TWO WEEK ISTE MAIN WORKSHOP ON FLUID MECHANICS

National Mission on Education through ICT (MHRD, Govt. of India) May **20 , 2014 to May 30, 2014**

To be Held at Remote Centre: University of Petroleum and Energy Studies, Dehradun.

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

LAST DATE OF ONLINE REGISTRATION IS 21ST APRIL, 2014

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 given 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 the selected remote centers across the country. This initiative is a 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 faculty to be assigned as Workshop Coordinator for that subject, who will help in conducting laboratories 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 10 day Main Workshop. The trained 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 tutorials and laboratories. 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. The contents can be freely used later by all teachers and students.

Since December 2009, two-week ISTE workshops were conducted on different subjects, namely "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 & Systems". We have reached more than **50,000** teachers and helped them to enhance their teaching skills at around **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 20-30, 2014**

Course Content

Course Outline: Fluid Mechanics.

- **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 equations – 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.**

Duration and Venue

The duration of the workshop is two weeks (10 working days). It will start on Tuesday 20th May, 2014 at 9 AM and will end on Friday 30th May, 2014 with a day break on Sunday 25th May only.The participants must report to the respective remote centres by 8 AM on 20th May, 2014.

Venue: 229 remote centers located in different parts of the country. The list of participating remote centers are given along with online application form.

Teaching Faculty

Prof. Sankar Kumar Som, Department of Mechanical Engineering, IIT Kharagpur. Emai:. sksom@mech.iitkgp.ernet.in

Prof. Suman Chakraborty, Department of Mechanical Engineering, IIT Kharagpur. Email: suman@mech.iitkgp.ernet.in

Prof. Sandipan Ghosh Moulic, Department of Mechanical Engineering, IIT Kharagpur.
Email: moulic@mech.iitkgp.ernet.in

Who may benefit

The workshop is likely to benefit regular/visiting faculty colleagues who are teaching subjects like Fluid Mechanics, Transport phenomena and Hydraulics at the undergraduate or the postgraduate level.

Eligibility

The participants must be regular/visiting faculty in Engineering degree college/Polytechnic/Other degree colleges. They must have at least B. Tech degree or M.Sc. degree (Physics or Mathematics). They should be teaching in departments, where subjects like Fluid Mechanics, Transport phenomena and Hydraulics are taught.

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.

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.

Accommodation and other Support for outstation Participants

Remote Centers 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 and one-time will be reimbursed against proof of actual expenditure, for participants beyond a distance of 100 Km from the Remote Centre.**

How to Apply

Those wishing to attend this course should register online [Click the weblink below]
http://www.nmeict.iitkgp.ernet.in/regi_coordinator/mwmc_instruction.php
LAST DATE FOR ONLINE ENROLLMENT: April 21st, 2014.

Read Instructions for online registration [See Below]

INSTRUCTIONS FOR ON-LINE REGISTARTION PROCESS

Read the following instructions carefully before doing on-line registration.

1. Check that you are eligible to participate.

The participants must be regular/visiting faculty in Engineering degree college/Polytechnic/Other degree colleges. They must have at least B. Tech degree or M.Sc. degree (Physics or Mathematics). They should be teaching in departments, where subjects like Fluid Mechanics, Transport phenomena and Hydraulics are taught.

2. Enter your email address in the specified boxes.
3. Check your email. You will receive an email containing the link to the on-line registration form.
4. Carefully fill-up the on-line registration form. You must fill-up all the mandatory fields.
5. Get the permission letter printed on your ***Institute letterhead***.

NOTE: Exact format must be followed. No editing is allowed. Exact format is given in last page of this document.

6. Obtain your Head of Institute's ***signature with SEAL/STAMP***.
7. Scan the permission letter and upload the file on the on-line registration page.
8. Submit the completed form along with uploaded permission letter (500 kb max) .
9. Check that your registration status in the website shows "Under processing".
10. Our admin team will check your eligibility and permission letter.
11. If you are confirmed, you will be notified by email and the registration status will show "Confirmed" in the website.
12. You will be cancelled if:

a) You don't fulfil eligibility criteria

or

b) Your permission letter is in a different format from ours

or

c) Your permission letter is not signed by the head of institute or not stamped or not printed on institute letter head.

Address for Communication:

Admin Team,
Project "T10KT", IIT Kharagpur
Vikramshila Building
Ground floor, Kalidas Auditorium
IIT Kharagpur, Kharagpur-721302
Tel: +91 3222 281497/ 281070
email: office_nmeict@iitkgp.ac.in

or

Dr. Akshoy Ranjan Paul.
Workshop Coordinator on Fluid Mechanics
Assistant Professor, Department of Fluid Mechanics.
Motilal Nehru National Institute of Technology Allahabad.
Allahabad- 211004, U.P.
Phone: 0-9336060762.
Email: arpaul2k@gmail.com

Permission letter for Main Workshop on Fluid Mechanics

Get this letter printed on your Institute Letter Head

From

_____ (Head of the Institute's Name)

_____ (Designation)

To

The Project Co-ordinator

Project "T10KT", IIT Kharagpur

Vikramshila Building,

Ground floor, Kalidas Auditorium

IIT Kharagpur, Kharagpur – 721302

Permission letter for Main Workshop on Fluid Mechanics

This is to certify that Prof._____ is a regular teaching employee in the department of _____ of our Institute with a designation of _____(Jr. Lecturer/ Lecturer/Sr. Lecturer/Asst. Professor/Associate Professor/ Professor/HOD/ Reader/Vice-Principal/Visiting Faculty/ Teaching Fellow/ Teaching Assistant). He/ She is allowed to attend the workshop on Fluid Mechanics under the National Mission on Education through ICT (MHRD, Govt. of India) from dated 20/05/2014 to 30/05/14 in the **University of Petroleum and Energy Studies, Dehradun** (RC ID: **1270**).

The Institute has no objection to his/ her participation in the workshop. We would make sure that **no official duties** will be delegated which may affect his/ her participation, during workshop.

Thank You,

Institute Head's Signature with Stamp