

## Short Term Course

on

# Experimental Flow Visualisation and Measurement Techniques for both Incompressible and Compressible Flow Regimes

12-15 March 2019



### Course Coordinator

**Dr. Sunil Manohar Dash**

Assistant Professor,  
Department of Aerospace Engineering,  
Indian Institute of Technology Kharagpur

### Guest Lectures

**Dr. Kim Boon Lua**

Associate Professor,  
Department of Mechanical Engineering,  
National Chiao Tung University Taiwan

**Dr. Mrinal Kaushik**

Assistant Professor,  
Department of Aerospace Engineering,  
Indian Institute of Technology Kharagpur

## Introduction

The accurate interpretation of the fluid flow pattern is significantly important to understand the physics of the complex three-dimensional flow regimes associated with Aerospace, Mechanical, Civil and many other branches of engineering applications. Experimental flow measurements and visualisation is one of the effective and most accurate tools to capture the fluid flow pattern. The objective of this course is to demonstrate the theoretical details of several advanced intrusive and non-intrusive type flow measurement and visualisation techniques including Particle Image Velocimetry, Hot-Wire Anemometry, Schlieren Imaging etc. for both the incompressible and compressible flow regimes. The lecture materials will also highlight flow-field experiments on steady, unsteady, fixed and moving boundary fluid-solid interaction problems.

## Course Contents

1. Introduction to Flow Visualisations and Measurements
2. Smoke and Dye Visualisations
3. PIV Measurements
4. Hotwire Anemometry Measurements
5. Interferometer and Schlieren Flow Visualisations
6. Concluding Remarks

## Pedagogy

Lectures will be delivered mostly through audio-visual presentation, group activity, exercise and case analysis. Participants are advised to bring their laptop (with WiFi internet connectivity) for classroom usage.

## TA & DA

No TA/DA for any participants.

## No. of Participants

60 (Seats are available on first-cum-first basis)

## How to Apply

Interested participants should download and submit the application form with required information in a prescribed format given at the end, and send it along with the bank draft or copy of the electronic paid slip of the Registration Fee to the coordinator in the mailing address before the deadline. Please also email scanned copies of all the posted documents to the coordinator Email ID: [smdash@aero.iitkgp.ac.in](mailto:smdash@aero.iitkgp.ac.in).

## Accommodation

20 nos. AC double bedrooms are available in the Technology guesthouse of IIT Kharagpur. They will be offered on first come first serve basis. Other participants may apply for accommodation in student hostels or hotels outside campus. Participants have to pay for their food and lodgings.

## Course Fee

Industry Participants	= Rs. 10,000/-
Faculty from Colleges	= Rs. 6,000/-
Research Scholar/ Graduate Students	= Rs. 4,000/-
Undergraduate Students	= Rs. 2,000/-
No Fees for Participants from IIT Kharagpur.	
<u>GST 18%</u> Extra For All Categories Mentioned Above.	

## Important Dates

Last Date for receiving the application form with the Registration Fee	: <b>05/ 03/ 2019</b>
Intimation to the participants	: <b>07/ 03/ 2019</b>
Start of the Course	: <b>12/ 03/ 2019</b>
End of the Course	: <b>15/ 03/ 2019</b>

## Payment Mode

The payment can be made through cheque / demand draft drawn in favor of “CEP-STC, IIT Kharagpur”, payable at Kharagpur, INDIA.

The payment can also be made through electronic fund transfer. The bank details are as follows:

**Account Name:** CEP-STC, IIT Kharagpur

**Account Number:** 955 622 0000 2955

**Bank Name:** SYNDICATE BANK

**Bank Branch Name:** SRIC, IIT KHARAGPUR

**Address:** IIT KHARAGPUR,

KHARAGPUR- 721 302,

MEDINIPUR DIST. (W. B.), INDIA,

(Telephone No: +91-3222 255221)

**Swift Code:** SYN BIN BB 120

**IFSC Code:** SYNB0009556

**PAN No.:** AAAJI0323G

**MICR Code:** 721025103

**Branch Code:** 009556

## Mailing Address

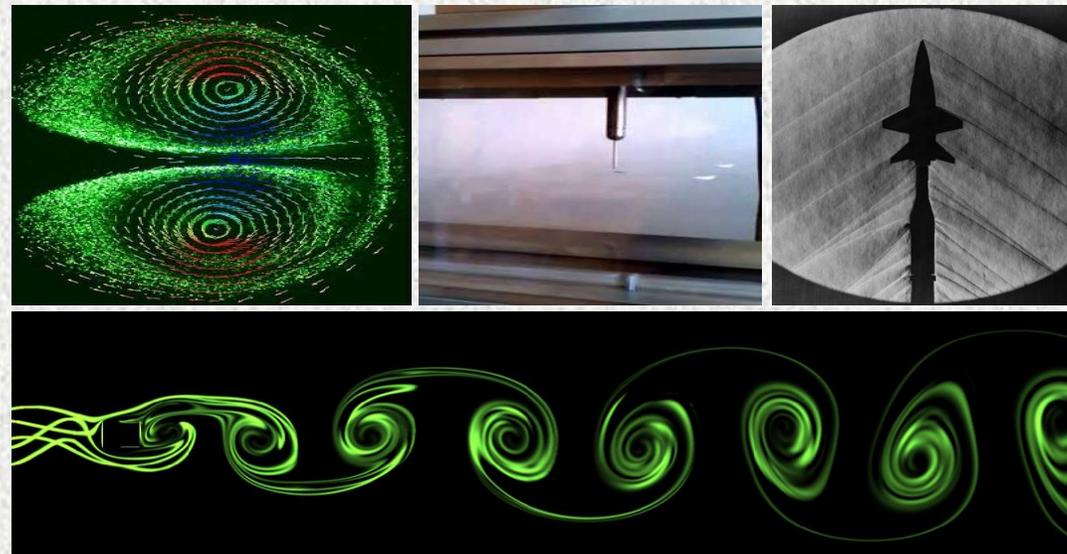
**Dr. Sunil Manohar Dash**  
Assistant Professor,  
Department of Aerospace Engineering,  
Indian Institute of Technology Kharagpur,  
West Midnapore, West Bengal State 721302.  
Email: [smdash@aero.iitkgp.ac.in](mailto:smdash@aero.iitkgp.ac.in)  
Ph No. +91-3222-304512/ +91-9958673652

## Certificate

Certificate will be issued to each participant from the Office of Head (AE), Indian Institute of Technology, Kharagpur.

## Venue

**Department of Aerospace Engineering  
Indian Institute of Technology Kharagpur  
West Medinipur, West Bengal State 721302**



## Application Form

**PLEASE USE CAPITAL LETTERS**

**Note: Filled application should reach the course coordinator on or before March 05, 2019**

- 1. Topic of the Short Term Course:**
- 2. Name:**
- 3. Age:**
- 4. Gender:**
- 5. Designation:**
- 6. Name of the Institution /Organization:**
- 7. Address for communication:**
- 8. Highest academic qualification:**
- 9. Phone No:**
- 10. Email:**
- 11. Need Accommodation: (Y/N)**
- 12. Registration Fee Details (DD No.: Date: Amount: or NEFT money transfer details (in a separate sheet))**

**Date:**

**Place: Signature of the Applicant**