



# INTRODUCTION TO EXPERIMENTS IN FLIGHT

**PROF. A. K. GHOSH**

Department of Aerospace Engineering  
IIT Kanpur

**TYPE OF COURSE** : Rerun | Core | UG

**COURSE DURATION** : 4 Weeks (21 Feb' 22 - 18 Mar' 22)

**EXAM DATE** : 23 Apr 2022

**PRE-REQUISITES** : Aircraft Performance, Aircraft Stability and Control.

**INTENDED AUDIENCE** : PHD, M.Tech & B.Tech

**INDUSTRIES APPLICABLE TO** : NAL Bangalore, ARDE Pune, ADE Bangalore, ADA Bangalore

**COURSE OUTLINE :**

This course is designed to conduct experiments in airplane to determine different parameters. This course will also help in creating a background to design an experiment to determine a specific parameter.

**ABOUT INSTRUCTOR :**

Prof. A.K. Ghosh is a faculty of Aerospace Engg. Department of IIT Kanpur. He is also the in-charge of the flight laboratory and unmanned aerial vehicle of IIT Kanpur. His research areas include system identification through flight tests using conventional and neural network based methods, design of aircrafts and airborne projectiles, supercavitation, unmanned aerial systems. Before joining IIT Kanpur, he worked as a scientist with Defense Research Development Organization (DRDO). He has published many peer reviewed journal papers and conference papers, guided 13 doctoral students, and 38 masters students. He is also a mentor of multiple aerospace start-up companies, and also been associated with major industry contributions of high speed low drag aircraft bomb, Pinaka Mk-I, 105mm sabot round for tracked vehicles, etc.

**COURSE PLAN :**

**Week 1:** Planning of Experiment, Weighment and Calculation of CG (Theory).

**Week 2:** Calibration of Control Surface, Introduction to Flight Data Recorder.

**Week 3:** Estimation of Stick-Fixed Neutral Point, Static: Lateral-Directional Stability Test.

**Week 4:** Introduction to parameter estimation, Parameter Estimation using Least Squares Method.