One Week Online Short term Training Program on

"Fundamentals and Modelling of CFD-Part I"

December, 21-25, 2020

Organized by

Department of Mechanical Engineering

S.V. National Institute of Technology Surat, 395 007 Gujarat, India

About Institute

The institute was initially established as Sardar Vallabhbhai Regional College of Engineering & Technology in 1961 and it is elevated to Sardar Vallabhbhai National Institute of Technology with the status of 'Deemed University' on 4th October 2002. The Sardar Vallabhbhai National Institute of Technology (SVNIT) is one of the pioneering engineering institutions of the country, which has contributed many outstanding engineers in India and abroad. It is conducting six UG programs, seventeen PG programs, three integrated five years M.Sc. Programs, and Ph.D. program in all disciplines of engineering and applied sciences. Special attention is given to interdisciplinary research all across departments. The institute has an excellent placement record and growing by high pace in research as well.

Who will benefit?

Students: UG, PG, PhD
Faculty of Engineering:
Engineers & Scientists from Industry

About the Department

The Department of Mechanical Engineering is one of the oldest departments from the start of institute (1961). The department has qualified and dedicated faculty members with the specialization in various areas. The department is undertaking a UG programs in Mechanical Engineering, five PG programs (Thermal System Design, Mechanical Engg., Turbo Machines, CAD/CAM, and Manufacturing Engg.) and a research program leading to Ph.D. degree in related specialization. For industry people, master program by research and part time Ph.D. program are also available. The research facilities in mechanical department are developing with addition of new equipment and laboratories, and modernization of old laboratories.

Resource Persons

Resource Persons for the course will be highly experienced faculty members from the host Institute (SVNIT Surat).

Last Date of Registration

December 18, 2020

Coordinators

Dr. Hemant B. Mehta

Associate Professor, MED,
SVNIT Surat,
hbm@med.svnit.ac.in
09924999778

Dr. Vipul M. Patel

Assistant Professor, MED,
SVNIT Surat
vmp@med.svnit.ac.in
09582701745

Dr. Rohan Pande

Assistant Professor, MED,
SVNIT Surat
rohanpande@med.svnit.ac.in
08793113173.

Registration fee

UG, PG, Research Scholars	₹ 500/-
Faculty	₹ 1000/-
Industry Delegate	₹ 5000/-

About the Course

The scopes of modelling and simulation have tremendously been increased in the recent years. With the faster growth of high performance computer, it has been possible to solve complex problems of fluid flow and heat transfer. The modelling techniques are also significantly improved because of the ever increasing computing power. Computational fluid dynamics modelling has now become extremely useful in the design of many thermal systems. The objective of the course is to emphasize the participants with the basic need of modelling for heat transfer problems. Basic concepts of various computational methods which include the traditional as well emerging methods would be presented. The course also aims at giving the participants an exposure to various complex topics of fluid flow and heat transfer.

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Course content

- Basic governing equations of fluid flow and heat transfer.
- Discretization of governing equations for pure conduction, conduction-convection and transient heat transfer
- 0-D, 1-D, 2-D and 3-D FDM/FVM/FEM fundamentals
- Properties of numerical methods
- Overview of turbulence models.
- SIMPLE algorithm for pressure-velocity coupling
- Introduction to meshing tool (ICEM) and finite volume based solver ANSYS-FLUENT.
- Structured and unstructured meshing
- Application of CFD to important problems of mechanical and aerospace engineering
- Code Development

Address for communication

Dr. Vipul M. Patel

vmp@med.svnit.ac.in
09582701745