SPONSORSHIP / NOMINATION CERTIFICATE

Prof / Dr / Mr / Ms / Mrs. .....
.....

is an employee of our institute and his / her application is hereby sponsored / nominated. The applicant will be permitted to attend the short-term course **"Cutting-edge multidisciplinary research in the field of fluids"** in Mechanical Engineering Department at NIT Rourkela during **11th-15th** October 2021 if selected.

Our institute is (tick one):

- ☐ CFTI
- ☐ State Govt. Funded Institution
- ☐ Other Institutions

Date. Signature of Authority

Designation

Official Seal

Selected participants will be informed by E-mail. The duly sponsored/Nominated application form should be mailed to:

Organized by
Dr. Kishore Singh Patel (Convener)
Dr. B. Kiran Naik (Co-Convener)
Prof. S. Murugan (Co-Convener)
Department of Mechanical Engineering
National Institute of Technology, Rourkela
Rourkela -769 008, Odhisa

Contact Nos. 9945676486 (Kishore)
9435686059 (Kiran)
Emails: *atalfdp2021fluids@gmail.com*
kishpatel.mech@gmail.com
naikbk@nitrkl.ac.in

ABOUT NIT ROURKELA

National Institute of Technology Rourkela is an Institute of national importance created under the act of parliament. NIT Rourkela has been ranked as 225 and 29th position in QS Asia University and QS Indian University Ranking 2020, respectively. It has also been ranked in 121st position in QS BRICS category, 2020. Times Higher Education has figured NIT Rourkela in the group of 601-800 in World University Ranking 2020. The institute provides quality education in a diverse and multicultural environment. The mission of the institute is to become an internationally acclaimed institution of higher learning that will serve as a source of knowledge and expertise for the society and be a preferred destination for undergraduate and post graduate studies. The institute is offering undergraduate, post graduate and PhD programme in 21 branches of Engineering. The institute research centres are engaged in consultancy and research activities of several government bodies such as DST, DAE, CSIR, DRDO, BARC, ISRO and private industries.

DEPARTMENT OF MECHANICAL ENGINEERING

The Mechanical Engineering of NIT Rourkela comprises three divisions namely design, manufacturing and thermal engineering. The department is known for research in variety of fields that include mechanical vibration, robotics, heat transfer, CAD/CAM, precision engineering, metal forming, manufacturing, CFD, industrial refrigeration and cryogenics. The academic programmes of the department reflect not only the core areas of Mechanical Engineering; but also the research specialization of the faculty. The department at present has over one hundred research scholars pursuing the research on diverse fields. All the groups are working in close co-operation while retaining individual identities. Many Research and Development projects being pursued by the faculty are sponsored by Government agencies and private industries. The major sponsors among these projects are BRNS, DST, ARDB, BRFST and HBL Power Systems.

AICTE Training and Learning (ATAL) Academy

(Online Faculty Development Program)

on

Cutting-edge multidisciplinary research in the field of fluids

October 11 - 15, 2021

(Through Virtual Mode)

Patron

Prof. Simanchala Panigrahi,
Director, NIT Rourkela

Chairman

Prof. S. K. Sahoo, HOD-ME Dept.

Conveners

Dr. Kishore Singh Patel,
Dr. B. Kiran Naik
Prof S. Murugan
ME Dept.

Sponsored by

ABOUT THE COURSE

The fundamental shape of research in the field of classical fluid mechanics has changed a lot over a decade and has become truly multidisciplinary. The major focus of most of this work is to unravel complex flow physics involved in different multidisciplinary areas, such as biomedicals, energy security, agriculture, soil engineering, climate change, etc. The focus of this program is to get a broader understanding of various cutting-edge research going on in the field of fluids

COURSE CONTENT

The course will cover the following major topics;

- Introduction of fluid dynamical research in various multidisciplinary fields.
- Fluid dynamics in a biological system.
- Fluid dynamics inside a small confined channels (microfluidics).
- Fluid dynamics of clouds
- High speed flows
- Wall bounded turbulent flows
- Computational multiphase flows
- Meshless techniques in comutations

TRAINING SESSION

The training session will cover the following topics;

- Machine learning tools, statistical techniques in the field of fluid flows and heat transfer
- CFD simulations using commercial software.
- Remote sensing applications to weather forecast
- Communicating Scientific Information to Public

ELIGIBILITY

The course is open to faculty members, research scholars and students from universities and educational institutions, and scientists and engineers from research organizations and industries, respectively. No course fee is charged for PhD and PG students.

IMPORTANT DATES

The last date for the receipt of applications by email: scanned copy is 06/10/21. Intimation of selection: 09/10/21

TARGET AUDIENCE

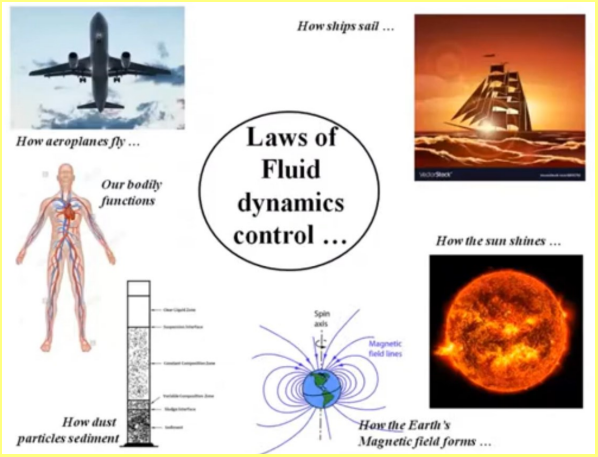
Maximum number of applicants is limited to 200. The selected applicants will be provided a secured meeting code of the web platform one day before the commencement of course.

ADDRESS FOR CORRESPONDENCE:

Dr. Kishore Singh Patel
Department of Mechanical Engineering
National Institute of Technology, Rourkela
Rourkela-769 008, Odhisa, India

Contact Nos. 9945676486 (Kishore)

Emails: *patelks@nitrkl.ac.in;*
kishpatel.mech@gmail.com



REGISTRATION FORM

Registration for this program is free. However, the registration can only be done through AICTE Training And Learning (ATAL) portal. The steps to create an ATAL portal and registration for the course are as follows:

Step-1 If you are new to the ATAL Academy FDP portal, kindly sign it up as a participant using this link:- https://atalacademy.aicte-india.org/signup. The existing user can directly login to the portal to register for this FDP.

Step-2 After creating a participant portal on ATAL Academy, the login to the portal can be done using this link: - https://atalacademy.aicte-india.org/login

Step-3 The participants can see the list of upcoming online FDP by clicking to "Workshop" option in the left side column.

Step-4 As per interest, the participants can register for one or more FDP programs.

Step-5 To register for this FDP program, one can search by 1. State: - ODISHA, 2. Month:- October, 3. Thrust area:- All, and 4. Mode: - Online".

Step-6 After this one can see the our FDP program in 3rd position, under the title "**Cutting-edge multidisciplinary research in the field of fluids**". By clicking the add (+) sign, one can register for this FDP.

If you need any other help, kindly contact us through the email:-

atalfdp2021fluids@gmail.com Or

k.bukke@gmail.com

AICTE Training and Learning (ATAL) Academy

(Online Faculty Development Program)

on

Cutting-edge multidisciplinary research in the field of fluids

October 11th to 15th, 2021

Day	Technical Session Theme	9:15 AM - 10:00 AM	10:15 AM - 12:15 AM	2:00 PM - 4:00 PM	4:15 PM - 6:15 PM
Day 1 (11-10-2021) Monday	Microfluidics, Biofluid Mechanics	Inaugural Function	Lecture 1 Prof. Suman Chakraborty Professor, (FRSC, ASME, FNASc, FNA Fellow) IIT Kharagpur	Lecture 2 Prof. Rajesh Ranjan Assistant Professor, IIT Kanpur	Lecture 3 Dr. Earu Banoth Assistant Professor, NIT Rourkela
			10:15 AM – 12:15 AM	02:00 PM – 04:00 PM	
Day 2 (12-10-2021) Tuesday	Earth and atmospheric flows		Lecture 4 Prof. Narsing Jha Assistant Professor, IIT Delhi	Lecture 5 Dr. Samrat Rao Assistant Professor, IIT Jammu	Lecture 6 Prof. S. Murugan Professor, NIT Rourkela
Day 3 (13-10-2021) Wednesday	Miscellaneous (Bubble dynamics; LBM; Nanofluids)		Lecture 7 Prof. Kirti Chandra Sahu Professor, IIT Hyderabad	Lecture 8 Dr. N. H. Maruthi Senior software manager, Sankhya Sutra lab	Lecture 9 Dr. B. Kiran Naik Assistant Professor, NIT Rourkela
Day 4 (14-10-2021) Thursday	High Performance Computing		Lecture 10 Prof. Ratnesh Shukla Associate Professor, IISc Bangalore	Lecture 11 Prof. S. M. Deshpande DST Chair Professor (Rtd.), IISc Bangalore	Lecture 12 Dr. K. S. Patel Assistant Professor, NIT Rourkela
Day 5 (15-10-2021) Saturday	Biofluid Mechanics		Lecture 13 Prof. Amresh Dalal Professor, IIT Guwahati	Lecture 14 Mr. Varun Upadhyay Institutional Collaborator, Art-of-living, Bangalore	Test, feedback, Vote of thanks, and formal closer of program

Inaugural Function **(11-10-2021)**

09:20AM – 10:00AM

Welcome Address
Dr. Kishore Singh Patel
Assistant Professor, Mechanical Engineering Department
NIT Rourkela

Inaugural Address
Prof. S. K. Sahoo
HOD, Mechanical Engineering Department
NIT Rourkela

Address by the Director
Prof. Simanchala Panigrahi
Director, NIT Rourkela

Address by the Chief Guest
Prof. Suman Chakraborty
Professor (FRSC, ASME, FNASc, FNA Fellow)
IIT Kharagpur

Vote of Thanks
Dr. B. Kiran Naik
Assistant Professor, Mechanical Engineering Department
NIT Rourkela

LECTURE SERIES

DAY 1 (11-10-2021)

10:15 AM

Lecture 1

Topic: Fluid Dynamics and Human Health.

Speaker: Prof. Suman Chakraborty,
Professor, (FRSC, ASME, FNASc, FNA Fellow)
IIT Kharagpur

2:15 PM

Lecture 2

Topic: Unsteady Dynamics of Flow Behind a Military Transport Aircraft.

Speaker: Dr. Rajesh Ranjan
Assistant Professor, IIT Kanpur

4:00 PM

Lecture 3

Topic: Development of microfluidic device using soft lithography

Speaker: Dr. Earu Banoth
Assistant Professor, NIT ROURKELA

DAY 2 (12-01-2021)

10:15 AM

Lecture 4
Topic: Environmental fluid dynamics.

Speakers: Prof. Narsing Jha
Assistant Professor, Applied Mechanics Department, IIT Delhi.

02:15 PM

Lecture 5
Topic: Cloud dynamics.

Speaker: Prof. Samrat Rao
Assistant Professor, IIT Jammu

4:00 PM

Lecture 6
Topic:

Speaker: Prof. S. Murugan
Professor, NIT Rourkela

DAY 3 (13-01-2021)

10:15 AM

Lecture 7
Topic: Bubbles and droplets.

Speaker: Prof. Kirti Chandra Sahu
Professor, Chemical Engineering Dept., IIT Hyderabad

02:15 PM

Lecture 8
Topic: DNS of flow past LPT cascade using a higher-order Lattice Boltzmann Model.

Speaker: Dr. Maruthi N.H.
Technical Lead, SankhyaSutra Labs Ltd., Bangalore

4:00 PM

Lecture 9
Topic: Assessment of heat transfer enhancement in evacuated U-tube solar collector employing nanofluids

Speaker: Prof. B. Kiran Naik
Assistant Professor, NIT Rourkela

DAY 4 (14-01-2021)

10:15 AM

Lecture 10

Topic: Simulations of multicomponent compressible flows.

Speakers: Prof. Ratnesh K. Shukla
Associate Professor, Mechanical Engineering, IISc Bangalore

03:15 PM

Lecture 11

Topic: Kinetic grid free method from research to applications and future directions of aerospace CFD in India.

Speaker: Prof. S. M. Deshpande
Retd Satish Dhawan Chair Professor, IISc, Bangalore
Was Senior Research Associate and Consultant, EMU, JNCASR, Bangalore, India
FASc, FNAE, FAeSI, Fellow Maharshtra Academy of Sciences.

4:00 PM

Lecture 12

Topic: High-fidelity simulation over an HPT blade and multiphase flow dynamics on a moving domain.

Speakers: Dr. Kishore Singh Patel
Assistant Professor, Mechanical Engineering, NIT Rourkela.

DAY 5 (15-01-2021)

10:15 AM

Lecture 13

Topic: Migration of Hydrogel Drug Carriers Through Narrow Passages and Flow Dynamics of Cancer Cells Through Constricted Microchannels

Speakers: Prof. Amaresh Dalal
Professor, Department of Mechanical Engg, IIT Guwahati,

02:15 PM

Lecture 14

Topic: Value addition and time management

Speaker: Mr. Varun Upadhyay
Institutional Collaborator, Art-of-living, Bangalore

04:15 PM **Brainstorming and Valedictory Function**

ADDRESS OF CORRESPONDENCE

Dr. Kishore Singh Patel

Department of Mechanical Engineering

National Institute of Technology, Rourkela

Odisha, India - 769008

Contact No. 9945676486 (Kishore)

Emails: kishpatel.mech@gmail.com ; patelks@nitrkl.ac.in

MS Teams Joining Link

https://teams.microsoft.com/l/team/19%3a23VZJrPjprofTLBSHlnAjeiJ_LQLXD-OGdrKesrswDw1%40thread.tacv2/conversations?groupId=44a75cea-d3f4-4ead-99cc-3bcafcd91e4c&tenantId=bad12864-913e-4b99-87d6-b8d2ad459e27

Whatsapp Group link

https://chat.whatsapp.com/KYDePjXSnlE8sNUOVg5QT1

ADDRESS OF CORRESPONDENCE

Student Coordinators

Nandakishora Y.

PhD., Thermal engineering,

Department of Mechanical Engineering

National Institute of Technology, Rourkela

Odisha, India - 769008

Contact No. 8762793589 (Nand Kishor),

Email: nandakishora1992@gmail.com (Nandakishor);

B Raghu Ram, Vinit Malik

MTech, Cryogenics & Vacuum Technology

Department of Mechanical Engineering

National Institute of Technology, Rourkela

Odisha, India - 769008

Contact No. 9492479771 (B Raghu Ram), 7210257205 (Vinit Malik)

Email: B.RAGHURAM202@gmail.com (B Raghu Ram),
vinitmalik873@gmail.com (Vinit Malik)