

**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

## **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:** Sardar Patel Institute of Technology, Piludara  
“Merchant Education Campus”  
Mehsana-Visnagar Highway, Piludara  
Ta. Visnagar, Dist. Mehsana- 384380  
02762 275101 | [www.spitcp.ac.in](http://www.spitcp.ac.in)

## **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.

## **Registration:**

**Enrollment will be strictly online and no other applications will be entertained.**

Those wishing to attend this workshop should enroll online by clicking the following link:

[http://www.nmeict.iitkgp.ernet.in/regi\\_coordinator/mwmc\\_instruction.php](http://www.nmeict.iitkgp.ernet.in/regi_coordinator/mwmc_instruction.php)

Following are the details of Remote Center which you need to mention while filling up the form.

College name: **SARDAR PATEL INSTITUTE OF TECHNOLOGY, PILUDARA**

Remote Center ID :**1297**

**Last date for enrollment is 21<sup>st</sup> April, 2014.**

## **Instruction for On – Line Registration Process:**

1. Check that you are eligible to participate.
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. **Download the permission letter format.**
6. Get the permission letter printed on your Institute letterhead. **NOTE: Exact format must be followed. No editing is allowed.**
7. Obtain your Head of Institute's signature.
8. Scan the permission letter and upload the file on the on-line registration page.
9. Submit the completed form along with uploaded permission letter (500 kb max).
10. Check that your registration status in the website shows "Under processing".
11. Our admin team will check your eligibility and permission letter.
12. If you are confirmed, you will be notified by email and the registration status will show "Confirmed" in the website.

**13. You will be cancelled if:**

- a) You don't fulfill 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  
or
- d) You are a remote centre coordinator / workshop coordinator / teaching assistant / Technical assistant in the workshop team.

**Brochure is Available Online:**

Please click on the following link to download the brochure:

**<http://www.nmeict.iitkgp.ernet.in/files/Fluid%20Main%20Workshop%20Brochure.pdf>**

**Format of Permission Letter For Main Workshop On Fluid  
Mechanical**

**Get this letter printed on your Institute Letter Head**

Date:

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 \_\_\_\_\_ (Remote Center Name with Remote Center ID).

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**

**For more Information or queries Contact:**

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Sardar Patel Institute of Technology

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