

Short Term Course

On

Computational Fluid Dynamics and its Applications

7th – 11th May, 2007

Coordinators

Prof. S. K. Mahapatra

Prof. P. Rath

Organised by

Department of Mechanical Engineering

National Institute of Technology

Rourkela, 769008, Orissa

Introduction

The present course entitled "Computational Fluid Dynamics and its Applications" is oriented in introductory level for field engineers and academicians. Computational Fluid Dynamics (CFD) complements experimental and theoretical fluid dynamics by providing an efficient means of simulating fluid flows of practical interest. With rapid development of computer technology and advancement in numerical analysis and algorithms over the past few decades, CFD has found application in variety of fields including Aerospace, Oceanography, Meteorology, Naval, Surface transport, Chemical Processing, Manufacturing Science, Thermal Engineering etc. Consequently, appetite for learning the subject grows among engineering practitioners belongs to Mechanical, Aerospace, Civil, Chemical and other disciplines. The advancement in the numerical analysis leads to the development of commercial softwares such as FLUENT, NISA, CFX, PHOENICS etc. to model the CFD problems relevant to industries. In the present course, opportunities will be provided for establishing confidence in using GAMBIT and FLUENT software. Prior to the exposure and practice on these softwares, the training for the development of the skill of solving non-linear governing equations along with their appropriate boundary conditions will be imparted. The details of the course are outlined below.

Course Contents

I-Fundamentals

- Introduction to CFD
- Fundamentals of transport mechanism involving fluid flow and heat/mass transfer.
- Discretization techniques used in CFD
- Stability and convergence analysis of numerical schemes
- Introduction to Finite difference method (FDM) and Finite volume method (FVM)
- Application of CFD to simplified problems

II-Practice and Applications

- Usage of GAMBIT and FLUENT (CFD package)
- Industrial applications of CFD

It is expected that after attending this course, participants will have the ability and the confidence to take up real life industrial problems for solution in their organizations.

Faculty

Apart from covering the basics, the course including guided practice sessions, will be taught by the senior faculty members (Prof. R. K. Sahoo, Prof. A. K. Satapathy, Prof. S. K. Mahapatra, and Prof. P. Rath) of the Department of Mechanical Engineering, NIT-Rourkela who have extensive experience in the subject of CFD. The participants shall also have the benefit of some

lectures of Prof. S. K. Dash of IIT-Kharagpur, one of the best known CFD experts of the country.

Registration Fee Particulars

Applications in prescribed format and the course fee of Rs. 8000 /- (Eight Thousand only) in the form cheque or demand draft drawn in favour of "Continuing Education, NIT-Rourkela" must reach the coordinator on or before 30th April, 2007. Registration fee includes course materials, board and lodging. Accommodation will only be provided in the institute's guest house/visitors house on prior request. Accommodation in A/C rooms will be given on additional payment.

Certificate will be given to the participants after successful completion of the course under the continuing education program of the institute.

REGISTRATION FORM

Short term course on

Computational Fluid Dynamics and its Applications

(7th May – 11th May, 2007)

1. Name: _____
(Capital Letters)

2. Designation: _____

3. Organization: _____

4. Mailing Address: _____

Telephone: _____ Fax: _____

E-mail: _____

5. Accommodation Required: Yes/No

If Yes (please mention type of accommodation)

I. Guest House (A/C): TS/SR -

II. Visitor House (Non A/C): TS/SR -

6. Payment Details:

Paid by (Cheque/Draft No.): _____

Dated _____ for Rupees _____

on Bank _____

Date _____ Signature of candidate

*Applications can also be made using the copy of this registration form. Please return this form duly filled in by **30th April, 2007.**

Note: Reputed companies may sponsor participants. For such sponsored candidates, the registration fee can be deferred till the starting of the course **on request through sponsoring authority (in the format given below).**

This is to certify that participation registration fee of Rs. 8000/- of Mr. _____ Designation _____
Of _____ (Name of Organization), will be sent before 07.05.07.

Date: _____ Signature of the sponsoring authority (with seal)

Correspondence

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