

# The Arrow

Department of Aeronautical Engineering Newsletter

2020-21 Odd semester

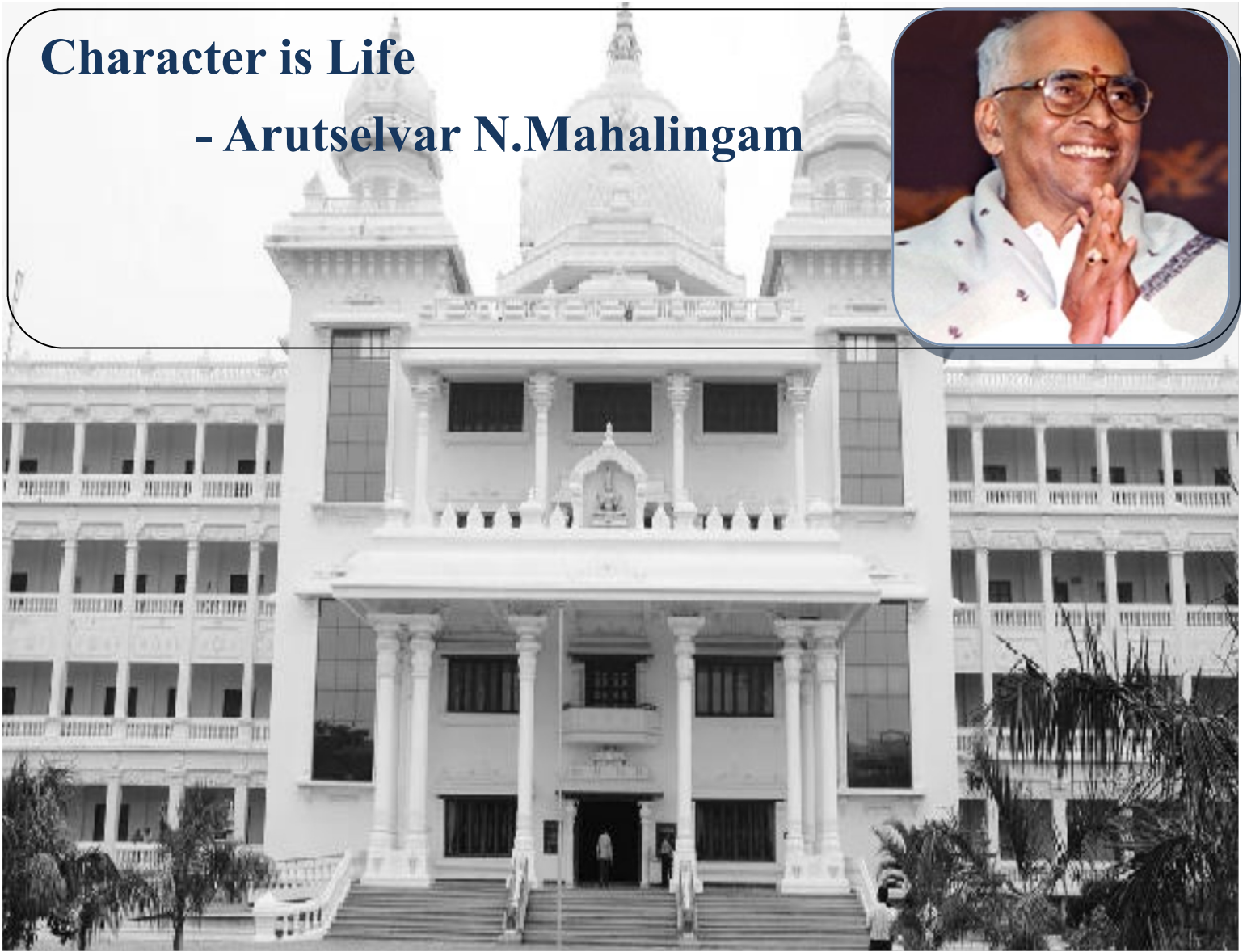
Volume 2 issue 13



**KUMARAGURU**  
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character is life

## Character is Life

### - Arutselvar N.Mahalingam



#### *HoD's Message:*

*I would like to start this newsletter by congratulating the whole student and faculty team for their wonderful support and patience during this pandemic situation. A special mention to the Department Association team members who have worked with high spirits during this tough time and conducted so many events. Despite the pandemic situation, we continue to progress through online mode and conducted sufficient events and webinars. It is a new normal, yet we strived hard to continue moving forward. Let us work together.*

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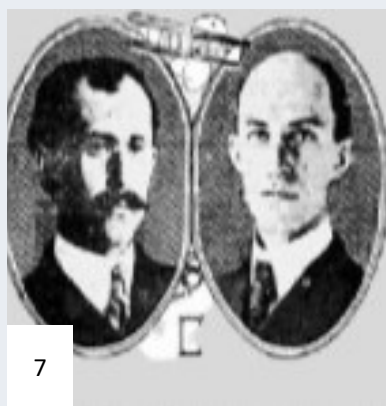
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## Editorial Committee

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Assistant Professor

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1. Mr. Syed Masood
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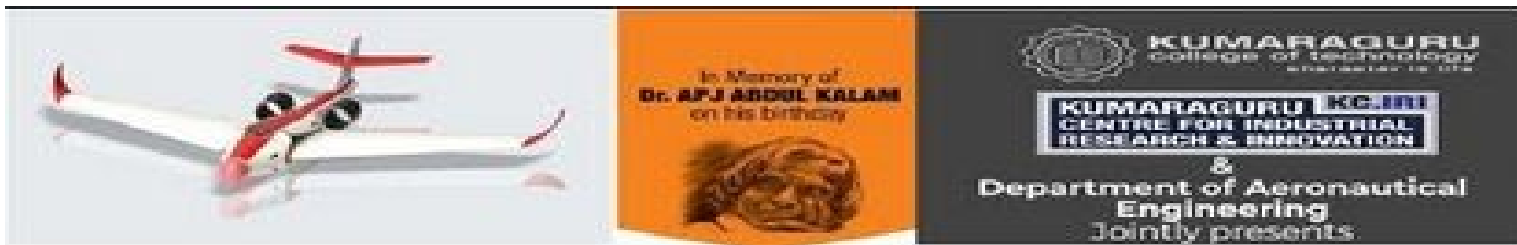


# CRAPHITE MASTER



The Aeronautical students association and Varnam club of KCT jointly organizing state level "Craphite Master" creative design contest on 05.08.2020.

The participants have to sketch a conceptual aircraft/spacecraft of their own and have to explain about their design. This event is mainly focused on giving a spark to the creativity of young minds and transforming them as ignited minds. The competition is done separately for school and college students. Prizes worth 3000 was distributed. This event was a perfect show case of creativity blended with the scientific curiosity.



**Thursday, 15th October 2020**

Through online mode

On the occasion of 89 th birth anniversary of Dr APJ Abdul Kalam, the department of aeronautical engineering of KCT, Kumaraguru Centre for Industrial Research and Innovation (KC.IRI) and institution of Engineers (IEI) jointly organized the Sixth edition of “ KCT Aircraft Design contest 2020 “ on 15 th October.

The contest aimed at Dr APJ Abdul kalam’s “Vision 2020 for passenger aircraft” which focused on fulfilling the need of Indian civil aviation requirement by indigenous design. KCTADC 2020 was conducted to enlighten the youth and give them a platform to dream the impossible.

Students from various colleges of south India participated in the contest and put forth their ideas. Totally 16 teams ( 2 teams from KCT, 14 team from different colleges like ACS Banglore, BIT-Sathy, Bharath University- Chennai, Hindusthan University- Chennai, Hindusthan Institute of Technology, Coimbatore, Periyar maniammai institute of science and technology – Tanjavur, Manipal Institute of Technology, Manipal & Raja-lakshmi Engineering College- Chennai) presented their design during the review on 10 th October 2020.

Mr. Alwin Anthony, Co-founder & CEO Leap Aeronautics, Bangalore gave Chief Guest Address.

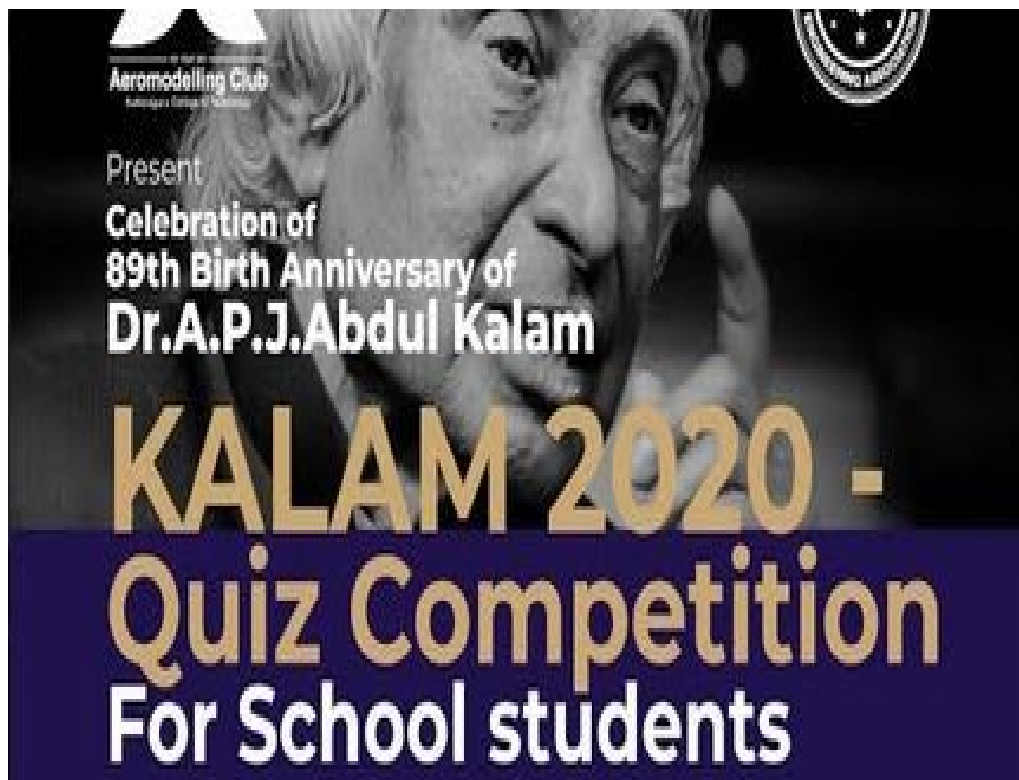
Mr. R.V Ramkumar, Scientist, DRDO, Bangalore gave Chief Guest Address.

Mr Ramkumar declared the results of KCTADC 2020. The result as follows:

- Winner: Team Pravaah ( KCTADC-2020-003) from Manipal Institute of Technology, Manipal
- Runner: Team spacers ( KCTADC-2020-006) from Bharath institute of higher education and research, Chennai
- Special prize: Team Hermes ( KCTADC-2020-001) from Kumaraguru college of technology, Coimbatore



On the occasion of Dr.A.P.J Abdul Kalam's 89th birthday, the department conducted different competitions for the college and school students. UAV design competition for the Engineering students was conducted through online mode. The participants have to design an UAV under the given design constraints. A 2D or a 3D model is expected as the final results from the students of the engineering departments.



On the same day as part of the Aeromodelling club for the Kalam's birthday, quiz competition was conducted. Students from various school participated enthusiastically through virtual mode.

This is an Online quiz competition with multiple set of questions based on the life history of Dr.A.P.J.Abdul Kalam and his achievements along with some basic science topic questions. Students have to participant individually. More than one participant from each school are allowed to participate in this competition.



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# Aircraft and its Systems - Opportunities and Challenges



Mohammed Zaibulla , who has a 25 years of experience in Aircraft Maintenance/Operation./ training gave a webinar to the students on the operation of various aircraft systems He has a vast experience in Maintenance and is the head faculty of Techwings Academy Pvt limited. He gave a crisp talk on the opportunities for the Aeronautical engineering students in the Maintenance sector.



## Career Guidance on Robotics and UAVs

Mr Mohammed Aaashik Rahman Engineer and Inventor Founder and CEO Propeller Technologies gave a seminar on Robotics and UAV technology related career guidance on 08.08.2020 for the students through online mode.

## DEPARTMENT OF AERONAUTICAL ENGINEERING

Cordially Invites you for the

### Online Webinar On Applications of Advanced NDT Tools



#### Online webinar on Non destructive testing

V M KRISHNAMOORTHI CHIEF TRAINER & SR. INSPECTION ENGR CSWIP 3.1 Certified Welding Inspector gave an online seminar on Non destructive testing to the third and final year students on 23rd June 2020.



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**PRESENTS**

## **WRIGHT BROTHERS WEEK**

“A tribute to the first sailors of the wide Sky”

### **Wright Brothers week celebration**

Dec 17 2020 THE WRIGHT BROTHERS DAY. The Aeronautical students association organized a series of programs with collaborating with few Clubs like NCC, SAHATIYA, VARNAM, QUBATE and few Departments like FT, E&I, MBA, TEXTILE and CIVIL. The events included Life of fighter pilots, Sketch your first flight, Aircraft Quiz, Instrumentation in aircrafts,



**Department of Aeronautical Engineering**

### **Webinar on Introduction to UAV & Composites**



Dr S Rajagopal, Project Director Rustom & Joint project Director TAPAS, ADE, DRDO gave a webinar on Unmanned aerial vehicles and composite materials technology to the third and final year students of the department on 17th October 2020.

He gave various insights and his experience in the DRDO. The students were immensely benefitted from the current trends on the composite material research.



**The Institution of Engineers (India)**  
Coimbatore Local Center



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**In association with**  
**Department of Aeronautical Engineering,**  
**Kumaraguru College of Technology, Coimbatore**  
**Organizes**  
**Monthly Lecture on**  
**Heart Attack and Combustion**  
**Instability: What is in**  
**Common?**

Dr. R. I. Sujith Professor from Department of Aerospace Engineering, Indian Institute of Technology Madras gave a guest lecture on Heart Attack and Combustion Instability: What is in Common? This event was conducted by our department in connection with the The Institution of Engineers (India) Coimbatore Local Center. This event was open to all the external participants. This event received a good turn out especially from research community from all over India



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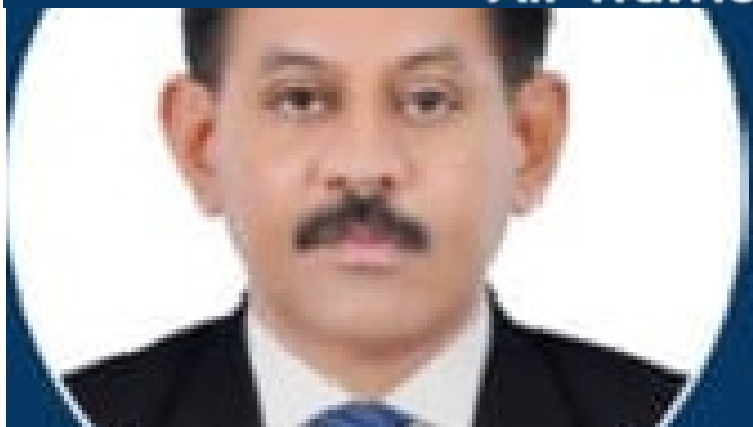


presents

# Thoduvaanam

"Navigate through sky, from the land"

**Air Traffic control**



## Webinar on Air Traffic control

The Department of Aeronautical Association is organizing Seminar on "Navigate through sky, from the land" on 06.12.2020. Mr. Selwyn Guruswamy who is the speaker of the day has 32 year's experience in Aviation including the Indian Air Force, Commercial Airlines, and VVIP Airlines. He served as the Air Surveillance Officer in Indian Air Force from July 1988 to July 2005. He worked as the Assistant Manager of King Fisher Airlines from 2005 to 2009. Currently he is working as the Flight Dispatch Controller in Qatar Doha.

## List of Faculty activities during the 2020-21 Odd Semester

1. Mr.R.Vijayanandh presented a paper on "Structural Optimization of Frame of the Multi-Rotor Unmanned Aerial Vehicle through Computational Structural Analysis" at 2nd National Conference 'Recent Advancement in Physical Sciences'
2. Mr.R.Vijayanandh Presented a paper on Design Optimization of Vertical Axis Wind Turbine based on High power extraction by using Computational Fluid Dynamics (CFD) at the National Conference on Innovations in Sustainable Energy and Technology.
3. Mr.R.Vijayanandh presented a paper on Multi-Disciplinary Investigations on Unmanned Aerial Vehicle's Disc Brake through Validated Transient Structural Analysis at the International Tribology Research Symposium - 2020 SRM Institute of Science & Technology (SRMIST), Kattankulathur
4. 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,
5. Mr.M.Senthil Kumar et al published a conference paper in the International Conference on Advancements in Aeromechanical Materials for Manufacturing” (ICAAMM- 2020)
6. Dr.K.Sundararaj published a paper on Numerical investigation of composite stiffened panel with various stiffeners under axial compression at the AIP Conference.
7. Dr Premkumar PS published a paper on Structural, optical and thermal analysis of zinc based aerogel composite materials/ AIP Conference
8. Dr Premkumar PS published a paper on Aerodynamic characteristics of advanced airship shape – A computational investigation at the AIP Conference
9. Mr.R.Vijayanandh published a paper on Advanced structural analysis on E-glass fiber reinforced with polymer for enhancing the mechanical properties by optimizing the orientation of fiber, at the AIP Conference
- 10.Mr.R.Vijayanandh published a paper on Advanced structural analysis of various composite materials with carbon nano-tubes for property enhancement at the AIP Conference.



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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