

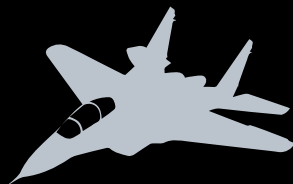
2022 ISSUE

EMPYREAN

M M X X I I



CONFIDENCE AND COMPETENCE





*" Once you have tasted flight, you will forever
walk the earth with your eyes turned skyward, for
there you have been, and there you will always
long to return"*

~ Leonardo Da Vinci

MESSAGE FROM THE HEAD OF THE DEPARTMENT

~Dr. G.Purushotham

I am immensely pleased to provide my message to the Departmental Newsletter EMPYREAN MMXXII that the department is bringing out in 2022. The department is having the intake of 60 bunch of students each year and across 4 years of their engineering program they make an immense strength in the college. The presence of these students is found in every activity or events, be it academic or extracurricular or cultural or sports that take place in the college, intercollegiate or in the VTU levels.

Their strength in every sphere is moulded by a strong team of highly qualified and dedicated faculty and a department that has all the facilities for the all-round development of the students that renders them to accept responsibilities and carry out them successfully. Having such wonderful students is a pride to the college and when they do so many good things, we need to have a predecessor to talk about their achievements to the world.

In view of this it is essential to bring out a newsletter and I am happy that it is happening; we all welcome whole heartedly the effort towards this. Let this newsletter and series of such letters shall keep us all continuously informed about all the developments of the department in the years to come. I wish all the staff and students of the department for having taken the best initiatives in bringing out this Newsletter. I wish the staff and students of the department the best.

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**INDEGENOUS
DEVELOPMENT OF UAV**

ABOUT THE DEPARTMENT

The Department of Aeronautical Engineering was established in the Academic Year 2019–20 as the fifth department of the Gopalan College of Engineering and Management, Bangalore which is approved by AICTE, affiliated to VTU, recognized by UGC and Govt. of Karnataka, and accredited to NAAC. The department offers undergraduate course in Aeronautical Engineering with an intake of 60 students. It is a four-year eight-semester course. The faculty is a mix of young, dynamic, and experienced from reputed institutions.

The department's main aim is to impart quality education in Aeronautical Engineering and to create engineers of excellence with a high level of competence. The focus is to provide a holistic campus education that would expose students to On-Campus Training, Undergraduate Research, and Industrial Internships apart from the Technologically Equipped Classrooms and Modern Laboratories.

The standard laboratories like Wind Tunnel Facility, Propulsion Test Facility, Aerostructures Lab, Avionics Lab, Drawing Lab, and Flight Experimentation Lab are established. This is done keeping in view, the advancements for the student's work on applied research problems. The emphasis is placed on Group Discussions, Undergraduate Research, and Assignments.

The department is adopting Modern Teaching Methods that are more inclusive. Technologies like Webinars, Virtual Lab Rooms, Tele-Lectures from Experts, and tools like Smart Interactive Screens, and Quizzing Gadgets are inculcated in the department.

The department's activities are being guided by the Advisory Committee whose members are eminent personalities from Industries, Government Organizations, and R&D Sectors. The initiative of the Gopalan Research, Innovation, and Training Center (GRIT) in the department with UAV - centric interdisciplinary research provides a good opportunity for the undergraduate students.

The Gopalan Aerospace India Private Limited, Hoskote, Bangalore being part of our management provides a better ecosystem for Aeronautical Engineering Department. The institution located close to many leading Aeronautical Industries, Laboratories, and IT Industries will enter into strategic collaborations for the benefit of students.

VISION

- Strive and achieve to shape and bring out highly competent and confident Aeronautical Engineers with high ethical values and professional commitment to meet the national and global requirement of industry and society.

MISSION

- Imparting quality education leading to strong foundation in various fields of Aeronautical Engineering.
- Through constant up gradation of teaching methods, tools and facilities, make them competent, confident to carry out research to face the rapidly advancing technological world.
- To mould them as citizens of high moral, social and ethical values to fulfill their obligations.

PROGRAM EDUCATIONAL OBJECTIVES (PEOS):

- **PEO 1:** Gain competence and confidence to handle problems in theoretical and experimental aspects of various domains of aeronautical engineering.
- **PEO 2:** Involve themselves in domain specific and interdisciplinary research in aeronautical engineering projects considering innovation in design, functionality safety, cost effectiveness and life cycle.
- **PEO 3:** Able to function with a sense of professional and ethical responsibilities to exhibit good competency in their work culture.

PROGRAM SPECIFIC OUTCOMES (PSOS):

- **PSO 1:** Apply their knowledge in the domain areas of Aerodynamics, Aircraft Propulsion, Aircraft Structures and Flight mechanics by acquiring knowledge in basic engineering, mathematics, science and Aeronautical engineering.
- **PSO 2:** Graduates will exhibit professionalism, team work in their chosen profession and adapt to current trends, technologies, research and industrial scenarios by pursuing lifelong learning.

BEST PRACTICES

1. USE OF ACADEMIC RECORD TO ENHANCE TEACHING ABILITY:

Objective of the practice:

- Objective of this practice is to bring in discipline and structure in teaching methodology thereby enhancing the overall quality of teaching-learning experience
- The practice:
- GCEM has designed a strategic Academic Record where all the teaching-learning processes and other activities are recorded.
- The Academic record primarily is dedicated to the curriculum, its planning, scrutiny, delivery, internal assessments, results, attendance, etc. Every semester a new academic record is maintained by the faculty which has the faculty member's individual timetable, details of the courses being handled and other basic details. The faculty also documents the Vision, Mission, Program Outcomes (PO's) and Program Specific Outcomes (PSO's) of the department.
- At the beginning of the semester, based on the course allotted and the Calendar of Events, the faculty prepares a detailed course plan (number of sessions to be handled, internal tests, revision and so). The faculty also records the prerequisite for the course and redefines the Course Outcomes (CO's) in line with that defined by the university. The record has stipulated formats to map the CO's with that of the PO's and PSO's. The textbooks and reference books detail are also maintained.

Evidence of success:

- Academic record is strictly followed at GCEM which has yielded good success. The Principal and the HODs are able to call for the academic records and check the progress of the academic process by scrutinizing it. Proper and timely updating of academic record ensures proper adherence to the stated academic procedures.

BEST PRACTICES

2.STUDENT COUNSELLING:

- Once the students weakness is found. He / She is assigned to a counsellor .
- The personal Counsellor provides assistance and guidance to the students.
- these can be in career aspirations , choice of stream and specializations as well as selection of university as per their interests and preferences.

Benefits of counselling

- It helps you in realizing your passion and the things you are good at.
- It develops confidence and assists you in making informed decisions.
- It helps you foresee the challenges that are likely to come in your way and lets you prepare for that in advance.
- It gives an opportunity to improve behaviour by helping you pick out the negative traits.



Improved performance

Remidial Classes

Videos, Discussion

Extra material, Exercises

Identify Students learning styles

FACULTY PROFILE



DR. G PURUSHOTHAM

DESIGNATION: PROFESSOR & HOD

EDUCATIONAL QUALIFICATIONS

- B. E., BANGALORE UNIVERSITY - 1990
- M. E., UVCE, BANGALORE - 2007
- PHD , VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM - 2016

AREAS OF INTEREST

- ADVANCED COMPOSITE MATERIALS
- ADVANCED MANUFACTURING PROCESS
- METROLOGY & MEASUREMENT



DR. G RAMESH

DESIGNATION: RESEARCH DEAN & PROFESSOR

EDUCATIONAL QUALIFICATIONS

- M.SC. (PHYS, ELECTRONICS) MADRAS UNIVERSITY
- M.SC. (ENG.), IISC, BANGALORE - 1998
- PHD, IISC, BANGALORE, 2003

AREAS OF INTEREST

- WIND TUNNEL TESTING
- MICRO AIR VEHICLE
- LOW REYNOLDS NUMBER AERODYNAMICS
- ADVANCED FLOW DIAGNOSTICS
- FLOW CONTROL



DR. VUTUKURU SHRAVAN KOUNDINYA

DESIGNATION: ASSISTANT PROFESSOR

EDUCATIONAL QUALIFICATIONS

- B.TECH., MLR INSTITUTE OF TECHNOLOGY, DUNDIGAL, HYDERABAD - 2011
- M.E., BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI, -2013
- PHD, RIGA TECHNICAL UNIVERSITY, RIGA, LATVIA -2021.

AREAS OF INTEREST

- RENEWABLE ENERGY TECHNOLOGIES
- HIGH SPEED AIR INTAKES
- AUTONOMOUS UNDERWATER VEHICLES



MR. RAJASHEKHARAREDDY H G

DESIGNATION: ASSISTANT PROFESSOR

EDUCATIONAL QUALIFICATIONS

- B.E., SRINIVAS INSTITUTE OF TECHNOLOGY, MANGALORE - 2015
- M.TECH., VTU-CPGC, BANGALORE-2017

AREAS OF INTEREST

- JET AND ROCKET PROPULSION
- FLIGHT MECHANICS
- COMPUTATIONAL FLUID DYNAMICS
- UNMANNED AERIAL VEHICLES
- AIRCRAFT TRANSPORTATION MANAGEMENT

**DR. MANJUNATH S V****DESIGNATION:** ASSISTANT PROFESSOR**EDUCATIONAL QUALIFICATIONS**

- DTD, GOVT. TOOL ROOM & TRAINING CENTRE, BENGALURU - 2006
- B.E., VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM - 2010
- M.TECH., VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM - 2013
- PHD, VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM - PURSUING

AREAS OF INTEREST

- AIRCRAFT PROPULSION SYSTEMS
- ROCKETS AND MISSILES
- THERMAL SCIENCE ENGINEERING
- MATERIAL SCIENCE
- ADVANCED MANUFACTURING PROCESS
- CADD AND CAE
- COMPUTATIONAL FLUID DYNAMICS
- MULTIPHASE FLOW

**MR. PRAVEEN N****DESIGNATION:** ASSISTANT PROFESSOR**EDUCATIONAL QUALIFICATIONS**

- B.E., VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM - 2009
- M.TECH., MIT, MANIPAL - 2016

AREAS OF INTEREST

- FLIGHT MECHANICS & CONTROL
- INSTRUMENTATION & AVIONICS
- GNC & SPACE MECHANICS

**MR. SAVIRAJ A S****DESIGNATION:** ASSISTANT PROFESSOR**EDUCATIONAL QUALIFICATIONS**

- B.E., JNN COLLEGE OF ENGINEERING, SHIVAMOGGA
- M.TECH., BMS COLLEGE OF ENGINEERING, BANGALORE

AREAS OF INTEREST

- AIRCRAFT STRUCTURES
- MECHANICS
- VIBRATIONS
- THEORY OF ELASTICITY

**DR SIRIKONDAMALLIK K.****DESIGNATION:** ASSISTANT PROFESSOR**EDUCATIONAL QUALIFICATIONS**

- B. TECH., RVR&JC COLLEGE OF ENGINEERING, AFFILIATED TO ACHARYA NAGARJUNA UNIVERSITY, ANDHRA PRADESH
- M. TECH., GITAM UNIVERSITY, VISAKHAPATNAM, ANDHRA PRADESH
- PH. D, K L UNIVERSITY, VIJAYAWADA, ANDHRA PRADESH

AREAS OF INTEREST

- STRENGTH OF MATERIALS
- ADVANCED MATERIALS
- CAD/CAM

TOPPERS (2RD SEMESTER)

1.GOWTHAM Y V

2.MANASA S

3.GUDALKAR PRATISH SATISH

TOPPERS (4TH SEMESTER)

1.GAGAN D

2.HEMASHREE DS

3.NEERAJ PS

TOPPERS (6TH SEMESTER)

1.SONIYA K

2.PRIYANKA G

3.POOJA S

A full moon is visible in the upper left portion of the sky. The sky transitions from a deep teal at the top to a warm orange at the bottom, with soft, wispy clouds scattered throughout. An airplane is flying in the middle right section of the sky.

DEPARTMENTAL

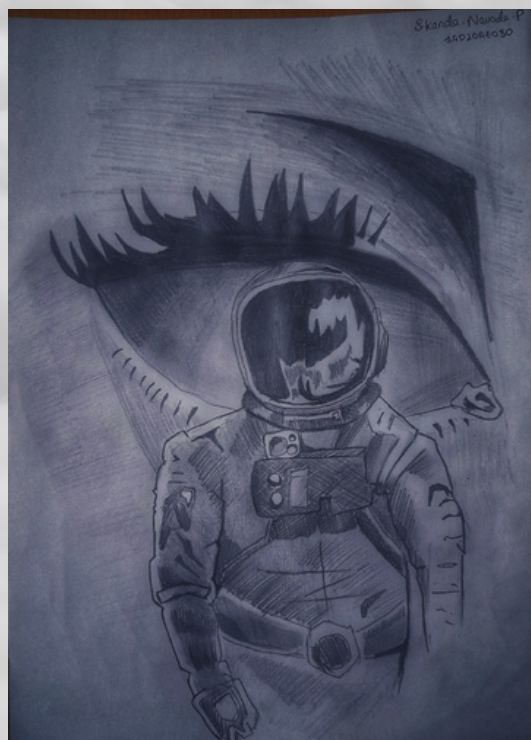
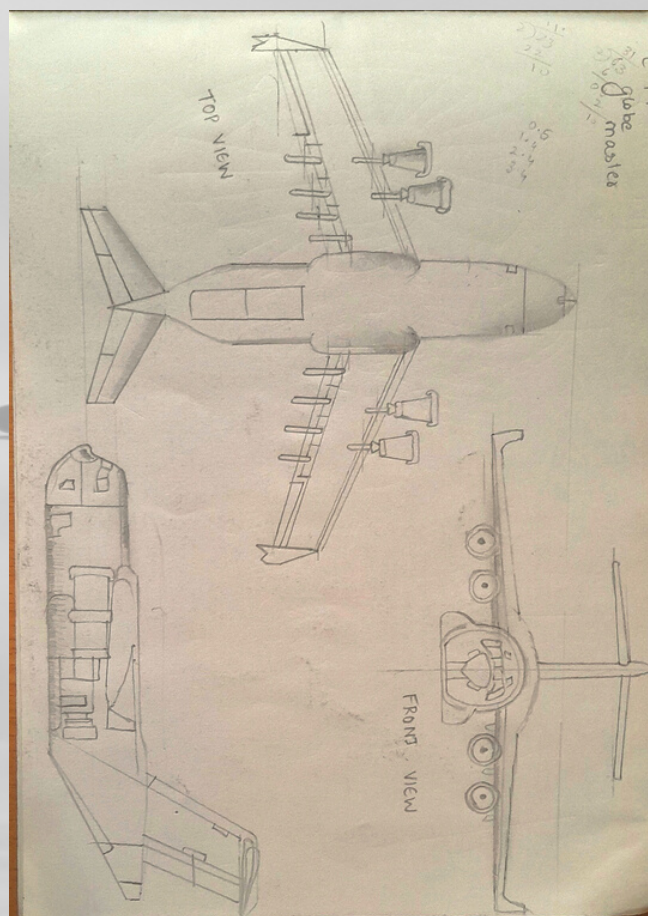
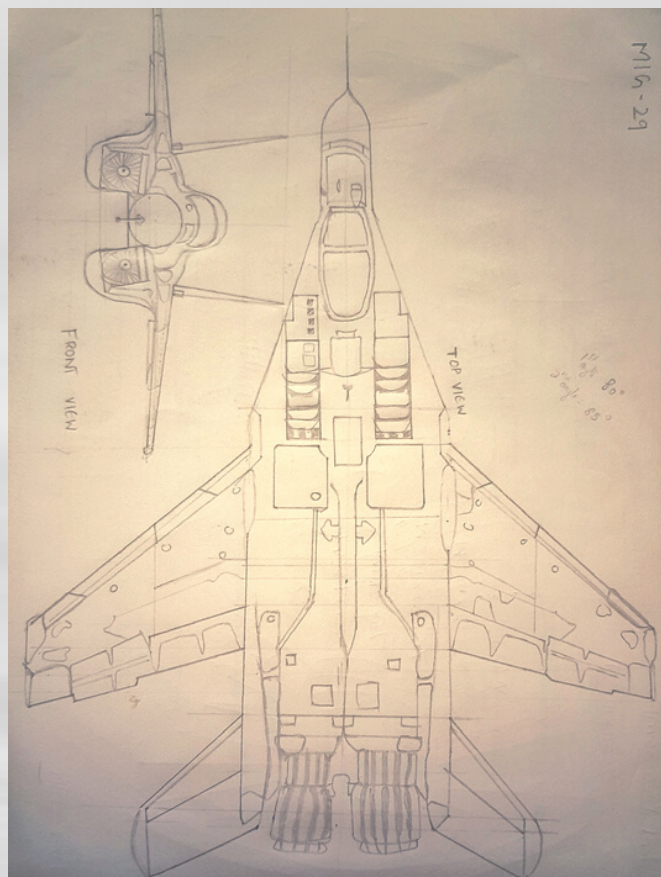
TALENTS



"KNOW YOUR LIMITS BUT NEVER STOP TRYING TO EXCEED THEM."



DRAWINGS



DONE BY: SKANDA.NAVADA.P
5TH SEMESTER



ARTICLES





DONE BY: S KARAN
5TH SEMESTER

Future of AI

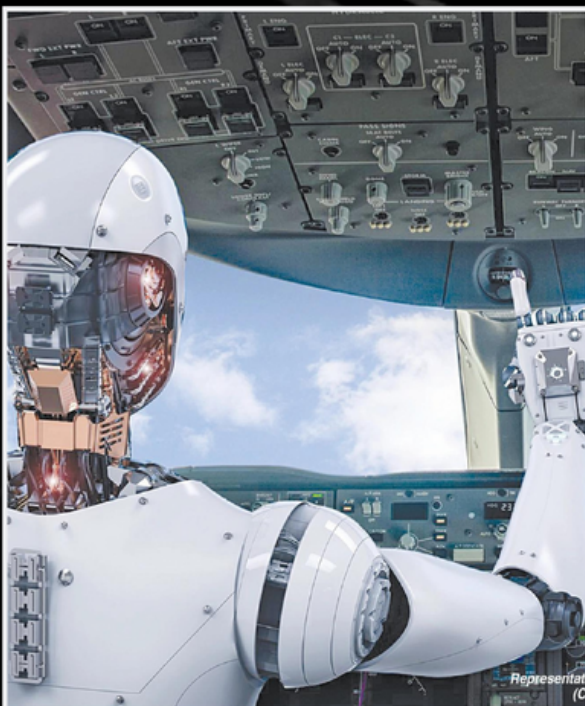
AERONATICLE

<https://www.towerfast.com/press-room/the-future-of-ai-in-aviation>

—S KARAN

AI will be able to use algorithms to predict flight delays and faults with airplanes. As a result, it could allow both airliners and airports a better chance of avoiding serious issues that could disrupt traffic, revenue, and customer satisfaction. Artificial intelligence could soon transform the way that airliners operate and serve customers. It could facilitate faster check-ins and allow customers to handle many of their own flight-related issues like checking in and paying for baggage-related costs. AI also can keep more airliners in the sky and reduce a company's repair and labor costs.

AI In Aviation: Are You Ready To Fly Without A Human Pilot?



AI technology is becoming more advanced and complex, and is finding applications in the aviation industry in multiple ways, including auto-pilot features. Due to factors like cost savings and shortage of qualified pilots, many companies have expressed an interest in reducing or even eliminating the number of pilots in the cockpit. There have been speculations that AI may someday replace human pilots. This article covers the various applications of AI in aviation and discusses how close AI is to replacing human pilots in the future.



**DONE BY: SYED SULTAN
5TH SEMESTER**

CRUISE MISSILE'S USED IN INDIA

1. **BRAHMOS**- its range is 290 km. It is the fastest cruise missile in the world. Manufactured by brahmos aerospace Ltd. Place of origin is russia and india.
2. **NIRBHAY**- its range is 1000-1500 km. It is manufactured by DRDO. The place of origin is india. the launch platform if vertical launch System.
3. **EXOCET**- its range is 40-180 km. It is an anti cruise missile. It was developed in france
4. **BRAHMOS II** - its range is 300 km. It is hypersonic missile with seep of Mack 7. The access places are ship, submarine, land, aircraft.

Among those deadliest Cruise missile is BRAHMOS

The first successful launch of **BRAHMOS** took place on June 12, 2001. Test Range was off the Chandipur coast in Orissa. BrahMos missiles are designed.

developed and produced by BrahMos Aerospace, a joint venture company set up by Defence Research and Development Organisation (DRDO) and Mashinostroyeniya of Russia. 14,000 brahmos missile's are made by india till now



India has signed a \$375 million deal to export the BrahMos supersonic cruise missile to the Philippines. BrahMos missile is capable of being launched from submarine from a depth of 40-50 metres.



DONE BY: RISHITH R K
5TH SEMESTER



A-10-WARTHOG (FAIRCHILD REPUBLIC A-10 THUNDERBOLT II)

BY RISHITH.R.KUMAR

THE A-10 HAS A CANTILEVER LOW-WING MONOPLANE WING WITH A WIDE CHORD. THE AIRCRAFT HAS SUPERIOR MANEUVERABILITY AT LOW SPEEDS AND ALTITUDE BECAUSE OF ITS LARGE WING AREA, HIGH WING ASPECT RATIO, AND LARGE AILERONS. THE WING ALSO ALLOWS SHORT TAKEOFFS AND LANDINGS, PERMITTING OPERATIONS FROM PRIMITIVE FORWARD AIRFIELDS NEAR FRONT LINES. THE AIRCRAFT CAN LOITER FOR EXTENDED PERIODS AND OPERATE UNDER 1,000-FOOT (300 M) CEILINGS WITH 1.5-MILE (2.4 KM) VISIBILITY.

IT TYPICALLY FLIES AT A RELATIVELY LOW SPEED OF 300 KNOTS (350 MPH; 560 KM/H), WHICH MAKES IT A BETTER PLATFORM FOR THE GROUND-ATTACK ROLE THAN FAST FIGHTER-BOMBERS, WHICH OFTEN HAVE DIFFICULTY TARGETING SMALL, SLOW-MOVING TARGETS. ALTHOUGH THE A-10 CAN CARRY A CONSIDERABLE AMOUNT OF MUNITIONS, ITS PRIMARY BUILT-IN WEAPON IS THE 30×173 MM GAU-8/A AVENGER AUTOCANNON. ONE OF THE MOST POWERFUL AIRCRAFT CANNONS EVER FLOWN, IT FIRES LARGE DEPLETED URANIUM ARMOR-PIERCING SHELLS. THE GAU-8 IS A HYDRAULICALLY DRIVEN SEVEN-BARREL ROTARY CANNON DESIGNED SPECIFICALLY FOR THE ANTI-TANK ROLE WITH A HIGH RATE OF FIRE. THE CANNON'S ORIGINAL DESIGN COULD BE SWITCHED BY THE PILOT TO 2,100 OR 4,200 ROUNDS PER MINUTE.[75] THIS WAS LATER CHANGED TO A FIXED RATE OF 3,900 ROUNDS PER MINUTE.[76] THE CANNON TAKES ABOUT HALF A SECOND TO REACH TOP SPEED, SO 50 ROUNDS ARE FIRED DURING THE FIRST SECOND, 65 OR 70 ROUNDS PER SECOND THEREAFTER.

A photograph taken from an airplane window, looking out over a vast expanse of white, fluffy clouds that stretch to the horizon. The sky above is a clear, deep blue. The white wing of the aircraft is visible on the right side of the frame, extending from the top towards the center. The curved edge of the airplane window is visible on the right side of the image.

HIGHLIGHTS

Esperanza 2K22

(Freshers day)

9th April 2022

A memorable day where the seniors and juniors finally bond and celebrate together of being part of the college in a friendly atmosphere.



Independence Day (Har Ghar Tiranga)

13th August 2022

To celebrate the 75th independence day . We Raised the Indian flag high. Celebrated patriotism and became proud what we have achieved as a nation.



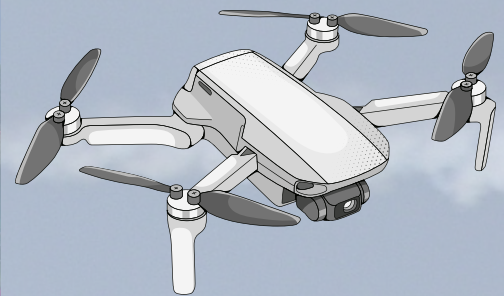


WORKSHOPS

Indegenous Development of Unmanned Arial Vehicle Conducted by Dautya Aerospace

15th October 2022

A fun day where everyone had a hands on experience by assembling a drone and saw it perform different maneuvers



Design and Analysis of Commercial Aircraft conducted by Ozhli Academy of Science

18th, 19th and 20th August 2022



An Informative
workshop where
students did
different analysis on
aircrafts such as
Airbus A380 and
Embraer ERJ 190 E2



EDITORIAL TEAM

- 
1. RISHITH. R. KUMAR
 2. ROOPESH VR
 3. THARUN SURYA DJ

SINCE 2019



GOPALAN COLLEGE OF ENGINEERING AND MANAGEMENT

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