

Application Form
A short term course on
Advances in Computational Fluid Dynamics

Name:-----

Position:-----

Organisation:-----

Mailing Address:

Email:-----

Fax:-----

Phone(s):-----

Areas of interest:

Details of enclosed Demand Draft:

No.----- Dated:-----

Amount (Rs):-----

Issuing Bank:-----

Date:

Participant Signature

Kindly send the complete registration form to the organizing coordinator of this workshop before **15th May, 2015**.

*The candidature of is forwarded herewith which may be accepted as the requisite draft will be produced at the time of registration.

.....
(Name of the employer with seal)

*Note meant for candidates employed in Government organizations who are not able to send DD before 15th May, 2015.

Course Coordinators:

Dr. Yogesh G. Bhumkar
Prof. Swarup K. Mahapatra

Contact Address:

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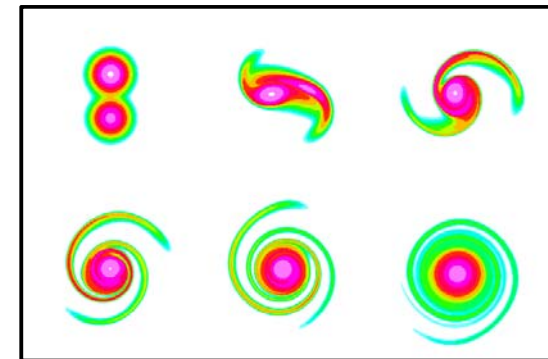
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A Short Term Course On
Advances in Computational
Fluid Dynamics

June 08-12, 2015

Venue:
School of Mechanical Sciences,
IIT Bhubaneswar



Organized by:



School of Mechanical Sciences,
IIT Bhubaneswar

Course Objectives

School of Mechanical Sciences of Indian Institute of Technology Bhubaneswar is organizing a short term course on **Advances in Computational Fluid Dynamics** during **8-12 June 2015** in continuation to previously organized short term course on computational fluid dynamics and heat transfer in May, 2012.

Proposed course is aimed at educating researchers, scientists, faculties and students. Course consists of total 35 contact hours in which duration of the expert's lectures will be 20 hours while 15 hours are reserved for the lab exposure. Present course is aimed at providing researchers a hands-on experience on the commercial CFD packages such as ANSYS Fluent and parallel computing. Participants will get an opportunity to develop parallel computing codes to solve model problems in the lab sessions as well as solve fluid flow and heat transfer problems in ANSYS Fluent.

Course Contents

1) Introduction to CFD

Need of high accuracy and high performance computing

2) Waves and disturbances in fluid flow

Physical dispersion relation; Dispersive and non-dispersive waves; Spatial and

temporal spectra in fluid flow; Spectral analysis of numerical methods

3) High accuracy schemes for Computational Acoustics and Large Eddy Simulations

Dispersion relation preservation property (DRP); Explicit and implicit spatial discretization schemes; Spectral outlook of order versus spectral resolution of methods; Compact schemes; Evaluation of first and second derivatives by compact schemes; Analysis of discretization effectiveness of compact schemes; Optimization of error in the spectral resolution of high accuracy compact schemes; Differences between spatial and temporal discretization; Physical and spurious modes in computing; Analysis of DRP methods.

4) Numerical filters: Applications in LES

Construction, analysis and use of numerical filters for LES; Aliasing error and de-aliasing using filters.

5) Grid generation

Generalized coordinate transformation; Construction of Elliptic and Hyperbolic grids; Grid metrics and their role in simulation

6) High performance computing

Introduction to parallel computing; Message Passing Interface; Domain

decomposition technique; Computation of complex transitional and turbulent flows.

7) Lab session

Hands on training will be provided to solve some of the basic as well as tutorial problems using commercial CFD packages such as ANSYS Fluent. Additionally, participants will get opportunity to write simple parallel computing codes to solve model problems in this lab session.

Participant Registration Fees

- 1) Participants from industry: Rs. 10,000/-
- 2) Academician: Rs. 8,000/-
- 3) Students: Rs. 5,000/-

Application Procedure

Application in the attached form should be sent to the coordinator with a Demand Draft favouring **CEP IIT Bhubaneswar** by **15th May, 2015**.

The registration fee includes workshop kit, and working lunches. Travel and accommodation expenses will be borne by the participants. Limited accommodations (Non-AC) at the institute hostels will be available at concessional price upon prior request. Coordinators will help in arranging accommodations in nearby good hotels at concessional price upon prior request.