

**TEQIP-III Sponsored**

**Workshop Course**

**On**

**HEAT TRANSFER AND FLUID  
FLOW IN MINICHANNELS AND  
MICROCHANNELS  
(HTFFMM-2018)**



**June 13 to 17, 2018**

**Organized by**

**Mechanical Engineering Department  
National Institute of Technology Durgapur  
M. G. Avenue, Durgapur-713209, W.B., India**

Website: [www.nitdgp.ac.in](http://www.nitdgp.ac.in)

**COURSE COORDINATORS**

**Dr. Rabindra Nath Barman, Assistant Professor**

**Mechanical Engineering Department**

**Dr. S. C. Rana, Assistant Professor**

**Mechanical Engineering Department**

**Dr. Shantanu Pramanik, Assistant Professor**

**Mechanical Engineering Department**

**PATRON**

**Prof. Anupam Basu**

**Director, NIT Durgapur**

**ADVISORY COMMITTEE**

**Prof. Sudip Chattopadhyay, Dean(R&C)**

**Prof. A. K. Meikap, Coordinator TEQIP III**

**Dr. A. K. Banik, Nodal officer (Academic) TEQIP III**

**Prof. A. N. Mullick, HOD, Mechanical Engineering**

**CHAIRMAN**

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Dr. K. Khan

Dr. S. Karmakar

Mr. A. K. Das

Dr. B. Bera

Dr. R. K. Mitra

Mr. J. Dey

Mr. A. Patari

**CONTACT PERSONS**

**Dr. R.N. Barman, Dr. S.C. Rana and**

**Dr. Shantanu Pramanik**

**Mechanical Engineering Department**

**NIT Durgapur**

**Durgapur-713209, West Bengal**

**Phone No: +919434789018, +919434788147**

**and +919434788146**

**Email: [rahul.barman@yahoo.co.in](mailto:rahul.barman@yahoo.co.in)**

**Email: [subhasrana@yahoo.co.in](mailto:subhasrana@yahoo.co.in)**

**Email: [shantanu.pramanik@me.nitdgp.ac.in](mailto:shantanu.pramanik@me.nitdgp.ac.in)**

**IMPORTANT DATES**

Last Date of Application submission: 04.06.2018

Notification for selection: 05.06.2018

**BOARDING & LODGING**

Boarding, lodging and travel expenses shall be borne by the participants. Limited shared accommodations may be available in the Institute Guest House on first come first served basis. Several good hotels are available in and around Durgapur. Participants may contact directly or through the coordinator(s) for accommodation in Hotels. No TA/DA will be paid to the participants by NIT Durgapur.

**REGISTRATION FEES**

**A.) For Faculty/Industry person/Staff member:**

**Registration fee Rs.3, 000/- (Three Thousand only)**

**B.) For Ph.D./M.Tech. B. Tech. Student: Registration fee**

**Rs.2, 000/- (Two Thousand only) Registration fee includes**

**kit, study/lecture materials, copy of the Proceedings, refreshment and lunch for one week during the course.**

**REGISTRATION PROCEDURE**

Print-out of the “REGISTRATION FORM” duly forwarded by Director/ Dean of the Institute/ HOD should be sent to any of the contact persons on or before 04.06.2018 along with any one of the followings as the attachment:

(i). **Demand Draft** drawn in favour of “HTFFMM-2018” payable at Durgapur.

(ii) Print out of the **money receipt** for “ONLINE MONEY TRANSFER” or “MONEY TRANSFER BY ATM” to following account:

Account Name: **HTFFMM-2018**

Account Number: 37540040863

Bank Name: **S.B.I, R.E COLLEGE, DURGAPUR BRANCH**

**BRANCH CODE: 2108, IFSC: SBIN002108.**

**(Mention detail in remarks during fund Transfer)**

(iii) Xerox copy of “PAY IN SLIP” for deposit of “REGISTRATION FEES” to the above account.

**ABOUT THE INSTITUTE**

National Institute of Technology Durgapur (NITD) is a leading technical institute offering undergraduate, postgraduate and doctoral programmes in various disciplines of engineering, technology, science, social science and management studies. The education system is holistic with equal importance being attached to all-round development of the students. NITD was established as a Regional Engineering College Durgapur (RECD) in 1960 as a joint venture of

the Government of India and Government of West Bengal. REC Durgapur was converted to NIT Durgapur under the full administrative and financial control of the Ministry of Human Resource Development of Government of India with a Deemed University status on 3rd July, 2003. Subsequently NITD has been given the status of a University by the UGC Act. The Institute was declared an **Institute of National Importance** by the Government of India on August 15, 2007.

The city of Durgapur is recognized as one of the fastest developing Tier-II cities in the national scenarios. Durgapur is situated at a distance of about 180 km from Kolkata. It is located right on the major railway and expressway (NH-2) connecting Kolkata to Delhi and Durgapur can be reached from Kolkata (and vice versa) in about 3 hours.

## ABOUT THE DEPARTMENT

**Department of Mechanical Engineering** is the largest and one of the oldest departments of the Institute started in the year 1960. It offers both undergraduate (B.Tech.) and postgraduate (M.Tech.) degree course apart from doctoral programme. The annual intake of the UG course is above 150 and that of the PG course is about 60. At present about 42 students are doing their doctoral research with the department. The department comprises of well-qualified faculty members, supporting staff and suitably equipped laboratories. The continuous development of faculty and up gradation of the laboratories makes the department at par with the current day academic and research requirement of global standard which is reflected by continuously increasing student of the department opting for higher studies in India and abroad.

Department of Mechanical Engineering offers three PG courses with specialization of Fluid Mechanics & Heat Transfer, Machine Design and Thermal Engineering. A parallel module of part-time post graduate and doctoral programmes are offered by the department to facilitate the need of the working professionals of nearby institutes and industries.

## ABOUT THE SHORT-TERM COURSE

Microfluidics is a quickly growing, highly interdisciplinary field at the interface of physics, engineering, chemistry and biology. Over the past years microfluidic approaches have been used for a variety of applications including nucleotide sequencing, functional genomics, single cell/single molecule studies and diagnostics. Many of these applications, including next generation sequencing device, have been revolutionized by miniaturization, paving the way for global gene analysis and hence transforming biology. The field of microfluidics has four parents: molecular analysis, biodefence, molecular biology and microelectronics. The distant origins of microfluidics lie in

microanalytical methods — gas-phase chromatography (GPC), high-pressure liquid chromatography (HPLC) and capillary electrophoresis (CE) — which, in capillary format, revolutionized chemical analysis. The original hope of microfluidics was that photolithography and associated technologies that had been so successful in silicon microelectronics, and in microelectromechanical systems (MEMS), would be directly applicable to microfluidics.

This workshop would bring the academicians, researchers and practitioners in the area of micro and nanofluidics with their allied areas to a common platform to disseminate their knowledge and share their experiences. The designed course work also provides unique learning opportunity by eminent Indian professors and Scientists.

## RESOURCE PERSON

**Prof Achintya Mukhopadhyay**  
Mechanical Engineering Department, Jadavpur University, India.

**Prof. Swarnendu Sen**  
Mechanical Engineering Department, Jadavpur University, India

**Dr. Debashis Pal**  
Department of applied Mechanics & Aerospace Engineering,  
IEST Shibpur, India

**Dr. Dipankar Bandyopadhyay**  
Chemical Engineering, IIT Guwahati, India

**Dr. Subhankar Sen**  
Mechanical Engineering Department, IIT- ISM Dhanbad, India

**Dr. Nripen Chanda**  
Senior Scientist, CSIR - CMERI Durgapur, India

**Dr. Abhiram Hens**  
Micro System Technology, CSIR-CMERI Durgapur, India

**Dr. Jeevanjyoti Chakraborty,**  
Mechanical Engineering, IIT Kharagpur, India

## TOPICS TO BE COVERED

- 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
- Fundamentals and applications of Microfluidic devices
- Microfluidic devices and their applications
- CFD applications in microfluidics
- Particle transport behavior in the microfluidic domain for sensor and energy applications

## REGISTRATION FORM

**TEQIP-III Sponsored Five-day SHORT-TERM COURSE on**

**Heat Transfer and Fluid Flow in Minichannels and Microchannels**

**(HTFFMM-2018)**

**June 13-17, 2018**

**Organized by**

**Mechanical Engineering Department, National Institute of  
Technology, M.G. Avenue, Durgapur – 713209,  
West Bengal, India**

1. Name: \_\_\_\_\_
2. Designation & Affiliation: \_\_\_\_\_
3. Male/Female: \_\_\_\_\_
4. Mailing Address: \_\_\_\_\_
5. Telephone No. : \_\_\_\_\_ (Mob)
6. E-mail ID : \_\_\_\_\_
7. Registration Fees Paid, Amount: Rs. \_\_\_\_\_  
(In Words: Rupees \_\_\_\_\_)

**DD /Unique Transaction Reference number (UTR)\_\_\_\_\_**

Date: \_\_\_\_/\_\_\_\_/2018

**DD should be drawn in favour of “HTFFMM-2018”, payable at Durgapur.**

*For Online Transfer, Bank detail is given below:*

Account Name: HTFFMM-2018,

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**(Mention detail in remarks during fund Transfer)**

8. Vegetarian / Non-Vegetarian: \_\_\_\_\_

*N.B.: Photocopy of this form may also be used for registration.*

Place: \_\_\_\_\_

Date: \_\_\_\_\_

*Signature of the Applicant*

*Signature and Seal of the Head of the  
Department/Institute/Dean*