

## About the Institute

The erstwhile **Regional Engineering College (REC) Rourkela** was converted to a deemed university and renamed as **National Institute of Technology, Rourkela** on 26<sup>th</sup> June 2002. It was declared as **An Institution of National Importance** through the parliament act on 15<sup>th</sup> August 2007. The institute has made a rapid stride in earning a reputation as a place of higher learning in the field of engineering as well as technology during the last decade. NIT Rourkela provides quality education in a diverse and multi-cultural environment. The mission of the institute is to meet the needs of the industry and commerce by providing human resource with the required knowledge and skill and also by promoting, dissemination, developing and transferring technology. The institute strives hard to become an internationally acclaimed institution of higher learning that will serve as a source of knowledge and expertise for the society and be a preferred destination for undergraduate as well as post graduate students alongwith advanced research.

## About the Program

Drone technology has become increasingly popular in civil and military sectors. The program aims to offer both theoretical insights and practical hands-on training in the latest concepts of Development in Unmanned Aircraft Systems (Drone and related Technology). The program's primary objective is to provide participants with a comprehensive understanding of designing and fabricating custom drone frames. Through a series of planned lectures and practical sessions, attendees will gain proficiency in utilizing advanced manufacturing techniques such as additive manufacturing (3D printing) and aeromechanics concepts. With different hands-on training sessions, participants can understand and develop their own unmanned aerial systems for small applications. Other topics discussed in this bootcamp are Machine learning concepts for drones, basic control schemes for drone flying, Matlab/SIMULINK based drone simulation programs as well as modern developments in this area during last 2 years. Aeromechanics is a general concepts and its use in unmanned aerial vehicles will be clearly stated in the event.

## About Aeromechanics

Aeromechanics is identified as one of the important themes in drone technology. Flying objects under different scenarios are studied with various formulations in aeromechanics. Starting from flow induced vibration studies to complex thrust/power calculations of unmanned aircraft systems are dealt in aeromechanics. The center for drone technologies is established at Department of Mechanical Engineering under the support of Ministry of Electronics and Information Technology, Delhi. Center has procured number related training tools and has trained many participants emanating various ideas. Arrangement of expert lectures, hands-on training sessions, introduction to the use of software tools, conference presentations, and encouraging interested students to develop innovative projects are the aims of the center.

## Contents of the Boot Camp

- Design and Fabrication technology of drones
- Cutting edge fabrication techniques including
  - Additive manufacturing (3D printing)
  - Composite layup techniques
  - Robotic machining
- Thrust and Power measurements in propellers
- Design of drone for specific applications.
- Opportunity to explore material properties and design considerations
- Hands-on practice on drone assembly and flying
- Practical sessions with drone simulator software
- Laboratory sessions on use of Matlab/SIMULINK

## Who can participate?

All faculty members, scientist from industry, Diploma holders and pursuing students, graduate and pursuing candidates in BE/ B tech or Postgraduate in M Sc/ BCA/MCA/ ME/ M tech or PhD.

## Registration Fee

There is no registration fee. However, the certificate will be given to only those who attend a minimum 80% of the sessions. Attendance will be taken in all sessions. All interested participants should send their registration form through following link. The registration includes workshop kit, refreshments and working lunch on all the 5 days.

## Registration Link

<https://forms.gle/tLT7rDm8uJ8RmDX59>

## Coordinators

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## Training Location / Address:

Department of Mechanical engineering, NIT Rourkela



इलेक्ट्रॉनिकी एवं  
सूचना प्रौद्योगिकी मंत्रालय  
MINISTRY OF  
ELECTRONICS AND  
INFORMATION TECHNOLOGY

## Five-Day Bootcamp



On

**Developments in  
Aeromechanics of Drones  
(22<sup>nd</sup>-26<sup>th</sup> June 2024)**

**Organized by**



**Department of Mechanical Engineering  
National Institute of Technology  
Rourkela**

