr. APJ Kalam in the LCA programme. A video song composed by Dr. APJ Kalam and sung by Usha Uthup was played for the participants. In which he said that the *"nation is more important than the individual"*. How the development of the First flight control system came into existence in 1998. In Spite of all failures faced by the LCA programme, aircraft finally flew for 20 minutes on 5th Jan 2001. The Centre for Airborne Systems (CABS) is a laboratory of the Defence Research and Development Organisation (DRDO) of India. Located in Bengaluru, its primary function is development and evaluation of airborne electronic systems for military applications. Airborne system was made successful under the Make in India programme.

Mr. Jayaprakash narrated the following incidents to the participants and played a video. SARAS - 14 seater civil Aircraft on India's indigenously built and manufactured by NAL and HAL. About 60% of the components in the defence sector were manufactured under the MAKE IN INDIA programme. HAL-HF-24 Marut, Indian fighter-bomber aircraft of the 1960s. Developed by Hindustan Aeronautics Limited (HAL). The Marut was described as "essentially a very long-drawn-out failure". Limitations within

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the Indian aerospace industry, which lacked the infrastructure and scientific base to successfully produce an effective indigenous combat aircraft at that time. After a long gap, in 2001 India first Light combat aircraft - Tejas was built and manufactured by HAL. Dr.Kota Harinarayana was called the father of LCA.

The speaker of the Invited talk discussed the importance of celebrating Indian airforce day.

on 08 oct 2021 Indian AIR FORCE DAY theme- tribute to the warriors of 1971 war. The day is celebrated to raise awareness around the world about IAF as an organization that works towards strengthening national security. Chief guest also pointed out the importance of Atmanirbhar Bharat, which means self-reliant nation.

Chief guest Mr.Jayaprakash Rao Played a recorded video of Dr.APJ kalam speech at SRM university. All the participants were taken OATH. In which Dr.APJ talks about the following, knowledge has three components- Creativity, Righteousness and Courage. The speaker also instructed the students to check the websites of DRDO, NAL and HAL frequently to find career opportunities. Every september there is a SET(Science Entrance Test) conducted by DRDO.

The speaker then played the HAL-video to the participants, where he pointed out those aircrafts manufactured by HAL. HTT 40 and DO 228 for training pilots. Dhruv- advanced light helicopter, FGFA- Fifth generation fighter aircraft, HTFE-25. In the aircraft Structural components research areas like Shape memory alloys, Rapid prototyping, Robot grinding were carried out at the HAL. In the MRO(Maintenance Repair Overhauling) was also conducted for Fixed wing and Rotary wing aircrafts.

Finally the video presentation of NAL-CSIR contributions to the development of science and Technology was done by the speaker. The country indigenously built TEJAS, SARAS and HANSA aircrafts. CSIR-NAL has successfully developed state-of-art Indigenous Autoclave Technology for processing advanced lightweight composites. To predict the aerodynamic forces, pressure distribution of different aircraft models and aerodynamic shapes, the Transonic Cascade Tunnel (TCT) facility located at NAL wind tunnel center (NWTC) is an indigenously designed and built. For aiding Runway visibility and providing information about runway, DRISHTI developed by CSIR-NAL is a fast-acting accurate transmissometer. It has been made fully operational at the Indira Gandhi International Airport, New Delhi.

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The speaker of the programme addressed the gathering with positive inputs from various scientists and organizations of the Aeronautical and Aerospace industry. He also included certain points that the contributions made by these government sectors are enormous and make INDIA as a proud country in the globe. He also insisted and motivated the students to contribute their knowledge to the country by opting careers in the above mentioned sectors.

All the students of various disciplines got awareness about the importance of engineering and its applications. How each individual has to contribute to the nation by actively participating in their chosen domain. Finally the winners of the Vayuyana v4.0 RC-plane modeling competition took a group photo with the chief guest. The fire in the speech of the speaker ignites the young minds in terms of knowledge, skills and information. The programme was concluded with a token of gratitude to the chief guest Mr. Jayaprakash Rao by Dr. G. Purushotam, HOD/aero.



Photographs of the Event

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Sl. No.	Date	Event Type	Title	Resource Person/Organization
6	7/5/2022	Invited Talk	Indian Space Programme Perspectives & Opportunities	Mr. E Janardhan Rao Former-Scientist ISRO, Bangalore.

AIREINO (Aero Club), Dept of Aeronautical Engineering organized a Talk on 'Recent Indian Space Programme Perspectives & Opportunities, on 07th May 2022 at 11.00 am in the Auditorium-4 (PG-block). Team AIREINO welcomed the chief guest and HOD to the Dias. All faculty members, Students of various disciplines were present for the program. The program started with prayer by Ms. Vaishnavi and Team. Mr. Ajith Kumar, Senior Assistant professor welcomed the gathering. Mr. Sujesh Kumar, Senior Assistant professor introduced the chief guest to the participants.

Mr.E.Janardhan Rao summarized India's space mission and early days of ISRO.The vision of Dr.Vikram Sarabhai, use of space technology as an instrument for the socio economic development of the people. The Indian Space Programme is aimed at providing self- reliant space based operational services 'nationwide' in the area of Communication / Broadcasting, Meteorology, Remote sensing and Navigation. The atmospheric layers of the earth and its effect on space vehicles were discussed with the participants.

History and growth of launch vehicles starting from SLV, ASLV, PSLV, GSLV and GSLV -MKIII and payload carrying capacity of those vehicles. Speaker also narrated the story behind the development of vehicles and the hard work of several scientists. He joined ISRO during late 60s after his completion of degree and for every decade there will be upgradation of space launch vehicles. The speaker also distinguished the various diversity of people working on the development of a single rocket before launching. Some of the disciplines are Design Optimization trajectory, System Specifications, System Integration and Testing, Subsystem Design and Development, Launch Complex etc.

Propulsion systems of rockets are classified into Chemical, Air breathing, Nuclear and Electrical/ion. Each of these will have its own specific impulse. • Solid Propellant : 220-290 • Liquid Propellant : 250-330 • Cryogenic Propulsion : 400-450 etc. India is developing a Hypersonic Technology Demonstration vehicle for getting increment in the above specific impulse. so that the air breathing applications can be extended for rockets to place the satellites in orbit. A Cryogenic rocket stage is more

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efficient and provides more thrust for every kilogram of propellant it burns compared to solid and earth-storable liquid propellant rocket stages. Oxygen liquifies at -183 deg C and Hydrogen at -253 deg C. The propellants, at these low temperatures are to be pumped using turbo pumps running at around 40,000 rpm. It also entails complex ground support systems like propellant storage and filling systems, cryo engine and stage test facilities, transportation and handling of cryo fluids and related safety aspects.

The speaker shared his experience in the Vehicle avionics system like Inertial System, Onboard Computer, Guidance & Control Sequencing, Power Systems, Instrumentation & telemetry, Telecommand systems and Transponders. Navigation, guidance & control includes Inertial sensors, Processor (Computer), Control Actuator and Vehicle Dynamics. The functions of the above mentioned systems are •To stabilize and steer the vehicle along the planned trajectory to achieve the desired orbit. •To limit the flight load. The RLV TECHNOLOGY DEMONSTRATOR Components and its importance in space technology were discussed with students. He also insisted that A TEST BED TO EVALUATE RLV RELATED TECHNOLOGIES LIKE -- AERO-THERMODYNAMICS, TPS ,C&G , FLIGHT MANAGEMENT , RE-ENTRY, FLYBACK, AUTO LANDING AND REUSABLE DESIGN.

Next topic discussed was National satellite systems and its impact on Indian populations. According to him the following Satellite systems were used in India ; Indian National Satellite (INSAT) Systems, Indian Remote Sensing Satellite (IRS) systems and Scientific Satellites. INSAT Applications include Telecommunications ,Tv , Radio Broadcasting Business Communication, Mobile Communication, Search & Rescue, Radio Determination & Navigation,, Meteorology, Data collection Platforms, Disaster Warning Systems, Telemedicine/education

The GPS space segment consists of a constellation of satellites transmitting radio signals to users. The United States is committed to maintaining the availability of at least 24 operational GPS satellites .GPS satellites fly in medium Earth orbit (MEO) at an altitude of approximately 20,200 km . Each satellite circles the Earth twice a day. CYCLONE WARNING DISSEMINATION SYSTEMS , 250 Cyclone warning dissemination systems (CWDS) installed in coastal areas . REMOTE SENSING SATELLITE SYSTEMS, vast potential of remote sensing information for the integrated development was realized during 60's . Later the National Natural Resource Management System (NNRMS) was established . Based on the initial experience, SRO conceived of dedicated remote sensing satellite series. The first

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one IRS IA was built adopting high quality imaging sensors based on specific needs and was launched by a Russian rocket. The imageries obtained were very good.

The speaker shared the difficulties faced by Chandrayan-1, Chandrayaan-2 and India's Mars mission. Observations from the Chandrayan -2 were Ø Moon provides the best linkage to Earth's early history. It offers an undisturbed historical record of the inner Solar system environment. Ø Extensive mapping of the lunar surface to study variations in lunar surface composition is essential to trace back the origin and evolution of the Moon. Evidence for water molecules discovered by Chandrayaan-1, requires further studies on the extent of water molecule distribution on & below the surface. The lunar South Pole is especially interesting because the lunar surface area here that remains in shadow is much larger than that at the North Pole. There is a possibility of the presence of water in permanently shadowed areas around it. In addition, the South Pole region has craters.

Mars Orbiter Mission (MOM) is India's first interplanetary mission to planet Mars with an orbiter craft designed to orbit Mars in elliptical orbit. v The Mission is primarily a technological mission. Spacecraft has been configured to carry out observation of physical features of Mars and carry out limited study of the Martian atmosphere with five payloads.

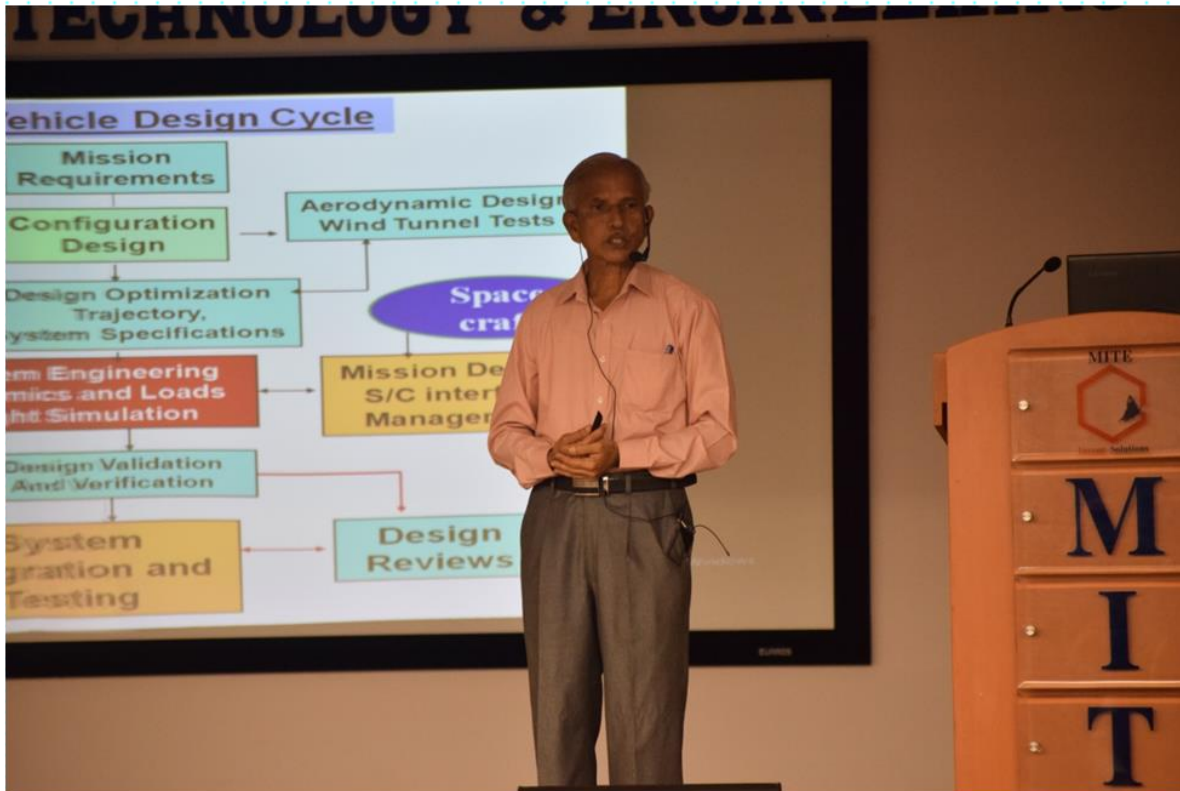
Indian human space flight Programme To be realized in next 5 years. A major project for ISRO. India will be the 4th Nation to have such capability when realized. He pointed out that the future will be Building advanced capabilities in Space Communications and Navigation area, Developing Leadership in Earth Observations: Improved imaging capability, Providing thrust in Space Transportation System: , re-entry systems and pursue "Reusable launch vehicle" Programme, Human space flight programmes, Strengthening Space Science Enterprise:, Advanced space exploration missions., Promoting technology spin-offs and further development, industry-academia interface and international cooperation.

- LOW COST ACCESS TO SPACE - HUMAN INTERVENTION - LIFE SUPPORT SYSTEMS
- INDIAN SPACE STATION - LOGISTIC & MATERIAL SUPPLY TO SPACE SYSTEMS

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He concluded the talk and his technical talk insisted the students of aeronautical and other branches come forward to Indian space organizations and contribute to nation building. The vote of thanks was given by student president(AURA)- Abdul Rehaman Tahasildar..



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Photographs of the Event

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Sl. No.	Date	Event Type	Title	Resource Person/Organization
7	10/05/2022	Invited Talk	Challenges and Opportunities in Aerospace and Aviation Industry	Mr. Shashanka R H Manager Helicopter Division HAL, Bangalore

AIREINO (Aero Club), Dept of Aeronautical Engineering organized a Talk on Challenges and Opportunities in Aerospace and Aviation Industry, on 05th May 2022 at 11.00 am in the Auditorium-4(PG-block). Team AIREINO welcomed the chief guest and HOD to the Dias. All faculty members, Students of various disciplines were present for the program. Mr. Ajith Kumar, Senior Assistant professor welcomed the gathering and introduced the chief guest to the participants. Total of 120+ participants were present.



Mr. Shashanka R H started his talk with a brief history of HAL. It was started on 1940 december as a Hindustan Aircraft private limited. During 1964 only it was made PSU. Then he distinguished PSU and Govt. sector role in the industry. According to the speaker the PSU is owned by the Board of directors, But

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Govt. sectors are purely owned by Govt of india and salary is issued from public tax. For PSU the salary is from the profit of the company. Speaker clarified about the Aerospace and aviation industry.

Aerospace is further divided into three major units R & D, Production and Maintenance. Aviation is non-technical which has two major units, airline management and airport management. Airlines like vistara, airindia, Go-air etc. Airport management has ATC, Signal tracking systems, RADAR stations etc. The opportunities for aeronautical engineers are classified like mentioned in the above statement.



The job opportunities for aeronautical engineers includes not only R&D, the other fields are Manufacture of Aircraft, Helicopter, Engines & Systems, Maintenance, Repair & Overhaul of Aircraft & Engines, Manufacturing of Structure, Boosters for launch vehicles and Cryogenic engine. Speakers intimated the students to acquire the skills necessary to avail opportunities in the above mentioned fields. As a part of entering HAL, one needs to approach the HMA (Hindustan Management academy) and join PGDMA courses. The final year students have to write the Management trainee test conducted by HAL.

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The speaker distinguished the aerospace companies to the students of aeronautical engineering. PSUs and Govt. organizations. Some of them are HAL, ISRO, DRDO and DPSU. In each of these sectors there will be subdivisions like ADA, GTRE, ADE, BEL, BEML, BDL and 7DPSUs. Also companies like Boeing, Airbus, Honeywell, Safran, GE, RR, Brahmos. All these companies required pure aeronautical engineering students with domain knowledge.

For entering to those companies one should develop the following SKILL-SETS. Domain specific skills like CAD, 3D Modeling & Analysis, CFD, FEA, Power System Analysis, SPICE charts, VLSI & FGPA, MATLAB Control Systems, RTOS, etc. Generic Skills & Knowledge like DOE, Basic Statistics, Model Based Design & Analysis, Optimization, Business & Process Simulation, Industry 4.0. For Production sectors Domain specific skills like CAM, Digital Literacy, Scheduling & Optimization, Quality Consciousness, Six Sigma, RCM, PLC-SCADA, etc...

Autonomous Flight Systems requires specialization in closed-loop simulations between the sensors, control software and intelligent algorithms. Virtual realities and multiphysics simulation. Students should learn in order to go into the aviation industry. Mr. Shashanka R H also pointed out that the project called High Altitude Airship will be set up in the near future. Developing fields like Additive Manufacturing (Prototype manufacturing, Topology optimization, Small batch sizes, Complex parts). He insisted every student buy one small 3-D printer and acquire the skill sets for additive manufacturing.

The speaker shared the real life incidents to make students understand about the Digital twins.

which have the following applications 1. Internet of Things. 2. Data analytics and AI, 3. Modeling & Simulation. Digital twins applications in the aerospace industry are wider. In case of MH370 aircraft lost. None could identify the missing and in which directions it went.

with the help of digital twins. The MH370 is powered by a Rolls Royce engine. Rolls Royce traced the temperature of the engine and it was active for four hours after the aircraft went missing. which means the only path that the aircraft traveled should be towards Australia. The digital twins concept plays an important role in the field of aerospace and aviation industry.

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The HAL Management Academy Offers Wide variety of training programs to develop functional, operational, technical, and managerial and leadership competencies. Industrial Exposure to Various HAL Divisions. Flexible Course Structure. Pragmatic Approach to learning. Certifications from various reputed institutes of India. World Class Infrastructure Facilities with Safe, Clean & Green Environment.

The speaker briefed about the Courses Offered and facilities in the HMA are Post Graduate Diploma in Aviation Management (2 years) Post Graduate Diploma in Production Management (2 years) Comprehensive Coverage of Aviation and Manufacturing with well-crafted case studies. Immersive learning experience through experienced faculty, practicing professionals, and industry experts. Industrial Visits to different HAL divisions. A green campus spread across 16 acres with state of the art facilities & classroom. In-campus Hostel & Cafeteria.

The invited talk on “Challenges and Opportunities in Aerospace and Aviation Industry” gave important insights to the third year and final year students. At the outcome of the talk, the students should not only concentrate on R&D sectors alone. Other opportunities for the aeronautical students are production and Maintenance. Aviation is non-technical which has two major units, airline management and

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airport management. Airlines like vistara, airindia, Go-air etc. Airport management has ATC, Signal tracking systems, RADAR stations etc. The vote of thanks was given by student president (AURA)- Vrishab. The programme was concluded with token of gratitude to the chief guest by Sr. Asst. Prof [Sujesh Kumar](#).



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08	30/06/2022to 1/7/2022	Workshop	Two days workshop on Virtual Instrumentation for vibration analysis	Dr. K V Gangadharan & Team Center for Systems Design NITK Surathkal

AIREINO in association with aero club organized a two days Workshop on “virtual Instrumentation for vibration analysis” funded by AICTE-Scheme for Promoting Interests, Creativity and Ethics among Students (SPICES) on 30th june and 01st july 2022. Inauguration of the Program started at 10.00 am in the Auditorium-2(Main block). Team AURA welcomed the chief guest, Principal(MITE) and HOD(aero) to the Dias.The program started with prayer by Ms. Dhanya and Team. Mr. Ajith Kumar, Senior Assistant professor, welcomed the gathering and introduced the chief guest to the participants.



Dr.M.S.Ganeshaprasad, Principal welcomed the chief guest and gave the presidential address.

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Chief Guest of the program briefed about the virtual Lab view software usages and its applications in vibration analysis. The guest interacted with students of aeronautical, mechanical and mechatronics engineering.

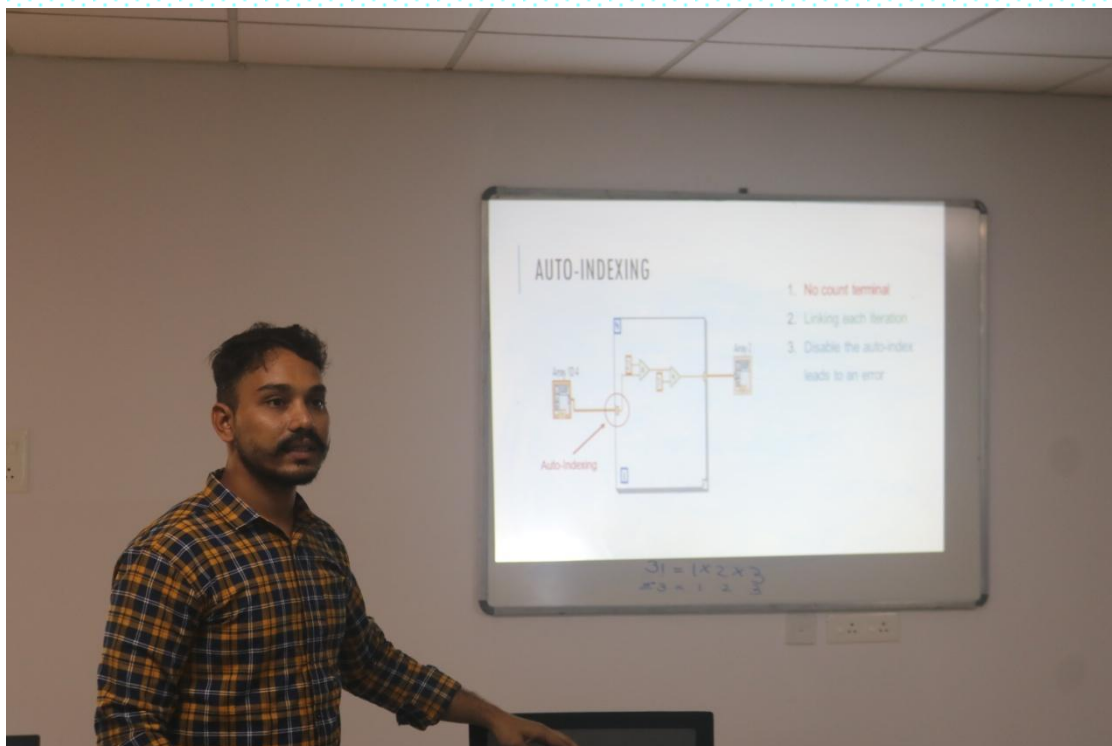


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Introduction to LaVIEW environment:

Front Panel, Block Diagram, Different palettes, Different data types, some basic examples was demonstrated by his PhD scholar shubham.



Structures and Timing

For loop, While loop, Case Structure, Formula node and Wait MS: Explained and illustrated with basic examples by Vamshi/Manaswi. The program coding and block diagram for the execution of virtual lab view was thought in CAD- laboratory (PG block first floor). Specially how to write the program. This section discusses the different operations that can be performed on the various data structures previously mentioned. In the real world, programs evolve as a result of new requirements or constraints, so a modification to a program commonly requires a change in one or more of its data structures. For example, if you want to add a new field to a student's record to keep track of more information about each student, then it will be better to replace an array with a linked structure to improve the program's efficiency. In such a scenario, rewriting every procedure that uses the changed structure is not desirable. Therefore, a better alternative is to separate the use of a data structure from the details of its implementation. This is the principle underlying the use of abstract data types.



Arrays and Clusters

Creating Array Controls and Indicators, Creating Array Constants, Array Inputs/Outputs, Creating Clusters, Creating Cluster Constants, Cluster Functions, Cluster order by Rahul. The difference between clusters and arrays is that a particular cluster has a fixed size, where a particular array can vary in size. Also, a cluster can contain mixed data types, but an array can contain only one data type. You can use a “for loop” to create an array. The following show a 10-element array created by a for loop. Create a 2-dimensional array with 10x2 elements as shown in the following figure. You need using 2 “For loops” and a Random function to create these data. Using a 2-dimentional array indicator to shown the result. Be noted that the array created must have two columns and 10 rows.

There are many built-in function can be used to handle arrays. They are located at Functions>programming>Array

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Array size: This function returns the number of elements in the input array. • Initialize Array: This function creates an n-dimensional array with the value you specify, and all elements have the same value. • Build Array: This function combines multiple arrays or adds extra elements to an array. Scalars and arrays can be the inputs. • Index Array: This function access an element of an array.



Express functions:

Write to measurement, Read from measurement, Simulate signal, Aquire signals, Spectral, Filters, Digital signal processing basics by Devendra. xpress provides methods to specify what function is called for a particular HTTP verb (GET , POST , SET , etc.) and URL pattern ("Route"), and methods to specify what template ("view") engine is used, where template files are located, and what template to use to render a response.

Assignments

Simple programming questions will be given and any doubts regarding the software basics will be cleared.

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Experiment demo:

Free vibration test was demonstrated to students by sandesh.



Head, Department of Aeronautical Engineering honored the PhD research scholar (NIT –surathkal) for sharing their experience in virtual lab view runtime software and its experimental demonstration in the field of structures.

Demonstration of MAT LAB coding was carried out in the simulation lab. All the 4 th semester students of aero attended the session and carried out the simulation experiments using for loop conditions.

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Hands on experience were done in the aircraft structures laboratory for the students with four batches. Data acquisition was done by the participants and the signal conditioning and processing for acquired data. Three cantilever experiments including free vibration, Piezo actuated vibration, and Rotating unbalance were demonstrated.

Outcome of the sessions: The outcomes of the sessions are as below:

1. Students were able to understand and demonstrate practically the simulations for vibrating objects using virtual instruments.
2. Two days on virtual instrumentation of vibration analysis program made the students to practically demonstrate different simulations and how to write program for the carried out simulations. Overall the program gave insights about the different virtual instruments used in engineering for the prediction of data.
3. Virtual labs were accessed by the students from the NITK, Surathkal website. All students carried out the simulations for the dynamics and machinery lab experiments. Acquire knowledge in virtual lab.

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Sl. No.	Date	Event Type	Name of the Industry/ Organisation
09	01/07/2022	Industrial Visit	Indian Space Research Organization (ISRO), Bangalore

VI semester student have visited U R Rao Satellite Centre (URSC), bangalore the leading centre of ISRO which is engaged in mastering the basic technologies and skills required for the specialized task of satellite building. Since the early 90's a host of contemporary and advanced communication, meteorological, remote sensing, navigation and space science were built and launched. The communication, meteorological, remote sensing and navigation satellites launched by URSC have continued to serve the key sectors of the Indian economy like communication, agriculture, water resources, urban planning, Land use, Fisheries, Oceanography, Weather forecasting, Disaster management, Search and Rescue and Navigation. The students are also exposed to Space science missions like Chandrayaan-1, Mars Orbiter Mission and Astronaut have received World Wide acclaim and put India in the global map while at the same time inspiring the Gen next. More than 100 state-of-the-art satellites built over four decades by URSC, the abode of Indian satellites, stand testimony to the technical excellence the centre has scaled. With about 2500 highly trained and skilled manpower, URSC today is home to a host of advanced, cutting edge satellite technologies that feeds into the Indian Space Program. The students also got opportunities to visit the centre which houses ultra modern design, development, fabrication and testing facilities for satellites.



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Sl. No.	Date	Event Type	Name of the Industry/ Organisation
10	01/07/2022	Industrial Visit	HAL Heritage Centre, Bangalore

VI semester student have also visited the HAL Heritage Centre & Aerospace Museum, Bangalore, a virtual wonderland for Aviation enthusiasts and history buff, an unforgettable experience that is entertaining & enlightens at the same time and is sprawled over 4 acres of lush green land. There are two major halls, one displaying the photographs that chart the growth of aviation in each decade from 1940 till date and a Hall of Fame that educate the student on an exciting journey through the Heritage of Aerospace & Aviation Industry in India. The second Hall highlights the various functions of an Aero Engine by displaying motorized cross sections of various models of Aero Engines. Real Engines such as Garret (for Dornier Aircraft), Adour (for Jaguar Aircraft) and Orpheus (for Kiran Aircraft) can be seen here along with Ejection Seat with Parachute; and Pushpak & Basant Aircraft. Outdoor display of Aircraft such as MARUT, MIG-21, HT-2, KIRAN, CANBERRA, AJEET, LAKSHYA (Pilotless Target Aircraft) & many more, will excite aerospace lovers of all ages - kids, students and adults. A Unique exhibit is the ATC Radar parched with L Band surveillance Radar having a range of 200 nautical miles which rotates at speed of 3-4 RPM, with the frequency of 1250-1350 MHZ and Meteorological Radar. In addition, PSLV model & PSLV Heat shield are displayed to give a glimpse of forays made by the country in space technology. For the academically inclined, a Library on Aerospace provides opportunity to trace the exciting development of the industry since the 1940s. While the Museums' prized possessions include various types of Aircraft models on static display, the availability of Audio-Video facility and display of transslides enhances the experience immeasurably. Taking ones experience a notch above are the true-motion simulators that puts oneself in the pilot's seat, offering a thrilling ride. It is students of all ages can explore and imagine what it would be like to soar through the skies and have realistic feel of flying fighter jets & commerical aircraft. A sustainability park displays working models of solar power systems, biogas plant and hybrid windmills to educate visitors and students on alternate energy sources which help conserve natural resources and preserve the environment.

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Sl. No.	Date	Event Type	Name of the Industry/ Organization
11	02/7/2022	Industrial Visit	Government Flying Training School , Bangalore

GFTS is a world-class professional aviation flight training facility catering to all levels of pilot training. While it's true that flying brings with it unrivalled excitement and adventure, piloting an Aircraft remains a highly skilled and precise discipline. Here students are exposed to flying school which was set up at Jakkur, Bangalore, during 1950 and is one of the oldest flying schools in the country. The state-owned flying training school offers tenured programs leading to issue of Commercial Pilot License (CPL) and Private Pilot License (PPL) for aspiring candidates. GFTS is spread over an area of 214 acres which include facilities for flight training ("Training School"), area leased to private parties for hangars and maintenance activities and other common facilities (airstrip, fuel station etc.).

The list of facilities at the Training School are as follows:

1. Aircrafts: 02 Cessna 152 & 02 Cessna 172.
2. Simulator: Elite S812 Single engine
3. Aircraft Maintenance Section (with tooling equipment)
4. Hangar-cum-Store Room for the Training School
5. Administrative Building
6. One Directors Chamber/Conference Hall
7. Director's office with CCTV monitoring system
8. One Class Room with projection and internet facility
9. Fight briefing/section room
10. Guard Room
11. Library
12. First Aid Room
13. Rest Room for Trainees
14. Crash tender vehicle
15. Two Light Vehicles

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