Accommodation and other support for outstation participants:

Remote centres are being funded to provide tea/ lunch on each day of the workshop, and for accommodation, wherever available, for a limited number of outstation participants. **Travel expenses up to Rs.1000/- one way will be reimbursed against proof of actual expenditure, for participants beyond a distance of 100km from the remote centre.**

Course Fee:

Since the workshop is funded by the National Mission on Education through ICT (MHRD, Government of India), there is no course fee for participation.

How to Apply:

Those wishing to attend this course should register online at

http://www.nmeict.iitkgp.ernet.in/mechanicalmain.php

Enrollment will be strictly online.

Last Date for Online Enrollment:

21st April, 2014

Enroll online at:

http://www.nmeict.iitkgp.ernet.in/mechanicalmain.php

Online registration opens on March 21st, 2014

Address for Communication:

Administration Team,
Project "T10KT", IIT Kharagpur, Vikramshila Building, Ground Floor, Kalidas Auditorium, IIT Kharagpur, Kharagpur-721302, West Bengal,
Tel: +91 3222 281497/ 281070
Email: office_nmeict@iitkgp.ac.in

Course Content:

Tentative syllabus to be followed for "Fluid Mechanics," is given below:

- Introduction - properties of fluids, concept of continuum, pressure and stress tensor.
- Fluid statics - pressure variation in a static fluid, force on submerged surfaces, stability of floating bodies.
- Fluid elements under rigid body motion
- Fluid Kinematics - Lagrangian and Eulerian description, streamline, streakline and pathline, acceleration of a fluid element, continuity equation, stream - function, rotation and angular deformation, irrotational flow, velocity potential
- Dynamics of Inviscid flow - Euler equation, Bernoulli's equation and its applications
- Reynolds transport theorem - conservation of mass, linear and angular momentum
- Stokes law of viscosity and Navier-Stokes equation-derivations and some exact solutions
- Dimensional analysis and similarity - Buckingham Pi theorem
- Internal flows - pipe flow, friction factor, Moody diagram, minor and major losses, pipe networks.
- External flows - boundary layer approximation, momentum integral method, flow over a flat plate, flow over curved surfaces
- Turbulence - Reynolds' experiment, Reynolds decomposition, time averaged Navier-Stokes equation, eddy viscosity
- Potential flow-elementary plane flow solutions

Remote Centers:

We have remote centers in the following states: Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Delhi ,Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh , West Bengal.

TWO WEEK MAIN WORKSHOP ON FLUID MECHANICS
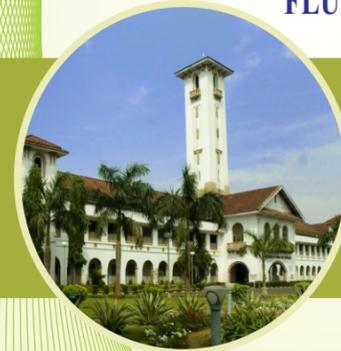
**May 20, 2014
to
May 30, 2014**

National Mission on Education through ICT (MHRD, Govt. of India)

Introduction:

An important initiative has been taken by IIT Bombay and IIT Kharagpur to work with Engineering Colleges in the country to enhance the teaching skills of our faculty colleagues in core Engineering and Science subjects. This is the second phase of Teach One Thousand Teachers programme run successfully earlier by IIT Bombay under the project called 'Empowerment of Students and Teachers through Synchronous and Asynchronous Instruction,' two-week ISTE workshops are conducted during the vacation periods in summer and winter. Participating teachers attend live lectures delivered by IIT faculty at a remote center close to their own college, and also attend tutorial and lab sessions conducted in the same centers. The lecture transmission and live interaction takes place in distance mode using the AVIEW technology through internet, at selected remote centers across the country. This initiative is part of the 'National Mission on Education through ICT,' which is supported by MHRD. Faculty coordinators are appointed at each remote centre to handle the technology infrastructure and other operational logistics. Additionally, for each workshop there will be a workshop Faculty Coordinator for that subject, who will help in the conduct of labs and tutorials at each center.

We invite expert faculty from various remote centers to a five-day 'Coordinators' training workshop' which is held in IIT, at least two months before the Main Workshop. These Coordinators then act as Workshop Coordinators during the main workshop, liaising between the participants at their Remote Centers and IIT, from where the workshop is transmitted live. During the main workshop, the Workshop Coordinator at every center supervises the conduct of tutorials and labs. All the lectures and tutorial sessions are recorded at IIT. The final edited

audio-visual contents, along with other course material are released under Open Source. These contents can be freely used later by all teachers and students.

Since December 2009, two-week ISTE workshops were conducted on "Effective teaching/ learning of Computer Programming," "Database Management Systems," "Basic Electronics," "Thermodynamics," "Software Development Techniques for Teachers of Engineering and Science Colleges," "Heat Transfer", "Solar Photovoltaics","Introduction to Research Methodology", "Engineering Thermodynamics", "Analog Electronics", "Research Methods in Education Technology" and "Signals and Systems" More than 50,000 teachers have been reached and helped to enhance their teaching skills at more than 340 distinct Remote Centers across the country.

In the backdrop of the success of these workshops, we now announce another two-week ISTE workshop on Fluid Mechanics during May 20 to May 30 , 2014.

Teaching Faculty:

Prof. Suman Chakraborty, Department of Electrical Engineering, IIT Kharagpur,
email: suman@mech.iitkgp.ernet.in
http://www.iitkgp.ac.in/fac-profiles/showprofile. php?empcode=bTmVW&depts_name=ME

Prof. S. K. Som, Department of Mechanical Engineering, IIT Kharagpur.
email: sksom@mech.iitkgp.ernet.in
http://www.iitkgp.ac.in/fac-profiles/showprofile. php?empcode=YXmdT&depts_name=ME

Prof. Sandipan Ghosh Moulic, Department of Mechanical Engineering, IIT Kharagpur.
email: moulic@mech.iitkgp.ernet.in
http://www.iitkgp.ac.in/fac-profiles/showprofile. php?empcode=bbddZ&depts_name=ME

Duration and Venue:

The duration of the workshop is 2 weeks (10 working days). It will start on Tuesday 20th May, 2014 at 9 AM and will end on Friday 30th May, 2014. There will be one day break on Sunday 25th May only. Additional contributions from participants are required to be made within the following two weeks.

The details and enrolment link are available on the website http:// www. nmeict. iitkgp.ernet.in

The venues for the workshop will be nearly 250 remote centres. The list of all the participating remote centres is given along with the online registration form.

Who may benefit:

The workshop will benefit faculty colleagues who are teaching Fluid Mechanics, Transport phenomena, Hydraulics at the undergraduate or the postgraduate level.

Important Note:

It is mandatory that while registering for the workshop, the participants should submit a scanned copy of a letter from the principal/ Head of the Institute mentioned in our pre- format letter, in the format specified in the website. Registration without this letter will not be considered.

Note:

Please note that this workshop is conducted under the CEP IIT Kharagpur. Live recording of the course and other created contents will be released under Open Source through a portal. The recorded CD/DVD of the course lectures will be available for distribution, at cost, to any individual or institution. All participants are required to sign an undertaking for such release of contents contributed by them during and after the workshop. The recognition and citation will naturally be made for all contributors.