2019-20 Even semester

Volume 2 issue 11

# The Arrow

## Department of Aeronautical Engineering Newsletter



KUMARAGURU college of technology character is life





#### 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.

#### In this issue





## **Editorial Committee**

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Mr.Muthkumar S,

Assistant Professor

#### **Student Associate editors**

- 1. Mr. Syed Masood
- 2. Mr. Indra prasath
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## Fabrication of RC planes

Aeromodelling club of Aeronautical department conducted RC modelling design session for two days om 13.02.2020 & 14.02.2020. The main objective of the program is to make the students understand the basic fundamentals of fabricating the RC planes. 35 students from second third and final years attended the session. They designed the layout of the aircraft using the design formulae and fabricated their own design using foam material.

The event was a successful venture which was overlooked by the student coordinators from the aero modelling club.

## INDUSTRIAL CERTIFICATION WORKSHOP ON "ARTIFICIAL INTELLIGENT IN FLYING ROBOTS"



Artificial Intelligent and Machine Learning system is the future technology in engineering field. The main purpose of the workshop is to learn the integration of AI in drones, which has a wide research opportunities in the interdisciplinary Engineering field. The session was handled by Mr Krishnamoorthy, Managing Director, Vimmana Labs Private Limited for two days from 07.02.2020 and 08.02.2020 and the event was coordinated by Mr Darshan kumar J of Aeronautical department. This is one of the milestone event for the departmet as far as the technology is concerned. As the world is leaning towards the Machine earning and Artificial intelligence, we feel our students needs to be exposed to that future booming field. Being an Aeronautical engineer, Drone building is the best way to incorporate AI techniques. This event was well received by the students and quite an informative session for the students.

## DRONE PILOTING



In recent days the job prospects for Drone piloting seems promising and it is on the rise. Students with piloting knowledge can utilize it for their part/full time job. Keeping the job aspects for the students in mind this event was conducted. Experts from industry participated as the resource person and trained the students on the nuances on the drone piloting.

Piloting the drones is real art and challenging. The main objective of the program is to make the students understand the basic fundamentals of drones flying. All the aero modelling club students attended the event .

It was a 4 day event conducted between 17.02.2020- 20.02.2020. The event was coordinated by Mr Darshan kumar J of Aeronautical department.

## SEMINAR ON "AEROSPACE GLOBAL JOB OPPORTUNITIES"



The constant desire to make the students job ready candidates leads to this event. This is an event focussed clearly on the student's placement. The event is handled by Mr Prasanth, the project lead from Gloinnt solutions, Bangalore. He addressed both the second and third year students.

The main objectives of the seminar is to give the options for the aeronautical students so that they can plan and choose the proper career.

This is an one day event conducted on 28.01.2020 and coordinated by the faculty coordinator Mr Darshan kumar J .

## AIR RACING



The iconic Techno cultural event of KCT is YUGAM 2020. As part of the epic event, the aero department conducted flying contest for the student community. It was a grand and a successful event which witnessed participation of 15 teams from all over the Tamilnadu.

The main objective of the program is to create the platform for the students to showcase their flying skills. The students were given the opportunity to test their flying models with different criteria.

The event held on 05.03.2020 and it was handled cordially by the Aeromodelling club members along with the faculty coordinator Mr. Darshan kumar J.

## CAREER DAY



It is a legacy which KCT is been following for a long time. Keeping a strong bond with Alumni is something we cherish as a department. We always keen in utilizing the Alumni students expertise and experience in shaping their juniors career. In that context we brought 4 distinguished Alumni to the department to share their path and motivate theier juniors for a successful career. The main objective of the session is to motivate and guide the students to choose the right career.

This is an on day activity happened on 01.02.2020 organized by Mr Darshan kumar J, Faculty of the Aero department.

## List of Faculty activities during the 2019-20 Even Semester

- 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.
- 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.



#### **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