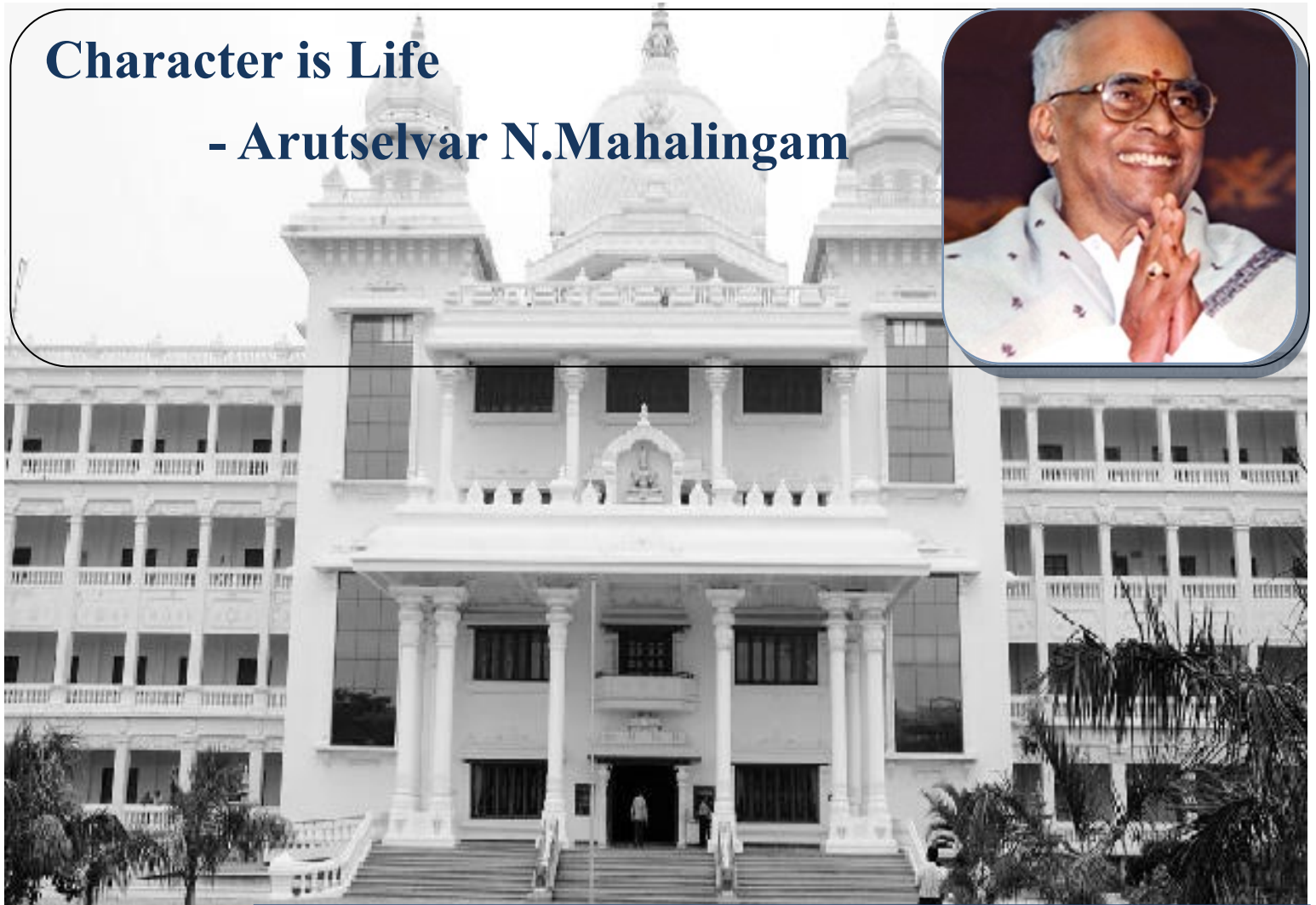




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character is life

Character is Life - Arutselvar N.Mahalingam



HoD's Message:

I am delighted to share the recent accomplishments of our Aeronautical Department in this newsletter. Our students have excelled in **GATE 2023**, with several securing admissions to prestigious institutions like **IIT Kanpur** and **IIT Bombay**. On the research front, we are proud to have secured a **₹46.8 lakh funded project** for advancements in UAV propulsion systems, showcasing our innovation and expertise. Strengthened **industry collaborations** further emphasize our commitment to bridging academia and practical applications. Congratulations to all for their hard work and achievements, and let us continue to aim higher in our pursuits.

Warm regards,
Dr. M. Senthilkumar
Head of Department, Aeronautical Engineering

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Editorial Committee

Editor

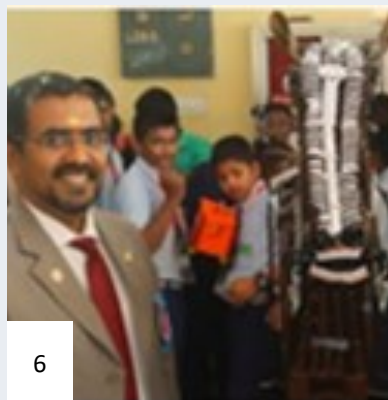
Mr. Muthukumar S,
Assistant Professor

Student Associate editors

Mr. Arvind D 19BAE054

Mr. Jeeva K M 19BAE011

Ms. Krishna Priya 19BAE020



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Funding Secured for UAV Propulsion Research

The Aeronautical Department is proud to announce that **Dr. P.S. Prem Kumar** and **Mr. R. Arul Prakash** have secured a funding of **₹46.8 lakhs** from the **Aeronautics R&D Board** for their research titled **“Performance Improvement of Micro Propulsion System for UAVs.”**

This project focuses on analyzing existing micro gas turbine engines to identify and address shortcomings, aiming to enhance their performance. These improved propulsion systems will be utilized in the operation of Unmanned Aerial Vehicles (UAVs) developed by **DRDO**, contributing significantly to advancements in defence technology.

The department congratulates the team on this remarkable achievement and their contribution to cutting-edge aerospace research.

GATE 2023 Success: A Proud Moment for the Aeronautical Department

The Aeronautical Department congratulates the following students for their outstanding achievement in **GATE 2023**:

- **Kavin R (18BAE026)**
- **Hari Balan S (19BAE042)**
- **Aravind D (19BAE054)**
- **Anusuya V (20BAE003)**
- **Sanjivdhran D (20BE035)**



This remarkable success demonstrates their dedication and hard work. Among them, **Aravind D** has joined **IIT Kanpur**, while **Hari Balan S** and **Kavin R** have secured admissions at **IIT Bombay**, pursuing their dream of advanced education in aerospace engineering. The department celebrates their achievements and wishes them continued success in their academic and professional endeavors. Their accomplishments set an inspiring example for their juniors and reflect the department's commitment to excellence in engineering education.



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Webinar on Advancements and Opportunities in Defence Technology for Engineering/ Science Graduates

Saturday, 15 April 2023 | 10.00 AM to 12.00 Noon
Platform : MS Teams



Mr. N. Ramachandran

President, Aerospace Industry
Development Association of Tamil Nadu.
CMD, Mel Systems & Services



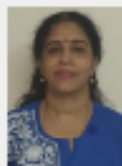
Rear Admiral V Mohan Doss (Retd)

Former Assistant Chief of Naval Staff (AM)
Director (Defence Programs)
Kumaraguru Centre for Industrial Research and
Innovation (KC.IRI)
Kumaraguru College of Technology



Shri. Vikas Rana

Scientist E
Aeronautics Research and Development Board
(AR&DB)
Defence Research and Development Organization
(DRDO), Delhi



Dr. S. Rama

Scientist G
Defence Research and Development Laboratory,
Defence Research and Development Organization
(DRDO), Hyderabad

Outreach program

The Department of Aeronautical Engineering successfully organized national webinar titled "Advancements and Opportunities in Defence Technology for Engineering/Science Graduates" on April 15, 2023, in collaboration with AIDAT.

The event witnessed enthusiastic participation from 115 attendees, including students, faculty members, and professionals from across India. The webinar featured insights from two distinguished experts in the defence sector:

1. **Ms. S. Rama** (Scientist, DRDL, Hyderabad) delivered an informative session on "Missile Aerodynamic Configuration Design, Development, and System Integration," highlighting key challenges and innovations in missile technology.

2. Mr. Vikas Rana (Scientist 'E', AR&DB, DRDO, Delhi) provided an overview of the Aeronautics Research & Development Board (AR&DB), emphasizing thrust areas and emerging research opportunities for engineering graduates.

The webinar equipped participants with valuable knowledge about career pathways and cutting-edge advancements in defence technology. The department extends its gratitude to the speakers and attendees for making this event a resounding success.



Industry connect

To promote Industry-Institute collaboration activities for M.Tech Defence Technology and getting internships for the UG students there were two visits made to Aerospace Engineers Private Limited, Mallur, Salem by the faculty members Dr.Sundararaj, Mr,Naveen kumar, Mr,Muthukumar, Mr,.Rajkumar, Mr.Arun kumar. 5 students from the final were given paid internship by the Aerospace Engineers Private Limited



Faculty as chief guest

Dr.Premkumar PS honoured as a chief guest at NIET, VIHAAN 2023-Valedictory function a state level Aero technical symposium jointly organized with AeSI. He presided over the function and deliver a lecture on the importance of Computational fluid dynamics and presented the prizes to the participants.

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SUMMER LEARNING

May 22 to 31 2023


Make this Summer exciting with our enriching camps!

Capture the World with Drones & Robotics

An adventurous experiential-learning experience to explore Drone Technology, Robotics and the science behind it.

 <p>Focus Group Grades 5 to 12</p>	 <p>Mode Non- Residential</p>
 <p>Fee INR 2500</p>	 <p>Venue Kumaraguru Campus</p>
 <p>Duration 6 days</p>	 <p>Time 09.30 am to 1.00 pm</p>
 <p>Date May 22 to 27</p>	

Takeaways
Activity based learning, Real flight experience, Flight simulator training, Technical puzzles, Flying skills, Robotics



Outreach program

Aeronautical department organized a six days workshop on "Capture the world with robotics and drones" from 22-05-2023 to 31-05-2023 for the school students. The topics that were covered during the workshop included

1. Activity based learning
2. Real Flight experience
3. Flight simulator training
4. Flying skills
5. Robotics

30 students from various schools participated the program.



Dr. P.S. Prem Kumar Addresses IGNITER 2K23 at Sakthi Polytechnic College

Dr. P.S. Prem Kumar was invited as the **Chief Guest** for **IGNITER 2K23**, a state-level technical symposium held at **Sakthi Polytechnic College**.

During the event, he delivered an inspiring special address, motivating students to excel in technical innovation. He also graced the prize distribution ceremony. The department congratulates Dr. P S Prem Kumar.



My Story Motivational Session by Successful Innovators

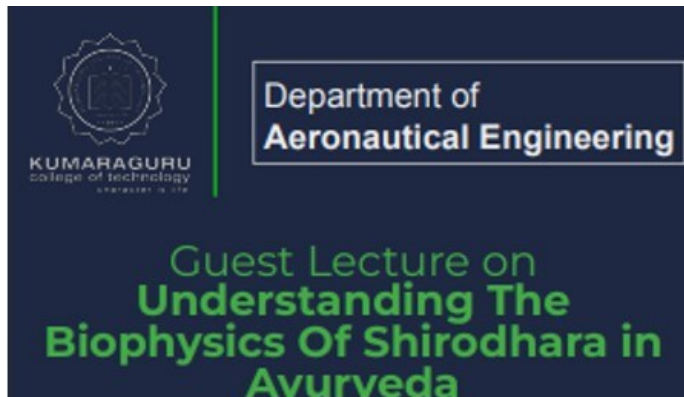
Dr. Prasad Patnaik B.S.V. Professor Applied Mechanics IIT Madras visited the department to give a lecture on research success. His primary research interest is Biomechanics simulation. He addressed the second year students and motivated them towards the research activities on 16th February 2023



Seminar on Career development

Grp. captn. Desigan Sreenivasan delivered a seminar on Career opportunities in UAV industries for the second year students.

He explained the upcoming boom in UAV industries and emphasized the necessary skillset the students needed to have to harness this opportunity. The event took place on 16th May, 2023.



Guest Lecture on Understanding The Biophysics Of Shirodhara in Ayurveda

On 10th February 2023, Professor Dr. C. Lakshmana Rao from IIT Madras applied mechanics department gave a lecture on ayurvedic research in engineering. He explained the mechanics of Shirodhara an ayurvedic procedure to drip liquids on forehead to calm the mind.

He shared his research work with the third year students kindling their scientific curiosity. The talk was well received by the students and the faculty.



Airforce visit

Faculty of aero department visited the sulur Airforce base for the engine transfer from airbase to the department. The turbofan engines's condition is verified by the team of faculty members. Sulur Air force visit is to make note of salvaged engine details and the procedure for acquiring the same for educational purpose on 24-02-2023.



The Leader in You

"The Leader in You" was a transformative event that aimed to inspire and empower participants to recognize and cultivate their leadership potential. Hosted by Mr. Ashok Kumar from GTN Aerospace.

This event brought a great impact on students, in which everyone eager to enhance their leadership skills and make a meaningful impact in their personal and professional lives. The talk happened on 22-02-2023 at Seminar Hall-D.

ALUMNI TALK 1

INSIGHTS ABOUT QUALITY MANAGEMENT IN CORE INDUSTRIES



SYED MASOOD T S

Graduate Engineer Trainee,
Quality Department,
TASL Bangalore

Alumni talk

Alumni from the 2018 batch Mr. Syed Masood, who is currently working as the graduate engineer trainee at Tata Advanced Systems Limited, Bangalore gave a talk on quality management to the third year students online on 14/1/2023 via MS Teams.

Alumni talk

Alumni from the 2018 batch Mr. Sai Shankaran, who is currently pursuing his Masters at Canada in hypersonic vehicle design gave a talk on students opportunity in higher studies. The talk was arranged by the department association and it was online held on 19/4/2023. The third year students attended the talk.

ALUMNI TALK SERIES-2

ADVANCEMENTS AND BREAKTHROUGHS IN HIGHER STUDIES AND RESEARCH



SAI SHANKARAN.B

Graduate student at University
of Calgary
Alberta, Canada

List of Faculty activities during the 2022-23 Even Semester

1. Mr. Vijayanandh Raja, along with Ramesh Murugesan, Senthil Kumar Solaiappan, Beena Stanislaus Arputharaj, Parvathy Rajendran, Hussein A. Z. AL-bonsrulah, Deepak Thakur, Abdul Razak, Abdulrajak Buradi, Abiot Ketema, published "Design, Computational Aerodynamic, Aerostructural, and Control Stability Investigations of VTOL-Configured Hybrid Blended Wing Body-Based Unmanned Aerial Vehicle for Intruder Inspections", International Journal of Aerospace Engineering, vol. 2023,
2. Dr Senthilkumar M reviewed "Airfoil Shape Optimisation using a multi-fidelity surrogate-assisted metaheuristic with a new multi-objective infill sampling technique" in Computer Modeling in Engineering & Sciences
3. Dr.Premkumar PS reviewed a paper on Numerical simulation of Hatch back car modified vehicle design for fuel consumption in the JFM journal Mr.M.Senthil Kumar published Research on the reusability of the small impulse turbine blade based on the numerical simulation and experimental tests in the International Journal of Aerospace Engineering,
4. Dr M Senthil Kumar reviewed Development of a Unique Two Hole Flow Meter for Big Data Analysis in Flow Measurement Techniques in Materials Today: Proceedings journal
5. Dr M Senthil Kumar reviewed Meter-scale Thin-walled Structure with Lattice Infill for Fuel Tank Supporting Component of Satellite: Multiscale Design and Experimental Verification in Computer Modeling in Engineering & Sciences journal
6. Vijayanandh, R., Senthil Kumar, M., Padmanaban, S., Syed Masood, T.S., Arul Prakash, R., Vijayakumar, M. (2023). Multi Perspective Aerodynamic Studies on the Intercity Bus with and Without Drag Reductions Techniques by Using Engineering Approaches. In: Bhattacharyya, S., Benim, A.C. (eds) Fluid Mechanics and Fluid Power (Vol. 2). FMFP 2021. Lecture Notes in Mechanical Engineering.
7. Dr P S Premkumar published a book chapter on Applied Mathematics and Computational Intelligence titled Analysis of Heat Transfer Coefficients and Pressure Drops in Surface Condenser with Different Baffle Spacings Springer Singapore. ISBN number 978-981-19-8193-7.

List of Faculty activities during the 2022-23 Even Semester

8. Mr. Rajkumar G published a paper on “Comprehensive computational investigations on various aerospace materials under complicated loading conditions through conventional and advanced analyses: a verified examination”, Gnanasekaran, Raj Kumar ; Shanmugam, Balasubramanian ; Raja, Vijayanandh ; Al-Bonsrulah, Hussein A. Z. ; Rajendran, Parvathy ; Radhakrishnan, Jeeva ; Eldin, Sayed M.
9. Dr P S Premkumar attended International Conference on Spacecraft Mission Operations (SMOPS-2023) on 08-Jun-23 at ISRO Bangalore.
10. Dr M Senthil Kumar attended DRDO organised ‘Anusandhaan Chintan Shivir’, to release 75 tech priority areas for R&D and to encourage Defence R&D in Industry & Academia on 27-Jun-23 at New Delhi.
11. Mr. Arul Prakash R reviewed the paper titled “Design and Fluid Structure Interaction Based Multi-Perspective Computational Structural Investigations on Airframe of Gyrodyne Configured Multirotor UAV” from the Reviews on Advanced Materials Science (RAMS) journal.
12. Mr. Arul Prakash R reviewed the paper titled “Thermo-mechanical behaviors of a novel double-layer corrugated core structure for thermal protection system” from International Journal of Aerospace Engineering journal.
13. Dr M Senthil Kumar reviewed the paper titled “Enhancing Discharge Coefficient of Circular Spillways with Innovative Geometric Designs” from Journal of Engineering - Publisher: Hindawi an international journal.
14. Dr.P.S.Prem Kumar ,Associate professor attended a FDP national level on Bloom's Taxonomy Based Question Paper Generation from 10-04-2023 to 14-04-2023 ONLINE conducted by NITTTRK , kolkatta.
15. Rajkumar G attended “Conclave on Strategic and Regional Materials (RAKSHA2023)” in CSIR NIIST, Thiruvananthapuram held from 15-03-2023 to 16-03-2023.

List of Faculty activities during the 2022-23 Even Semester

- 16.Mr. Naveen kumar attended a FDP for 15 days at HAL Bangalore in the topic Capacity enhancement - cum - master trainers training program for engineering college faculty by HAL management academy (HMA) under Bharat Ratna sir M.Visvesvaraya national training facility for skills for all and supported by HAL management academy (HMA).
- 17.Mr. Rajkumar G attended "5 Days FDP on Industry 4.0 and Smart Manufacturing" held from 27/2/2023 to 03-03-2023 organized by Anand International College of Engineering , Jaipur.
- 18.Mr. Rajkumar G attended “Conclave on Strategic and Regional Materials (RAKSHA 2023)” in CSIR NIIST, Thiruvananthapuram held from 15-03-2023 to 16-03-2023.



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Department of Aeronautical Engineering

INSTITUTE VISION

The vision of the college is to become a technical university of International Standards through continuous improvement.

INSTITUTE MISSION

Kumaraguru College of Technology (KCT) is committed to providing quality Education and Training in Engineering and Technology to prepare students for life and work equipping them to contribute to the technological, economic and social development of India. The College pursues excellence in providing training to develop a sense of professional responsibility, social and cultural awareness and set students on the path to leadership.

DEPARTMENT VISION

To attain excellence and global reputation in Aeronautical Engineering Education and Research.

DEPARTMENT MISSION

M1: The department is committed to provide quality education in Aeronautical Engineering to students to build their career and do quality research and thus contribute to the field of Aviation and Aerospace.

M2: The department aims to prepare students for their higher studies and research to contribute to the advanced technological needs of Aeronautical engineering.

M3: To encourage faculty to update their knowledge and teaching-learning process through continuous learning.

M4: To undertake inter-disciplinary research to contribute and support the industry.

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

The Program Educational Objectives (PEOs) of Aeronautical Engineering Undergraduate Program are to prepare the students:

I. To pursue a successful profession in leading organizations.

II. To pursue postgraduate degrees and conduct research at leading technological universities to contribute to the advancement in the field of Aviation and Aerospace industries.

III. Continue their professional development by utilizing educational and career building opportunities through their employer, educational institutions, or professional bodies.

PROGRAM OUTCOMES (POS)

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice and systems.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commitment to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOS):

PSO1: Apply fundamental principles of Aerodynamics, Structures, Propulsion, Materials, and Avionics to provide solutions to aerospace and non-aerospace industrial problems.

PSO2: Use the software packages in the design, manufacturing, testing and maintenance of aeronautical and aerospace based components