National Institute of Technology - Tiruchirappalli
Department of Energy and Environment (DEE)
HANDS-ON WORKSHOP ON COMPUTATIONAL FLUID DYNAMICS (CFD)
(SELF SPONSORED)
27TH TO 31ST AUGUST 2018

About NIT Trichy

National Institute of Technology (Formerly known as Regional Engineering College) Tiruchirappalli, situated in the heart of Tamil Nadu, was started as a joint and co-operative venture of Government of India and Government of Tamil Nadu in 1964 with a view to catering needs of man-power in technology for the country. The institute aims to provide valuable resources for industry and society through excellence in technical education and research.

About DEE

Centre for Energy and Environmental Science and Technology (CEESAT) was established in 1995 under UK - India REC project and transformed to DEE in 2014. M. Tech (Energy Eng.) an interdisciplinary full time programme is offered since 1996 onwards. The research and development activities of DEE include CO_2 capture and sequestration, effluent treatment using solar energy / phyco-remediation, energy modelling, wind energy, Solar PV/ Thermal systems, energy efficient buildings, energy storage devices and CFD. Apart from research, the department offers consultancy services on solid and liquid testing, calibration and energy auditing to other academic institutes and industries. The testing labs of the DEE are certified with ISO 9001: 2008. The department is committed to convert its research into a real time technology transfer to the society and industry were it meets out its ultimate objective.

Workshop Objectives

- Impart fundamentals of Computational Fluid Dynamics
- Enable the participants to convert the design problems into CFD
- Introduce various applications of computational fluid dynamics and to solve the heat transfer and fluid flow problems using ANSYS 15

Workshop Description

- This course will provide core knowledge on the fundamentals of CFD for engineers, and an introduction to the methods and analysis techniques used in CFD.
- It also provides an introduction to the use of commercial CFD codes to analyze internal and external flow heat transfer, multiphase and combustion problems of practical engineering interest.

Workshop Outcome

On successful completion of the training program, participant will be able to:
- Have a working knowledge of variety of computational techniques, that could be used for solving engineering problems and proficiency in engineering design
- Develop an understanding of the major theories, approaches and methodologies (e.g. boundary conditions, turbulence modelling etc.) used in CFD

Workshop Details

Sessions will be handled by experts from Industries and academics. Theoretical sessions will be followed by Hands-on lab session. The training session includes the following topics.

1. Introduction to CFD – Finite difference method, Finite Volume method and Finite element method.
2. Governing equations – Discretization and solving schemes Grid independency – Matlab introduction
3. Geometric sessions 01 & 02 (Solid works)
4. N-S equation – Solving (Analytical) and coding (Matlab)
5. Internal flows and external flows analysis (ANSYS)
6. Turbulence modelling
7. Pressure drop analysis (ANSYS)
8. 1D Heat transfer conduction – FVM – Solving (Analytical) and coding (Matlab)
9. Case study on heat transfer and fluid flow problems by experts
10. Heat transfer and fluid flow problem – FVM – Solving (Analytical) and coding (Matlab)
11. Heat transfer analysis on thermal equipment 01 & 02 (ANSYS)
12. Case study on heat transfer and multiphase problems by experts - Multiphase flows
13. Multiphase Fluidization (ANSYS)
14. Combustion

Category	INR
Faculty Members of academic Institutes	2360*
Research scholars and PG/UG Students	1180*
Scientist / Industry	5900*

* Inclusive of 18% GST

How to register

Registration fee must be paid in the form of DD in favour of **"The Director, NIT Trichy"** payable at SBI, NIT, Trichy and requested to submit the DD along with application form to ceesatevents@gmail.com and by post to the following address on or before **14th August 2018.**

Dr. N. Anantharaman,
HoD-Dept. of Energy and Environment,
National Institute of Technology - Tiruchirappalli,
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Application Form

Name: Ms./Mr./Dr.

Designation:

Date of birth & Age:

Email :

Mobile No.:

Accommodation required: Yes / No

Official Mailing Address :

DD No.:

Date   Signature

Limited Participants (40 Nos.)- Selection on first cum first serve basis
Eligibility: Persons from Industries, academic and research institutions
Accommodation will be arranged inside campus based on availability.

Coordinators

Dr. M. Premalatha (DEE)

Dr. R. Tamil Selvi (Dept. of Mathematics)

Dr. Ruben Sudhakar D (DEE)

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