

AICTE Training And Learning (ATAL) Academy Programmes
On
RECENT ADVANCES IN FLUID AND THERMAL ENGINEERING
(RAFTE -2019)



December 17 to 21, 2019

Title of the Programme

Recent Advances in Fluid and Thermal Engineering (**RAFTE 2019**)

Duration of the Programme

December 17 to 21, 2019

Organized by

Mechanical Engineering Department

Venue

Seminar Room, Mechanical Engineering Department, NIT Durgapur

Patron

Prof. Anupam Basu, Director, NIT Durgapur

Chair Person

Prof. Apurba Layek, Head, Department of Mechanical Engineering

Coordinator(s)

- Dr. Rabindra Nath Barman, Assistant Professor, Mechanical Engineering Department
- Dr. Sujit Karmakar, Assistant Professor, Mechanical Engineering Department
- Dr. Shantanu Pramanik, Assistant Professor, Mechanical Engineering Department
- Dr. Ranjan Kumar Mitra, Assistant Professor, Mechanical Engineering Department

Members

Prof. I. Basak
Prof. N. Banerjee
Prof. B. Halder

Dr. J. Dey
Dr. S. C. Rana
Dr. S. Sengupta

Dr. A. K. Biswas
Dr. A. K. Pramanick
Dr. S. S. Roy
Dr. K. Khan
Mr. A. K. Das
Dr. B. Bera

Dr. S. Mondal
Dr. A. Datta
Dr. K. Jana
Mr. A. Patari

About the Course

The domain of fluid and thermal sciences is vast. The more we explore, the more we discover its omnipresent influences our everyday life. The main objective of the workshop is to provide a unique opportunity of presenting and discussing recent developments in different aspects of advances in Thermal-Fluid Science and Engineering. A special emphasis is also given to the new and emerging areas of the fluid and thermal sciences which are gradually becoming more and more relevant in improving the quality of human life and environment around us. In this context, the faculty members of Mechanical Engineering Department at National Institute of Technology, Durgapur felt the need of organizing a five-day national level workshop on Recent Advances in Thermal-Fluid Science and Engineering. This workshop would bring the academicians, researchers and practitioners in the area of fluid and thermal sciences and allied areas to a common platform to disseminate their knowledge and share their experiences. We welcome you to this challenging field, which offers exciting opportunities in learning new computational techniques in solving transportation of heat, momentum and species in flow through engineering systems, understanding of flow through micro and nano-channels, development of micro-electro-mechanical systems (MEMS), enhancing heat transfer in nano and micro scales, development of more efficient fuels and fuel systems, exploring new energy sources, analyzing complex movement of biological fluids in biological systems, etc.

Topics to be covered in the Program (Tentative)

- Analysis of Thermal Systems: A Dynamical Systems Perspective
- Illustration of FDM, FVM and FEM techniques for 1-D heat conduction
- Flows through deformable narrow confinements
- Power Plant Engineering
- Multiphase Flow and Heat Transfer
- CFD
- Computational Methods and Tools
- Experimental Techniques
- State-of-the-art and Future Trend of Research
- Hands-on Session with Computational Tools

Resource Persons (Tentative)

- Prof Achintya Mukhopadhyay
Mechanical Engineering Department, Jadavpur University, India.
- Prof. Swarnendu Sen
Mechanical Engineering Department, Jadavpur University, India
- Prof. Ranjan Ganguly
Mechanical Engineering Department, Jadavpur University, India
- Dr. Debashis Pal
Department of applied Mechanics & Aerospace Engineering, IEST Shibpur, India
- Dr. Subhankar Sen
Mechanical Engineering Department, IIT- ISM Dhanbad, India
- Dr. S. Pramanik,
Mechanical Engineering, NIT Durgapur, India

- Dr. Sujit Karmakar
Mechanical Engineering, NIT Durgapur, India
- Dr. R.K.Mitra

Mechanical Engineering, NIT Durgapur, India

- Prof. Shantanu Dutta
Mechanical Engineering, NSHM Academic Durgapur, India
- Dr. R. N. Barman
Mechanical Engineering, NIT Durgapur, India

Schedule plan (Tentative):

Dates	10:00 AM to 11:30 AM	11:30 AM to 12.00 PM	12.00 PM to 1.30 PM	1.30 PM to 2:30 PM	2:30 PM to 4.00 PM	4:15 PM to 4:45 PM
17.12.2019	Registration and Inauguration	High Tea	Session 1 Thermal Creep & Knudsen Compressor, Prof. Swarnendu Sen	Lunch	Session 2 Analysis of Thermal Systems: A Dynamical Systems Perspective, Prof Achintya Mukhopadhyay	Tea
18.12.2019	Session 3 FEM solution for one-dimensional, Dr. Subhankar Sen, Asst. Prof.	Tea	Session 4 Steady advection-diffusion equation, Dr. Subhankar Sen, Asst. Prof.	Lunch	Session 5 Fundamentals of Fluid Mechanics , Dr. S. Pramanik, Asst. Prof.	Tea
19.12.2019	Session 6 Magnetic particle based Microfluidics, Prof. Ranjan Ganguly,	Tea	Session 7 Surface microfluidics, Prof. Ranjan Ganguly,	Lunch	Session 8 Advanced Coal Technologies, S. Karmakar, Asst. Prof.	Tea
20.12.2019	Session 9 Hands-on Session with Comsol module Heat Transfer, Prof. S. Dutta Asst. Prof.	Tea	Session 10 Hands-on Session with Comsol module Heat Transfer , Prof. S. Dutta Asst. Prof.,	Lunch	Session 11 Micro-Heat Exchanger Design and Analysis, Dr. Debashis Pal, Asst. Prof.	Tea
21.12.2019	Session 12 Hands-on Session with Computational Tools, Dr. R. N. Barman, Asst. Prof	Tea	Session 13 Computational Methods and Tools, Dr. R. N. Barman Asst. Prof.	Lunch	Session 14 Mooring system under surge oscillation and its control: A fluid structure interaction, R. K. Mitra, Asst. Prof	Valediction

Who Can Participate

The participants to the program will be faculty/ Ph. D. Scholar/ PG scholar from AICTE approved technical Institutions.

Course Registration:

There is no registration fee from any participant. No TA/DA will be paid to any participant.

How to apply: The Brochure and Registration forms are available at the following link:

<https://drive.google.com/open?id=10K8VRJiZBVxygDqigDvZgZxuMjunhEqI>

Kindly fill up the registration form and upload its scanned copy (.pdf) in the link provided below:

<https://docs.google.com/forms/d/e/1FAIpQLScf75SOu6gQycjss3laiE-Uxb4QLkanNfxhtmNCSM4gbnk4Gg/viewform?vc=0&c=0&w=1>

Boarding and Lodging:

Participants will have to make their own stay arrangement during the five days. However, the organizing committee may help in searching for accommodation in nearby hotels for outstation candidates on payment basis.

Other information:

Only refreshment and lunch will be provided to the participants for all five days. On successful completion of the program on all the days, participants will be awarded a certificate of participation. The certificates shall be issued to those participants who have attended the program without any absenteeism and scored minimum 60% marks in the test.

Contact Details:

Workshop Coordinator(s):

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