

MITE



Invent Solutions

MANGALORE INSTITUTE OF TECHNOLOGY AND ENGINEERING

# ALTITUDES<sub>4.0</sub>

DEPARTMENTAL MAGAZINE

2020 | FEBRUARY ISSUE



Man must rise above the Earth  
- to the top of the atmosphere  
and beyond for only thus  
will he fully understand the  
world in which he lives.”  
-Socrates

DEPT OF  
AERONAUTICAL  
ENGINEERING



# DEPARTMENT OF AERONAUTICAL ENGINEERING

## *VISION*

To be recognized as an innovative leader in Aeronautical Engineering through excellence in education by imparting the values of Research and Development in the upcoming fields of Aeronautics.

## *MISSION*

The Department imparts the technical knowledge, practical skills, entrepreneurial skill to students and the channelized guiding in the varied activities with the aim of transforming the graduates into able engineers of tomorrow.

To develop each student with an ability and passion to learn, and effective implementation with a strong foundation in skills that are relevant to the challenging world.

To provide students with strong concepts of their core subjects and an application-oriented overview in their stipulated courses

## Message from the Head of the Department



It gives me great joy to present the Fourth issue of “ALTITUDES”. This internal newsletter is one of the ways in which we can broadcast information on the life of the Department of Aeronautical Engineering. The Department had a successful year with various activities organised by the students and the faculty with respect to academics, co-curricular, extra-curricular as well as research & development. I would like to thank and congratulate all my staff and students for their tireless effort in taking the initiative and bringing out this news letter.

**Dr. G Purushotham**

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# DEPARTMENTAL ACTIVITIES

## ORIENTATION COURSE IN AEROSPACE & DEFENCE DOMAIN



**Talk by Dr. Badari Narayana on  
Orientation and foundation course of  
Aerospace and Defense domain.**

**(Below) Lab Session on 3-D Experience by  
Mr. Chetan Rao S**



**A** 3-day workshop was organized by the Department on Orientation Course in Aerospace and Defense Domain. The workshop held by the Centre of Excellence in Aerospace and Defense was inaugurated on 11<sup>th</sup> of April, 2019 and was held till the 13<sup>th</sup> of April, 2019.

The event started with a formal function presided by Dr. G L Easwara Prasad, Principal of MITE and Dr. G Purushotham, Head of the Department, Aeronautical Engineering. The workshop witnessed an esteemed line of faculty Dr. K Badari Narayana, Mr. P Ramesh Kumar, Mr. H R Sudarshan Prasad, Mr. Chethan Rao S, Mr. Debashish and Mr. Deepak Kumar from the VTU Centre of Excellence.

The first day of the workshop kick-started by a technical session on Aerodynamics, Structures and Aircraft Materials presented by Dr. K Badri Narayanan followed by an immersive 3D session on the design life cycle of aircraft.

The 3-day workshop included theory sessions by industry experts on Aerodynamics, Flight Mechanics, Aerostructures, Materials, Manufacturing, Aircraft Systems, Avionics and Electrical Systems. It also covered Laboratory Sessions on Popular 3D Experience Platform, Detail Design, Simulation using Abaqus, Model-based Systems Engineering and Digital Manufacturing by Dassault Systems.

# FRESHERS' BRANCH ENTRY



**A**eronautical Union of Rising Aviators (AURA) has set a benchmark in the college by organizing events imparting great knowledge and aspiration. Entering into the new academic year of 2019-20, AURA held the pride of inviting the Freshers of the year into the department by organizing a formal function followed by an informal function in the name of the Branch Entry on September 5<sup>th</sup> of 2019.

The preliminary inaugural function featured the welcoming of the guests by Mr. Ajith Kumar, AURA Faculty Coordinator which then lead to Dr. Divakar Shetty, Dean Academics, MITE addressing the gathering. The main highlight of the event was the technical talk by Dr. Kishore Brahma who is a former scientist at National Aerospace Laboratory (NAL) and consultant at P3 Consulting Private Limited, Bengaluru. Dr. Kishore Brahma, delivered a technical talk on Product life cycle Management, Design Philosophies and Career Opportunities in Aeronautical Engineering. He spoke in length about the various career opportunities for an Aeronautical

graduate introducing opportunities in the public, private and government sector.

Speaking to the students, Dr. Brahma said, one can achieve heights with perseverance, determination and dedication. Aeronautical Engineering is a branch that neither has boundaries nor restrictions; a branch so broad that it can be linked to any domain. The talk stressed on quality and planning required by Aeronautical engineers to be industry ready. He also threw light on the entrepreneurial ventures one can take up. He said, for start-ups, the mission, team, idea, planning, location, marketing and competition should be kept in mind. After a great session from Dr. Kishore Brahma, various questions about the future and advancements of Aeronautical Engineering was answered.

Along with the motivational talk, a small function was held to thank the faculties of AURA on the occasion of Teachers day. The day came to an end by showcasing the talents of the students during the informal function.





C- Charlie

# VAYUYANA 3.0

## RC AEROMODELLING WORKSHOP



**L**ike every other time, bringing glory to the department, Team Aireino has spread its wings majestically all over the college. Bringing up the third edition of the proclaimed RC Modelling workshop, Team AIREINO kept the doors open to all the departments of the college on 30<sup>th</sup> September, 2019 which ended on 1<sup>st</sup> October, 2019. The event was graced by the presence of Mr. Srinath, Asst. Professor, Dayananda Sagar University, the Chief Guest for the day, Dr. Divakar Shetty, Dean Academics, Mr. Adarsh Krishnamurthy, Club Coordinator, faculty and the participants.

Mr. Srinath R, former Asst. Professor at MITE quoted that confidence and determination are the keys to success. The Dean of Academics stressed on the fact how students should be practically oriented and should gain knowledge in various other domains by being part of the different clubs. AIREINO Captain, Mr. Arpith Jain briefed the participants about AIREINO and its achievements over the years. Vayuyana v1.0 was held in 2017 and the 2nd version in 2018 where a total of 12 teams participated. This time, around 20 teams participated with a total of 180 participants. During the workshop, the participants were explained about the concepts of aerodynamics, propulsion, stability and control, and also taught how the planes are designed. The workshop ended by each team being given a chance to fly their respective planes.

# IGNITING THE NEW DAWN



**Members of the TEDxMITE 2019 Organising committee (from right) Mr. Dacklen Sundeep D'Souza (Curator), Mr. Clavin Anton Rodrigues (Production & Design Head), Taking leadership to the next level, Mr. Rahul Balimane (TEDxMITE Licensee & Organizer), Ms. Arpitha Holla (Creative Head), Ms. Savi Shetty (Curator), Mr. Arpith (Technical Team Head), Mr. Aditya (Guest Relations Team) and Mr. Ashwatharama (Finance) from the Department of Aeronautical Engineering helped in the pavement of way to the grand success of TEDxMITE 2019.**

**C**onceptualize. Conceive. Conquer. The culmination of these words marked the beginning of a road of possibilities to stage a remarkable event on 23<sup>rd</sup> February, 2019. With over 300 people in attendance TEDxMITE 2019 was the sequel to an existing standard that the college was proud to host in the year 2016. Improving on quality while keeping the fruits of year's past intact, it was a delight for a team of around 30 students to organize and manage an event of international grandeur. The idea of TEDxMITE was to band together a lineup of speakers who have channeled innovation and creativity in their walks of life. With a preparation period of almost a year and teams dedicated to bolster the Curation, Design & creative wing, Guest relations alongside Event managers, Stage committee, Transportation committee, Marketing & sponsorship committee and the impressive Technical support team, the synergy within the organization was quality.

The team managed to rope in an amazing lineup of speakers which included the likes of Blockchain practitioner Mr. Deepak Lalan, Entrepreneur Mr. Mohammed Sameer, Award winning Bollywood playback singer Mr. Ami Mishra, Stand-up comedian Mr. Manoj Prabhakar, Founder of Servify Mr. Sreevastha Prabhakar, Cartoonist Mr. Satish Acharya, dance choreographer Mr. Kiran Jopale, photographer Mr. Arun Hegden, and HR professional Mr. Manesh Kumar. Across the two segments; The New Dawn and Ignited, these individuals inspired the audience to learn and aspire for a new height. On the day of the event, after paying homage to traditions by lighting the lamp by our Chairman, Mr. Rajesh Chowta alongside the auspicious speakers, the first segment of the morning kickstarted with an innovative take on Blockchain by Mr. Deepak Lalan. Followed by others, this segment concluded with a ravishing performance by Mr. Ami Mishra before dispersing for lunch. The afternoon segment, Ignited, saw the likes of Mr. Sreevastha Prabhakar, Mr. Arun Hegden and Mr. Satish Acharya enticing the audience on their personal stories that 'ignited' a new path in life for them. The segment had some quality performances starting with a hilarious standup gig by Mr. Manoj Prabhakar and a dance routine by 13.13 Dance crew. Each speaker was honored with a memento of recognition by the college marking their presence for TEDxMITE and for their outstanding service.

TEDxMITE 2019 was a delight to everyone in attendance and the fruit of labour of the organizing team. The event wouldn't have been a thorough success if not for our Chairman and faculty in-charge Mr. Glenson Toney.

With TEDxMITE we pioneered the way people educate themselves about the latest happening around the globe, giving the audience a chance to dive into an array of fields and discuss about the different disciplines the world has to offer under a single roof. It was an opportunity to share with the community on an intellectual level and influence their thoughts.

**- Ashil Sam, Curator & Emcee, TEDxMITE 2019**

# TECHNICAL TALKS

## “TO THE MOON AND NEVER BACK!”

On 28<sup>th</sup> September 2019, a technical talk was held for the students of Aeronautical Engineering by Prof. E. Janardana Rao, retired ISRO scientist. The event was graced by the presence of Dr. G Purushotham, Head of the Department, Dr. Divakar Shetty, Dean Academics, faculties and students. The talk began with the “History of ISRO” followed by “A Review of Chandrayan Missions”. It continued with the speaker narrating about the detailed working of the satellites and their functions. He also briefed the students about the different Indian Space Programs; specially Mangalayaana and Chandrayan 2. The programme ended on a high note as he gave the information about the future planned missions of India in the space industry. The interactive session left an impact on the students as they were influenced by the various oddities of the industry.



## “SMALL IDEAS CAN BE BIG!”



A Talk on **START A START UP** was delivered by Mr. Sunil Kumar B U Founder and CEO, DEFAIR Integrations on 14-09-2019. Mr. Sunil Kumar B U emphasized on how to begin with an idea and to succeed as a start up entrepreneurs. He mentioned that DEFAIR is the first company in India who brought up with a virtual manufacturing facility to facilitate & attract the global companies to work with them for launching their products in India at very low manufacturing set up cost & provide end to end solution architect including TOT transfer, manufacturing, distribution, warehouse management & CRM. He gave a detailed deliberation on starting with an idea to marketing of the product. He also motivated students to start with a small capital for a start up and mentioned about the joy of learning as an entrepreneur.

## F- Foxtrot

**“THE ANSWER IS OUT THERE AND IT’S LOOKING FOR YOU!”**



The NSSC Space Quiz was organised on October 3<sup>rd</sup>, 2019 under the membership of NSSC Student Ambassador, Mr. Manish Salian who began the event with a brief introduction about NSSC. The quiz had multiple rounds comprising of multiple choices, problem statement analysis, visual round, audio round and a quiz based on various movies related to Space. A team of 3 from the Department of Electronics and Communication Engineering won the quiz.

**“THE NEW DIGITAL SOLUTION AS ROBOTS ARE AT YOUR SERVICE!”**



Students from Aeronautical Department attended a workshop on **Robotic Process Automation – RPA**, by Mr. Raghavendra Ganiga, Founder & CEO, Mobiezy and Dinesh, CFO, Mobiezy, Mobiezy on 18<sup>th</sup> October 2019.

**“IF OPPORTUNITY DOESN’T KNOCK, BUILD A DOOR!”**



Students from the Department of Aeronautical Engineering, participated in CAT-GRE Preparation organized by Career Guidance Cell on 24<sup>th</sup> October 2019.

# INDUSTRIAL VISITS

G- Golf



**Bharati Defence and Infrastructure Limited (formerly known as Bharati Shipyard Limited)** was incorporated on June 22, 1976. It has state of the art shipbuilding and fabrication facilities in, Dabhol, Ratnagiri, Goa, Mangalore, Chennai and Kolkata. Company's IPO in 2004 was oversubscribed 78 times.

BDIL's product portfolio evolved from small-sized vessels and tugs to sophisticated offshore vessels like Platform Support Vessels (PSVs), Anchor Handling Support Vessels (AHTSVs), Offshore Support Vessels (OSVs), jack-up rigs; midsize LNG propelled vessels and smaller defence vessels. It is also engaged in the business of design and construction of various types of sea going, coastal, harbour, inland crafts and vessels. A team of 55 students visited the industry along with 3 faculties. The students gained knowledge about building cargo, cruise and defense ships.



## JBF Industries Ltd



**JBF Industries Ltd.** stands on a gleaming pinnacle of success as an industry leader in the Polyester Industry value chain today. Established in 1982, JBF Industries was founded by Mr. Bhagirath Arya as a Yarn Texturizing company, and since then has backward integrated into manufacturing Partially Oriented Yarn (POY), Polyester (BOPET) Film and also various types of Bottle grade, Film grade and Textile grade Polyester chips. JBF became a public limited company in the year 1986. 56 students participated in this visit and gained knowledge on a sustainable future.

# INTERNSHIPS



**BANGALORE AIRCRAFT INDUSTRIAL PVT. LTD.:** Three of the students were interns at Aircraft industry private limited for a period of 1 month and were given knowledge in the structural analysis field how the aircraft manufacture takes place first is that how design place an important roll so we were made us to learn Nastran patron software for analysis purposes for 1d 2d beams ,stiffen panels, cut with the hole section then they thought us that how stress and strain of the material will effect the aircraft during the flight in software and experimentally in UTM machine and failure of the material taking place and also exposed preparation of composite material and how the riveting on the skin panel is done and also how it may result in failure of an aircraft were made to learn our complete experiment is one structural field. **Students Participated:** Vishalakshi ,Vijetha, T D Teeshma



wings and empennage, Boeing 777X uplock box, GE compressor casing etc. During the one month internship period, students gained a lot of knowledge in the field of Aerospace manufacturing, Quality and Assembly. **Students Participated:** Kavitha K, Madhurima L, Dane Hubert, Rahul S, Sanjav M V, Clavin Wilton, Stanvil D, Sanajana Tulaskar

**GOVERNMENT FLYING TRAINING SCHOOL:** Sixteen students gained valuable knowledge by working on various light aircrafts and were trained by experienced industry professionals. The training included the maintenance of Cessna 172s, Cessna 172p, Tecnam P2010, Hansa-3, J3 Piper Cub and also on Runway Maintenance, Marshalling Techniques and Air Traffic Control procedures. **Students Participated:** Arpith Jain, Clavin Anton Rodrigues, Savi Shetty, Dacklen Dsouza, Ashwatharama P, Manish S, Pooja N, Glenn Dsouza, K S Nirahankar, Keerthi Nandan, Kumar Arvind, Darshan Chavan, Dharshan S R, Prajwal Raj, Madhusudhan C, Akshay Kumar



## **AIR INDIA ENGINEERING SERVICES LTD, TRIVANDRUM:**

The 4 week internship program dealt with both the internal and external features of Boeing 737-800NG. Through the different theoretical and practical sessions, they were able to gain a good knowledge on the different components, working, material used,

technical knowledge, problem solving ability and what all are the scope of this field. I was given enough knowledge about the different systems in the aircraft and its working conditions structural components and its maintenance and testing. The supervision and guidance were given by expert faculties and all the necessary doubts were cleared, which made the internship program worthy. Hands on experience in Component Overhaul Division, Base maintenance, and the Tyre section was key part of the internship session which has helped in developing and cultivating practical skills in these distinct sections. All the sessions were taken seriously and explained by the respective department heads along with the necessary theoretical knowledge.

**Students Participated:** Ashwanth Dhanish, Goutham V V, Arpitha Holla, Sharanya R, Ankitha D



**SEINE AEROSPACE PRODUCT DESIGN:** The internship included a detailed study and design of UAV and drones and also the basics of CATIA V5 Software. We got hands-on- experience in the design, materials used, related calculations on drone. At last, we had a great time working with the senior employees of the company and thus gained enough knowledge to carry out in our final year projects. **Student Participated:** Sonu N, Tejaswini D, Soundarya J



**HAL- HELICOPTER DIVISION, BANGALORE:** In companies, we learn about the Culture, working procedure, structure of a company, processes that's followed to produce a single unit, multiple, minute, large units, production system, hangars, assembly spread outs, management, applications, tools, hardware & Software's used, benefits, usage, periodicity, health checks etc of the products

manufacturing/ managed in the industry. HAL Internship opportunity helped me to know more about the projects in helicopter field, technologies used. Knowledge on types of helicopters used in Army, Navy, Airforce & Civilian with their present and future developments. Glimpse on current & future Research & Developments projects by HAL. **Students Participated:** Priyanka Lokesh

**VTU CENTRE OF EXCELLENCE IN AEROSPACE & DEFENSE:** The Centre of Excellence in Aerospace & Defence (CEAD), located at VTU, Regional Centre Bengaluru, Nagarbhavi, Bengaluru, trains graduates and post-graduate engineering students on Aircraft and Aerospace Technologies. The VTU has joined hands with Govt. of Karnataka, KBITS and with Dassault Systems to provide an opportunity to students to excel in Aerospace design and Development by providing necessary skills. **Students Participated:** Muhammad Raafid, Sohan B, Sayed Naushan Ali



**INDIAN ROBO STORE, DELHI:** Indian Robo Store in Delhi, manufactures and sells Drones and Robotic Electronics. It is an authorised dealer of well-known international drone peripheral manufacturers. I was working as a fixed wing developer and pilot. Since it was a drone company I had good exposure about drones, thermal cameras and composite materials. **Students Participated:** M Rohan Daniel



**SOUTH WESTERN RAILWAY:** The experience of working in SWR HHP Diesel loco shed, Hubballi is amazing and we acquire knowledge of industry working and how planning, preparation, meets the customer needs. This internship helped me think differently in industry point of view. In the internship we learnt about how to overcome the horsepower losses in the engine.

**Students Participated:** Poornachandra S, Syed Shoeab, Abdul Rehman



**KNORR BREMSE SYSTEMS FOR COMMERCIAL VEHICLES INDIA PVT. LTD.:**

During my one month internship at Knorr-Bremse Systems for Commercial Vehicles Systems Pvt. Ltd. Pune, India, I gained knowledge on the various assembly procedures of air compressors, wheel speed sensors, valves such as pressure limiting valve, quick release valve, 3/2 solenoid valve, lift axle control valve, and relay valve, actuators such as brake chamber and spring brake actuator. I also understood their working principles, functions, and applications in the industry. The internship has given me a good hold on speed sensors, compressors, valves and actuators, and at the same time ability to predict or overcome any problems while at it. I was fortunate to have done my internship at KBI-CVS, an internationally recognized company and a leading manufacturer of braking systems, and had a great learning experience. **Students Participated:** Queena Menezes



**VISHNU FORGE INDUSTRIES LTD:** Three students were interns at Vishnu Forge Industries Ltd located in Bangalore. They had the opportunity to closely work as a part of forging and heat treatment team. During the first week of internship, a study on the industry's marketing, planning department, production department, quality control, assurance department and raw material department. During the second week, they were introduced to different types of material testing equipments available at the industry and testing facility available at the department. In the third week of the internship, they were made to study about heat treatment and it's classification, stages carried out during the heat treatment process. And in the last week,

they worked on forging and different types of forging carried out at the industry. **Students Participated:** Manoj, R Rithick

**VOLVO GROUP INDIA PRIVATE LIMITED, BANGALORE:**

**Students Participated:** Rakshith T M

**CANARA SPRINGS:**

**Students Participated:** Mithul Das

# STUDENTS' ACHIEVEMENTS

## UNIVERSITY'S FINEST

Congratulations to our Rank Holders on receiving their honours during the 19<sup>th</sup> Annual Convocation of Visvesvaraya Technological University, Belagavi held on Saturday, February 8, 2020



**2<sup>nd</sup> Rank**  
**VISHNU**  
**CHANDROTH**



**10<sup>th</sup> Rank**  
**SHWETHA S**

## CAPSTONES OF THE DEPARTMENT



**AJEYA K**  
**9.55 SGPA - 2<sup>nd</sup> Sem**



**YAJNESA G**  
**9.14 SGPA - 4<sup>th</sup> Sem**



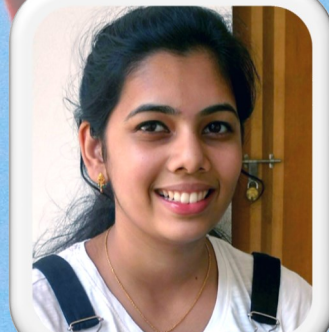
**CLAVIN SEQUEIRA**  
**8.88 SGPA - 6<sup>th</sup> Sem**



**CHAITRA M**  
**9.35 SGPA - 2<sup>nd</sup> Sem**



**SHERYA S**  
**8.83 SGPA - 4<sup>th</sup> Sem**



**MADHURIMA**  
**8.35 SGPA - 6<sup>th</sup> Sem**

| Name of the Students   | Event and University/ Organisation   |
|--|--|
| Apoorva B R<br>Gouri Pradeep Katti<br>Rashid Ahmed<br>Jere Riddhi Vishram<br>Shahid Farooq   | <b>2<sup>nd</sup> Place in “Launch Your Rocket”<br/>held at Chandigarh University</b>                                  |
| Aamna Aslam<br>Calvin Joseph Dsouza<br>Fayuna<br>Nihal Rajesh<br>Preethika Shifali   | <b>Participated in “Launch Your Rocket” held at<br/>Chandigarh University</b>  |
| Cdt. Kiran K   | <b>All INDIA VAYU SAINIK CAMP-2019, Jodhpur<br/>Rajasthan -Air Wing Cadet of Karnataka and Goa<br/>NCC Directorate</b> |
| Jayantha                      Adarsh T<br>Junaid M J                      Akshay K<br>Shreesha                      Nithya<br>Prachi S                      Yuktha<br>Kavyashree M                      Shreya | <b>2<sup>nd</sup> Place in HOVERPOD at the<br/>National Students’ Space Challenge, IIT Kharagpur<br/>by ISRO</b>       |
| Queena M                      Dacklen S<br>Ashwathrama                      Mithul Das<br>Glenn Shannon                      Arpith Jain   | <b>Participated in Wright Flight 2019<br/>RC Plane Competition</b>   |



## L- Lima



Team Aireino participated in various events held in International Institute of Aerospace Engineering and Management, Bangalore on 5<sup>th</sup> October, 2018. Two teams from Aireino participated in the 'PITCH AND ROLL' and 'WATER ROCKET' events in which they stood first in RC INNOVATION (PITCH AND ROLL), second and third in WATER ROCKETERY.

Government of India and the Ministry of Human Resource Development conducted the first Republic Day Camp of NSS Volunteers in 1988 at New Delhi. It provides ample opportunities to the NSS volunteers not only to interact among themselves but also to learn and know the tradition, custom, culture, language of one state to another. These volunteers become capable to present themselves in the better way and constitute a bond of patriotism, national integration, brotherhood. Madhukiran, a student from our department actively participated in this event and is moving forward with the motto of NSS here in MITE.



## SWACHH BHARAT MISSION



To accelerate the efforts to achieve universal sanitation coverage and to put focus on sanitation, the Prime Minister of India launched the Swachh Bharat Mission on 2nd October, 2019. As a part of Swachh Bharat Mission, students from the department of Aeronautical Engineering, MITE, have organized a cleaning program near Badaga Mijar area, Moodabidri. The students enthusiastically participated by picking the plastic waste and collecting for the disposal.

# FACULTY ACHIEVEMENTS

| Journal Paper   | Journal/ Conference  | Name of the faculty      |
|---|--|--------------------------|
| <b>“Effect of SiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> on mechanical properties of ASTM A 494 M Grade Nickel alloy hybrid metal matrix composites”</b> | Journal of Mechanical Engineering Research & Developments, Vol.No.04, Issue 42, April 2019, PP 231-233, ISSN:1024-1752                               | <b>Dr. G.Purushotham</b> |
| <b>'A Comparative Study of Signal Processing Techniques for the Diagnosis of Fault in Belt Drives'</b>  | Global Conference on Advanced Smart & Sustainable Technologies in Engineering held at Mangalore Institute of Technology & Engineering , Moodabidri   | <b>Mr. Sujesh Kumar</b>  |
| <b>“Design And Analysis Of Five Probe Flow Analyser For Subsonic And Supersonic Wind Tunnel Calibration”</b>  | IOP Conference Series: Materials Science and Engineering , Vol.No.01, Issue 715, January 2020, PP 1-7, ISSN 1757-899X.                               | <b>Ms.Akhila Rupesh</b>  |
| <b>"Study Of free Vibration Characteristics of Hybrid Polymer Composites”</b>   | Global Conference on Advanced Smart and Sustainable Technologies in Engineering held at Mangalore Institute of Technology & Engineering , Moodabidri | <b>Mr.Ajith Kumar</b>    |
| <b>“ Experimental Investigation on Performance of Solar Air Heaters With Thermal Storage”</b>   | International Journal of Renewable Energy and Its Commercialization in 2019  |                          |

## N- November

| Name of the Course/ Workshop  | Name of the Organization   | Name of the faculty       |
|---|--|---------------------------|
| “Impact of Internet of Things (IOT) on the Future of Aerospace and Defense Sectors”                   | Acharya Institute Of Technology, Bengaluru   | Dr. G Purushotham         |
| “Orientation Course in Aerospace & Defence Domain”  | Mangalore Institute of Technology and Engineering, Moodabidri                              | Mr. Sujesh Kumar          |
| Virtual Labs  | NITK, Surathkal  |                           |
| VTU Sponsored FDP on '3D Printing' under TEQIP 1.3  | A J Institute of Engineering and Technology, Mangaluru                                     |                           |
| “Entrepreneurship For Academicians”   | SDM Institute of Technology, Ujire   |                           |
| “Introduction to Aerospace Engineering”   | NPTEL Course   | Mr. Praneeth H R          |
| “An Overview of Teaching Techniques in Finite Element Methods”  | VTU Human Resource Development Centre, Centre for PG Studies Muddenahalli, Chikkaballapur  |                           |
| “Impact of Internet of Things (IOT) on the Future of Aerospace and Defense Sectors”                   | Acharya Institute Of Technology, Bengaluru   | Mr. Shivaji Lamani        |
| “Impact of Internet of Things (IOT) on the Future of Aerospace and Defense Sectors”                   | Acharya Institute Of Technology, Bengaluru   | Mr. Adarsh Krishnamoorthy |
| “Applied Aerodynamics” under Quality Improvement Program of All India Council for Technical Education | Indian Institute of Science, Bangalore   | Ms. Akhila Rupesh         |
| “An Overview of Teaching Techniques in Finite Element Methods”  | VTU Human Resource Development Centre, Centre for PG Studies Muddenahalli , Chikkaballapur | Mr. Vishwaretha K R       |

# KLINE FOGLEMAN AIRFOIL

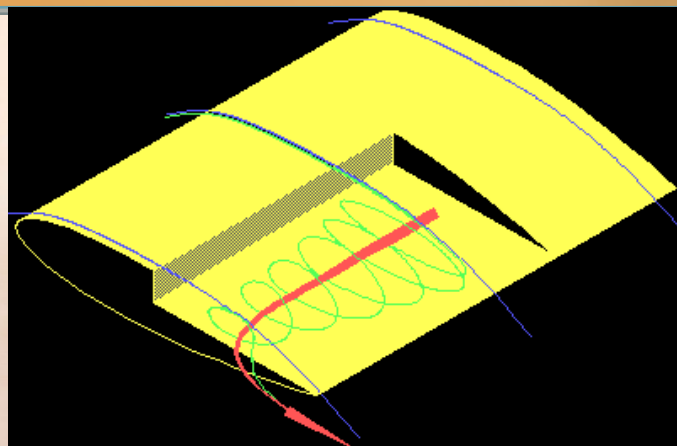
O- Oscar

It is evident that the wing is one of the most important parts of an aircraft. The ability of the wing to provide the lift to the aircraft solely depends on the airfoil design and its characteristics. In the recent pasts, there have been many kinds of researches and developments in the airfoil design of an aircraft which included the development of various kinds of high lift devices such as Kruger flaps, Gurney flaps and many more. One such development was made for the structure of the airfoil which included the omission of the back half of the same giving birth to a new type of airfoil – Kline Fogleman airfoil named after the inventors. In the modern days, The KF airfoil is widely used in UAVs and model aircraft due to its excellent performance at lower Reynold's number. The inventors filed for a patent in the 1960s which lasted for 20 years, after which, modifications were done to the airfoil giving rise to the development of modified KF airfoils – now known as KFm wings – which are much more efficient than their parent.

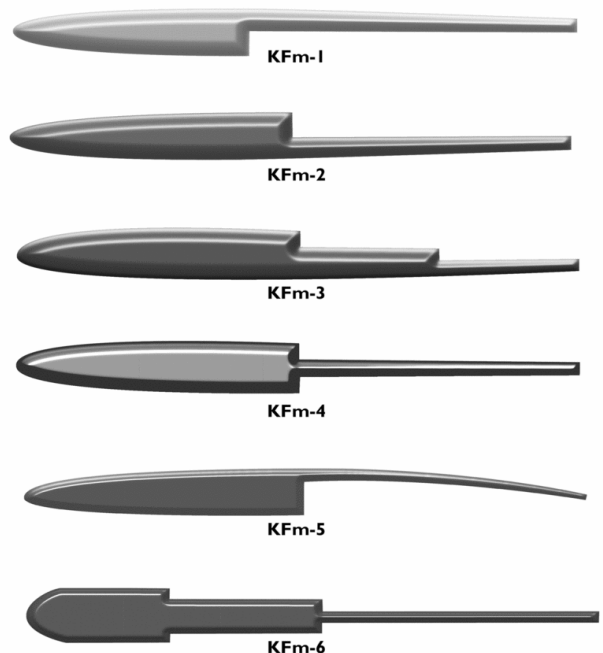
Journals and research papers show that a conventional airfoil & a KF or KFm airfoil have a great difference in their aerodynamic properties. Although some researches showed that KFm wings perform better for low Reynold's number, there are a few researches that show the degradation of the aerodynamic properties with increasing step in the KFm airfoil. The concept behind the Kline-Fogleman airfoil may be hard to understand because it is so different from present aerodynamics. The KF concept uses a vortex, which attaches itself to the KF airfoil behind the step and becomes part of the airfoil. This means that one-quarter of the KF airfoil is against air. This also means less friction and greater efficiency penetrating the air. It is important that the step be between 7% and 9% at 50% of the chord on top. When the step is on the bottom, the step should be at 40% of the chord. When the step is on top, it will produce higher lift than on the bottom, but the airfoil works well right side up or upside down. With the KFm4 airfoil, which has the step on the top and bottom, 50% of this airfoil is air against air, which means no direct friction or drag. As studied from the above papers and journals, it is seen that the KF airfoil handles a wide ranges of speed from very slow to very fast. Normal airfoils are designed to either generate a lot of lift in order to carry more weight, which means they must be thicker to produce more lift, or they need to be thinner in order to fly faster thus sacrificing lifting heavier loads. The KF airfoil can do both of these jobs extremely well. Also, the KF airfoil has a much greater range for its center of gravity (CG). A conventional airfoil would normally have a CG about 33% back. The KF airfoil can be moved back as much as 40%, thus allowing it to carry a heavier payload. The further back the center of gravity is the more desirable it is because of the center of balance. And, the KF airfoil can also handle a shifting CG and still give you good control authority.

All airfoils have their positives and their negatives, because each one is designed to do a specific job. Thus, a given airfoil can do certain things well, but do poorly in other areas. To date, nothing negative has appeared on the KF airfoil.

- Arpith Jain



## KFm Family of Airfoils



## FROM THE WRITER'S PEN

### ಮನಸು ಮಹಿಮ

ಉಳಿಯುತ್ತಿದೆ ಗೆಳತಿ

ಆ ನಿನ್ನ ಮುಖದ ನಗುವಿನ ಪ್ರತಿಕ್ರತಿ  
ದೂರವಾದರೆ ಈ ಒಡನಾಟದ ಪ್ರತಿಕ್ರತಿ  
ಉಳಿಯಬಲ್ಲದೆ ಈ ಕಾಯದ ನಿಜಸ್ಥಿತಿ

ಕಾಯುತಿದೆ ಈ ಹೃದಯ ನಿನಗಾಗಿ

ಅಡಿ ಇಡಬಹುದೇ ನೀ ಎನ್ನ ಮನದರಸಿಯಾಗಿ

ಬಾಳ ಪಯಣದಲ್ಲಿ ಸಾಗುವ ಜೊತೆಯಾಗಿ

ಇತಿಹಾಸದ ಸ್ವರ್ಣಾಕ್ಷರದ ಪುಟವಾಗಿ

ಕಡಿಯಲ್ಪಟ್ಟಿವೆ ಈ ಕಣ್ಣಿನ ಸೆಳೆವನಾರೆ,

ಎನ್ನ ಮನದಾನಂದವನು ಇಮ್ಮಡಿಗೊಳಿಸುವ ಈತನಾರೆ!?

ಬಾ ಎನ್ನ ಮನದ ಶೂರನೆ,

ಈ ವಿರಹವ ನಾ ತಡೆಯಲಾರೆ...

ಮನದ ಚಿಲುಪೆಯೇ ಕನಸಿನ ರಾಣಿ

ನಿನ್ನ ನಡೆ ನುಡಿ ಮಾತು ಜೇನಿನ ಸವಿ

ನಿನ್ನ ಕಾಣಲು ಬಂದೆನೇ

ಮಾತನಾಡದೆ ಮುಕನಾದೆನೇ...

- Madhukiran

ಗಿರಿಯ ಶಿರದ ಹಿಮದ ಮೇಲೆ ಮದನ ಮೋಹ...

ಅರ್ಥ ಸಿಗದ ಕನಸಿನೊಳಗೆ ನಲ್ಲ ನರ್ತನ...

ತುಸುವೇ ಮಾಯೆ ಮನಸಿನೊಳಗೆ ಕನಸೇ ನಿನ್ನ ನೋಡಿ...

ನಿನ್ನ ಭಾವ ಹೊಸದು ನಂಗೆ ಮೂಕ ಗಾನ ಹಾಡಿ...

ನಿನ್ನ ಸಣ್ಣ ಕಂಗಳೊಳಗೆ ನನ್ನ ಛಾಯೆ ಮೂಡಿ...

ಹೊಸ ಸಿಂಚನ ಎದೆಯೊಳಗೆ ಹಕ್ಕಿಯೊಂದು ಹಾಡಿ...

- Pramod M

### ಮಾತಾಡೋ ಬೊಂಬೆಗೆ

### ಮೌನದ ಉಡುಗೊರೆ

ಮಲ್ಲಿಗೆ ಮೊಗಕೆ ಮುಗುಳಂತ ಉಡುಗೊರೆ  
ಮಗುವಂತ ಮನಸಿಗೆ ನಗುವಂತ ಉಡುಗೊರೆ  
ಭಾವಕ್ಕೆ ಸಿಕ್ಕಲು ಬಂಧದ ಉಡುಗೊರೆ  
ಕಟ್ಟಿಯ ಹೊಡೆಯಿತು ಹರುಷದ ತೊರೆ

ಆತ್ಮಕ್ಕೆ ಸಿಕ್ಕಲು ಅಣುವಿನ ಉಡುಗೊರೆ

ಜೀವಕ್ಕೆ ಸಿಕ್ಕಿತು ಜನ್ಮದ ಉಡುಗೊರೆ

ಜನುಮ ದಿನದಂದು ದೊರೆತಂತಹ ಉಡುಗೊರೆ

ಮರೆಯಲಾರದ ಮಮತೆಯ ಹೊರೆ

ಮೊಲೆಹಾಲು ಸವಿಯುತ್ತಾ ಮಡಿಲಲ್ಲಾಡಿದಾ ಸುಖ ಮರಳಿ ಸಿಕ್ಕರೆ,

ಜಗದೊಳಗೆ ಆರಾದರು ಬೇಡೆನ್ನವರೆ!

ಹಾಲು ಮೊಗದಲ್ಲಿ ಶಶಿಯ ನಗುವಿನ ಉಡುಗೊರೆ

ಇತ್ತು ಚಿರವಾಗಿರಿಸು ಧರೆಯಾಳೋ ಶ್ರೀದೊರೆ!!!

- Manjushree

ಅವಳ ನೆನಪೊಳಗೆ ಕೆಮ್ಮಿ ಕಪ್ಪಾದಂತೆ, ಮೋಡದ ಮರೆಯ ಚಂದಿರ

ಸೊರಗಿ ಕಪ್ಪಲ್ಲಿ ನಶಿಸಿ ನಶಿಸಿ ತೀರಿದ... ಅದೇ ಅಮಾವಾಸ್ಯೆ.

ಮತ್ತೆ ಅವಳ ನಗೆಯ ಬೆಳ್ಳಿ ತಾರೆ ನೋಡುವ ಹೊಸ ಹುರುಪಿನೊಂದಿಗೆ

ಬಂದ... ಅದೇ ಹುಣ್ಣಿಮೆ...

ಸಾಗರ ಗೆಲೆಯನ ಸಂಗಡ ಚಾಡಿ ಹೇಳಲು ಪೂರ್ಣವಾಗಿ ಬಂದ...

ಸುದ್ದಿ ತಂದ ಚಂದಿರನ ಕಡೆ ಸಾಗರ ಅಲೆಯೆತ್ತರಿಸಿ, ಕಿವಿಗೊಟ್ಟು ಮಾತು

ಕೇಳಿ... ಹುಣ್ಣಿಮೆಯ ಅಲೆಯಲ್ಲಿ ಚಿರಾಡಿ ನಕ್ಕು.

- Pramod M

## -:ಕಾಲಯಾತಸ್ಮೈ ನಮಃ :-

ಕಾಲ ಉರಳಿತು,ಮಾತು ನಿಂತಿತು,  
ಎಲ್ಲವೂ ಕಾಲವೇ ನಿರ್ಧರಿಸುವಾಗ,  
ಹೇಳು ನೀ ಮಾನವ ನಿನ್ನಾ ಕೆಲಸವೇನು,  
ಮುರಿಯಬೇಕು ನೀನು ಮೌನ ಉಳಿಯಲು  
ಮಾನವೀಯತೆಯ ಧರ್ಮ.

ದ್ವೇಷ-ಅಸೂಯೆ ಬಂಡಿ ಏರಿ ಯಾಕೇ ನಡೆಯುವೇ,  
ಬರುವಾಗ ಏನು ತರರೂ ನಾವು ಹೋಗುವಾಗ ಏನು  
ಬರದೂ ಜೊತೆಗೇ,  
ಎಲ್ಲಾ ಇಲ್ಲೇ ಇರುವುದು ಎಲ್ಲಾ ಇಲ್ಲೇ ಉಳಿವುದು.

ಹಣದ ಅಮಲಿನಲ್ಲಿ ಬದುಕೋ ಬಾಳು ಏತಕೇ,  
ಮೋಸವೆಂಬ ಮಾಯ ಕುದುರೆ ಜೊತೆಗೆ ಏಕೆ  
ಓಡುವೇ,  
ಒಳಿತು ಮಾಡಲಾಗದ ವಿದ್ಯೆ-ಬುದ್ಧಿಯಿದ್ದರೆ ಏನು  
ಸುಖವಿದೆ,  
ಕಾಯ, ವಾಚ, ಮನಸ್ಸು ಶುದ್ಧೀನಿನ್ನಾದಾಗಲಿ,  
ಸಾಗು ನೀ ನಿಸ್ವಾರ್ಥಿಯಾಗಿ.

ಪರರ ಬಗೆಯ ಅರಿವ ತೊರೆದು ಅರಿಯಬೇಕು ನಿನ್ನೇ ನೀನು,  
ಬೆಳಕು ನೀಡೋ ಸೂರ್ಯ ಒಬ್ಬನೇ,  
ಕತ್ತಲು ಓಡಿಸುವ ಚಂದ್ರ ಒಬ್ಬನೇ,  
ಜೀವರಾಶಿ ಜೀವಿಸೋ ಭೂಮಿ ಒಂದೇ ಅಲ್ಲವೇ,  
ಯಾಕೇ ಬೇಕು ಜಾತಿ-ಧರ್ಮ ,ಭೇದ-ಭಾವ ನಮ್ಮಲ್ಲಿ.

-ಮಧುಸೂಧನ್ ಸಿ

ಮೀರಿದ ಮೌನಕ್ಕೆ...

ದಾರಿಯ ಆಸರೆ...

ಕಂಗಳ ನೋಟಕ್ಕೆ...

ಕಣ್ಣೀರೇ ಕೈ ಸೆರೆ...

ಚಲಿಸಿದೊಡನೆ ಬಳುವಳಿಯಾಗಿ.

ನಿನ್ನ ನೆನಪ ಮಾಯಾಜಾಲ...

ಅರಿವಿದ್ದು ಅರಿಯದಂತ.. ಮೌನ ತಾಣ ಬಾಣ...

ಎದೆಯೊಳು ಚುಚ್ಚಿ ರಕ್ತ ಪಿಪಾಸುಗಳ ಗೊಡುವೆಗೆ ಕಣ್ಣೀರೇ ಒಲವ

ಸಿಂಚನ...

ಕೆಂಪು ದ್ರವದ ಹರಿವಿಗೆ..

ಕಣ್ಣಿನಲ್ಲಿ ಉಪ್ಪಿನ ಸಾಂದ್ರತೆ.. ತುಸು ಹೆಚ್ಚಾಗಿ ಮೌನವೇ

ತಬ್ಬಿಬಾಬದಂತೆ...

ಆ ಒಲವಿಗೆ, ಆ ನೋವಿಗೆ ನಿನ್ನ ಹರೆಯ ಕಾರಣವಾ !!

ನಿನ್ನ ಒಲವ ಬಯಕೆಯೇ ನನ್ನ ಮೌನವ???

- Pramod M

ನಸುಕಿನ ನೈದಿಲೆಯೇ ನಾಚಿ..|

ಜಲದೊಳಡಗಿ....ನಿನ್ನ ನೋಡುವಂತೆ.....!

ಮಾಮರದ ಕೋಗಿಲೆ... ಎಲೆಗಳ ಮರೆಯಲ್ಲಿ ಕುಳಿತು... ನಿನ್ನ

ನೋಡಿ ಹಾಡುವಂತೆ...

ನೇಸರ ತನ್ನ ಜ್ವಾಲೆಯ ಅಡಗಿಸಿ ನಿನ್ನ ಕಣ್ಣು ತಂಪಿಗೆ ಸೋತಂತೆ....!

ಪ್ರಕೃತಿಯ ಬೆಡಗು ನೀನು...

ನಿನ್ನ ಹೃದಯಕ್ಕೆ ಹೊಸ ಇಂಚು ನೀಡಿದ ಹೊಸ ಖುಷಿಯೂ

ನೀನು...☺

- Pramod M

**"Just call my name and I'm completely yours", he said.**

It is 9:12pm.

I was with you from 2:10pm to 7:09 pm today.

At around 6:43 pm, staring dead right into your eyes, I started murmuring a few scared words under my breath. Sipping your coffee, you lean forward, trying to understand but in vain.

After holding your hands and stealing kisses for the past 45 minutes, I was completely out of my mind and now, as I sit across the table and gaze at you, I could clearly see you turning into a beautiful painting.

'I saw your eyebrows turn into creepers bearing wild flowers. Your eyeballs reflected a sky full of stars, and tiny beautiful golden fireflies made their way out leaving behind tracks of those small veins on the white part of your eyes.

I could see angel children sliding down your oily nose, with screams of joy and happiness. The small mark on your forehead, with the slightest of scratch could open up to a blast of pixie dust.

I noticed how you had shallow dimples that appeared on your left cheek when you give the heart melting smiles. The mole on the left of your mouth, somehow was perfectly placed right in the middle of your dimple. As my eyes lingered on them, I realised how it resembled nothing but the black hole, savouring in all my love for you.'

These are those exact words I could not give voice to.

It is 9:33 pm now, and I am being devoured by that black hole. Just before I lose my voice and my time completely, I wanted you to know that your name is all I can scream!

**- Savi Shetty**

## CAN I?

What if just close my eyes and let it go  
What if I just unclasp my hand and let it flow  
Would it hurt more than what it does now  
Can I just go to sleep and never wake up  
Or wouldn't it be nice if I didn't exist at all  
Would it be painful if I just give up and fall  
Can I just write a mail to life with a subject 'I resign'  
Can I stop answering those relentlessly fake 'how are you?' with a 'I'm fine'  
Can I tell my friends that I may not be back for a while  
Can I just take a deep breath in and never breath out again  
Can I fade a little everyday until I'm no longer an entity  
Can I just, just for once taste death be done for eternity.

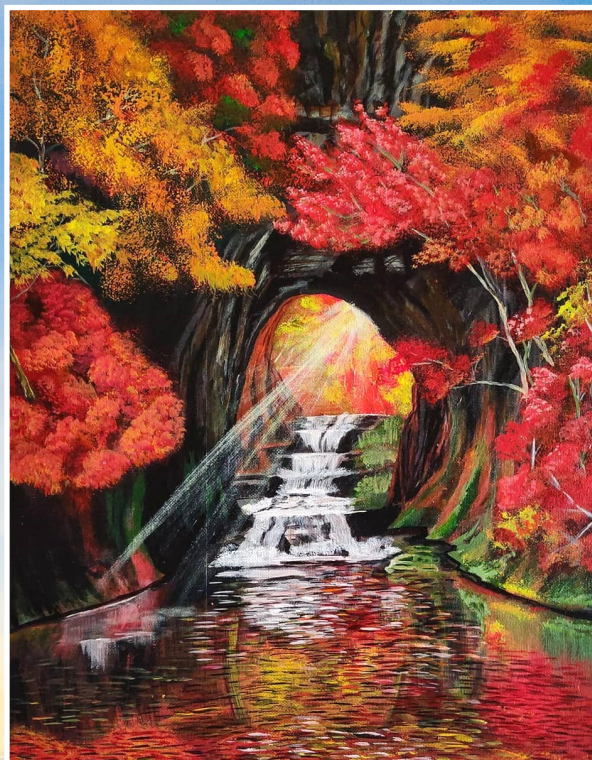
**- Dacklen Sundeep D'Souza**

# artsy aviators

S- Sierra



Paintings by  
Arpitha Holla



Paintings by  
Ajeya K

Did you notice the page numbers of this edition have been replaced with Phonetic Names. These names assigned to individual alphabets avoid confusion and provide better communication with the Air Traffic Control.

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whether you can fly, you seize  
forever to be able to do it!*

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