Short Term Course at IIT-Kanpur
on

Introduction to Manned and Unmanned Aerial Battlefield Surveillance: Sensor, Signal Processing and Fusion Aspects

18th August 2025 to 22nd August 2025

MeitY
Government of India

Introduction and overview

In today's battlefield scenarios, there is more than ever the need to sense, process and make an integrated decision of situations. These sensors are placed on aerial, ground and water based platforms. This course aims to give a practitioner's view on the basic foundations and system level aspects of current concepts of radar, lidar and electro-optic sensors among others, that are based on manned as well as unmanned aerial platforms. Processing and integrating the information of these sensors into decision making at various levels is then discussed.

Course Objectives

To develop a unified perspective of the above concepts needed to design and analyse such integrated sensing and decision systems.

Proposed Coverage

- ❑ Radar as sensor
- ❑ Radar processing (ADC to Final Track)
- ❑ Cooperative, Passive, Imaging, and, other sensors and systems for surveillance
- ❑ Laser propagation and modeling
- ❑ Active and Passive Lidar based sensor systems
- ❑ Wide Field of View Electro-optic sensors for surveillance
- ❑ Multi-Sensor Data Fusion
- ❑ Target Tracking: Kalman Filter and its variants, Single & Multi Target/Sensor Tracking
- ❑ AI-ML techniques for surveillance

Program Background and Sponsorship

This short course is supported by the Ministry of Electronics and Information Technology (MeitY) under the aegis of the project, "Capacity building for Human Resource Development in Unmanned Aircraft System (Drone and related Technology)", for which IIT Kanpur is one of the resource centers identified.

Course website:
https://iitk.ac.in/oa/events/2025-26/manned-and-unmanned-aerial-battlefield/

Coordinator and Contributing Scientists

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Contributing Scientists
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How to Apply

There are around 40 seats for the short course. To be short-listed for the course, interested candidates may fill the Google form attached. Research and system development orientations are especially encouraged.

Fee Structure and Accommodation

The registration fees for 20 selected applicants from the participating institutes (in the capacity building project) will be nil. Registration fees (non-refundable) for subsequent selected applicants from the participating institutes as well as from other institutions are given

- ❑ Students (Non-IITK): Rs. 5900/-(Including 18% GST)
- ❑ Faculty (Non-IITK): Rs. 8850/-(Including 18% GST)
- ❑ Industry and R&D: Rs 11800/- (Including 18% GST)

Accommodation: Travel and accommodation expenses must be borne by the participants. Limited on-campus accommodation is subject to availability ; we will do our best to assist any requirements.

Important Dates

Last Date to Google Form Submission: 25/07/2025

Applicants receive notification: 29/07/2025

Fee payment & submission of approvals: 04/08/2025