



**Faculty Development Programme (FDP)**  
On  
**Advances in Computational Fluid Dynamics: Methods and Applications using MATLAB and ANSYS-Fluent**

**6<sup>th</sup> – 11<sup>th</sup> May 2019**

organized by

**E & ICT Academy, National Institute of Technology Warangal**

(Sponsored by Ministry of Electronics and Information Technology (MeitY), GOI)

**Preamble:**

"Electronics & ICT Academy" was set up at NIT Warangal with financial assistance from MeitY, GoI. The jurisdiction of this academy is Telangana, Andhra Pradesh, Karnataka, Goa, Puducherry and Andaman & Nicobar Islands. This academy role is to offer faculty development programmes in standardized courses and emerging areas of Electronics, Information Communication Technologies, training & consultancy services for Industry, Curriculum development for Industry, CEP for working professionals, Advice and support for technical incubation and entrepreneurial activities.

**About the Course:**

Computational Fluid Dynamics (CFD) is a methodology for computer simulation of fluid mechanics and heat transfer problems. The simulation results in prediction of the flow fields in the domain of interest are very useful in the design and optimization of processes and equipment. CFD has become widely used and universally accepted procedure in many academic and industrial sectors. This workshop offers excellent guidance on how to write CFD codes and to use CFD simulation-software. The increasing importance of CFD simulation-software development, application, and analysis, in the Indian industry and research organizations, along with the lack of trained manpower in this area, has greatly increased the significance of this course. The level of the course will be appropriate for people carrying out research in CFD. This course will develop an understanding of the theory and numerical techniques, so that CFD code writing and software can be used smartly.

**Major Course Contents:**

**Module 1:** Introduction to CFD

- Governing equations
- CFD principles and practices
- Different methods of solving the fluid flow and heat transfer problems

**Module 2:** Writing MATLAB programs for the solution of:

- Transcendental, Simultaneous algebraic equations, Numerical differentiation and Integration
- Tri-diagonal matrix using Thomas Algorithm
- ODE, PDE (1-D and 2-D heat conduction with different boundary condition)
- Incompressible Navier-Stokes equations, Solution of inviscid incompressible fluid flows

**Module 3:** ANSYS-FLUENT to solve the following problems of heat transfer analysis

- Steady state conduction
- Lumped heat transfer
- Convective heat transfer – Internal/ External flow (study both velocity and thermal boundary layers)
- Radiation heat transfer– Emissivity
- **Case studies: Industrial based problems**

**Faculty conducting this programme:**

The program will be conducted by the faculty members from NIT Warangal. Experts in the concerned field from NIT's, Mahindra & Mahindra, BHEL and IIT are invited to deliver lectures in the program.

**Registration Fee Particulars:**

<b>Faculty and Research Scholars</b>	<b>Rs. 2500/-</b>
<b>Faculty of SC/ST Category</b>	<b>Rs. 1875/- (SC/ ST participants should submit the copy of their caste certificate to claim the concession along with application form)</b>
<b>Industry Participants</b>	<b>Rs. 7500/-</b>

**SC/ST concession is only for faculty of mentioned states. Research Scholars are not eligible for SC/ST concession.**

The entire registration fee is to be collected in the form of DDs/online transfer using the following details:

<b>DD Details</b>	<b>Online Transfer Details</b>
<b>Demand Draft in favor of "E &amp; ICT Academy, NIT Warangal" payable at any bank in Warangal</b>	<b>Account Name: Electronics &amp; ICT Academy NITW Account No: 62423775910 IFSC: SBIN0020149</b>

**Eligibility:**

The program is open to the Faculty of Engineering Colleges, and other allied disciplines in India. Industry personnel working in the concerned /allied discipline can also attend.

**Accommodation:**

All the selected participants will be provided FREE boarding & lodging in the **NIT Warangal** guest house. No TA will be paid for the participants

**How to apply:**

A filled in form of application in the prescribed format duly signed and sponsored by appropriate authorities (along with demand draft) should reach the coordinator by speed-post. It is also mandatory to send scanned application form and demand draft through e-mail to [vrkraj@nitw.ac.in](mailto:vrkraj@nitw.ac.in) as selection will be intimated only through mail.

**Selection Criteria:**

Selection will be done based on first-come-first-serve basis to a maximum number of 50 (fifty). Additionally 10 participants from industry are allowed to participate. The list of selected participants will be intimated through e-mail. In case a candidate is not selected, the DD will be sent back. Candidates will be issued satisfactory certificates on successful completion of the course. Reservations are followed for selecting candidates as per GOI norms.

**Important dates:**

Last date (Application &DD)	<b>19<sup>th</sup> April 2019</b>
Selection List by E- mail	<b>22<sup>nd</sup> April 2019</b>
Duration	<b>6<sup>th</sup> – 11<sup>th</sup> May 2019</b>

**About NIT Warangal:**

**National Institute of Technology, Warangal** is the first among 17 RECs setup as joint venture of the Government of India and the state government. Over the years the college has established itself as a premier Institute imparting technical education of a very high standard leading to the B.Tech degrees in various branches of engineering, M.Tech and Ph.D programs in various specializations. All B.Tech and M.Tech programmes of NIT Warangal are NBA accredited.



## FACULTY DEVELOPMENT PROGRAMME (FDP)

on

### Advances in Computational Fluid Dynamics: Methods and Applications using MATLAB and ANSYS-Fluent

(6<sup>th</sup> May – 11<sup>th</sup> May, 2019)

Organized by

**E & ICT Academy, NIT Warangal**

(Sponsored by Ministry of Electronics and Information Technology (MeitY), GOI)

1. Name :

2. Designation :

3. Institution :

4. Email:

5. Mobile No:

6. DD No/ Online Details:

Bank:

Date:

Amount:

7. Address for Correspondence:

8. Educational Qualification:

9. Subjects taught so far:

10.No. of refresher courses/workshops attended:

11. Experience (inyears):

Teaching:      Research:      Industry:

12. Accommodation required:      YES /NO

13. Do you belong to SC/ST :      YES /NO

(If yes, please specify and attach a copy of caste certificate to claim the concession)

#### **Declaration**

The information provided is true to the best of my knowledge. If selected, I agree to abide by the rules and regulations of the FDP and shall attend the course for the entire duration. I also undertake the responsibility to inform the Coordinator in case, I am unable to attend the course.

Place:

Date:

Signature of the Applicant

#### **SPONSORSHIP CERTIFICATE**

Dr. /Mr. /Ms. .... is an employee of our Institute/Organization and is hereby sponsored to participate in the FDP on “**Advances in Computational Fluid Dynamics: Methods and Applications using MATLAB and ANSYS-Fluent**”, sponsored by Electronics & ICT Academy during 6<sup>th</sup> May – 11<sup>th</sup> May, 2019 at **NIT Warangal**.

Signature of Head of Institution  
(with seal)

#### **Address for correspondence**

*Post your application form with DD to*

**Dr. V. R. K. Raju,**  
**Associate Professor,**  
**Dept. of Mechanical Engineering,**  
**National Institute of Technology Warangal**  
**Telangana, India - 506004**

E-mail the scanned copies of filled-in and duly signed application form along with DD to [vrkraj@nitw.ac.in](mailto:vrkraj@nitw.ac.in)

For more details about Electronics & ICT Academy, NIT Warangal please visit: <https://nitw.ac.in/eict>

For more enquiries please contact:

Mobile: 9492416897

#### **Coordinators**

**Dr. V. R. K. Raju**

**Associate Professor**

**Dept. of Mechanical Engineering**

**National Institute of Technology Warangal**

**Dr. D. Jaya Krishna**

**Associate Professor**

**Dept. of Mechanical Engineering**

**National Institute of Technology Warangal**