



इलेक्ट्रॉनिक्स एवं सूचना प्रौद्योगिकी मंत्रालय
MINISTRY OF
ELECTRONICS AND
INFORMATION TECHNOLOGY



5-Day Bootcamp

on

"Design and Aeromechanics of Unmanned Aerial Systems for Surveillance with Sensor Fusion"



October 05th to 09th 2026



DESIGN



AEROMECHANICS



SENSOR FUSION



SURVEILLANCE



APPLICATIONS

LEARN | BUILD | INNOVATE | FLY



Funded by
Ministry of Electronics &
Information Technology (MeitY)



Under The Project
Capacity Building for Human Resources in
Unmanned Aircraft System (Drone & Related Technology)



Organized By
Department of Mechanical Engineering
NIT Rourkela



In association with
Department of Mechanical Engineering and
CoE: Drone Technology, SRKR Engineering College (A),
Bhimavaram, Andhra Pradesh.



From
Idea to Flight



Hands-on
Training
Real-world
Skills



BOOTCAMP CONTENTS



UAS Design Fundamentals: Mission analysis, requirements definition, conceptual design, airframe configuration.



Aeromechanics of UAVs: Aircraft stability, control, aerodynamic modeling, CFD basics, and wind tunnel concepts.



Structures and Materials: Lightweight materials, structural analysis, fatigue, failure modes, and design optimization.



Propulsion and Performance: Propulsion systems, thrust estimation, performance metrics, endurance optimization.



Sensor Systems and Fusion: Sensors for surveillance (EO/IR, LiDAR, RADAR, GPS/INS), sensor models, and data fusion techniques.



Surveillance Mission Systems: Payload integration, real-time data acquisition, communication links, and ground control.



Autonomy and Control Systems: Flight control, navigation, autopilot systems, path planning, and AI-assisted surveillance.



Testing, Simulation & Validation: Simulation tools, flight testing, data analysis, and performance evaluation.



Applications and Case Studies: Defense, border monitoring, disaster management, agriculture, and infrastructure surveillance.



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WHO CAN APPLY?

All the students of B.Tech (All Branch) / BBA / BCA / MCA /
B.Sc Agriculture / B.Sc Biotechnology / B.Sc Foodtechnology /
M.Sc Biotechnology / M.Tech (MECE / AE / ECE / CSE / Robotics /
Other allied branches) and Research Scholars.



BOOTCAMP VENUE

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Drones for a Safer Tomorrow



Innovate | Collaborate | Create | Elevate