

## Introduction

An important initiative has been taken by IIT Bombay, to work with Engineering Colleges in the country, to enhance the teaching skills of our faculty colleagues in core Engineering and Science subjects. This initiative has now become a part of the National Mission on Education through ICT, supported by MHRD.

We have conducted two-week ISTE workshops on "Effective teaching / learning of Computer Programming., Database Management Systems, Thermodynamics in Mechanical Engineering, and Basic Electronics". These workshops were attended cumulatively by over 4500 teachers across the country, at 77 remote centers, through the Internet.

The participating teachers attended live lectures, given by IIT faculty, at a remote center close to their own college. Tutorial and lab sessions were conducted in the same centers. Each center had a course Coordinator, who supervised the tutorials and Labs. All the lectures and tutorial sessions have been recorded, and the final edited audio-visual contents, along with other course material will be released under open source. These contents can be freely used later by all teachers and students.

The resounding success of these workshops has encouraged us to organize another 2-week workshop on "**Software Development Techniques for Teachers of Engineering and Science Institutes**". This ISTE workshop on "Software Development Techniques for Teachers of Engineering and Science Institutes," is different from our usual 2-week workshops. The workshop will be spread across five weekends (starting from 5-6, 12-13, 19-20, 26-27 November 2011, and 3-4 December 2011) to allow interested participants to attend the workshop during the semester. The workshop includes delivery of live lectures through AVIEW mechanism of interaction on the Internet, with participants and local conduct tutorials and labs locally.

## Teaching Faculty

**Prof. Prabhu Ramachandran,**  
Dept. of Aerospace Engineering, IIT Bombay  
<http://www.aero.iitb.ac.in/~prabhu/>

**Mr. Asokan Pichai,**  
Sr. V.P.  
Learning and Development, TalentSprint  
<http://www.fossee.in/sitefiles/PDFs/AsokanPichai.pdf>  
<http://in.linkedin.com/in/pasokan>

**Prof. Madhu Belur,**  
Dept of Electrical Engineering, IIT Bombay  
<http://www.ee.iitb.ac.in/wiki/faculty/belur>

## Course Content

The course will consist of the following modules:

- ✓ Using Linux Tools
- ✓ Version control systems
- ✓ LaTeX
- ✓ Basic Python
- ✓ Advanced Python
- ✓ Test Driven Development

After successfully completing the program, the participants will be able to:

- ✓ Understand how software tools work together and how they can be used in tandem to carry out tasks
- ✓ Use UNIX command line tools to carry out common (mostly text processing) tasks
- ✓ To generate professional documents
- ✓ Use version control effectively for both code and documents
- ✓ Automate tasks by writing shell scripts and python scripts
- ✓ Realize the impact of coding style and readability, on quality
- ✓ Write mid-sized programs that carry out typical engineering / numerical computations such as those that involve (basic) manipulation of large arrays in an efficient manner
- ✓ Generate 2d and simple 3d plots
- ✓ Debug programs using a standardized approach

- ✓ Understand the importance of tests and the philosophy of test driven development
- ✓ Write unit tests, and improve the quality of code

## Duration and Venue

The duration of the workshop is 2-weeks (5 weekends.) It will begin at 09:00 am on Saturday 5<sup>th</sup> November 2011, and end at 6:00 pm on Sunday 4<sup>th</sup> December, 2011. Additional contributions from participants are required to be made within the following two weeks for certification. The venues for the workshop will be 22 *remote centers*. The list is enclosed with this brochure.

## Who may benefit

The workshop will benefit faculty colleagues, teaching in engineering and science institutes, who wish to use open source software tools for all their computational and teaching needs, thereby improving the quality of instruction and learning in their colleges / institutes.

## Note

Please note that this workshop is conducted by the e-Outreach project of IIT Bombay, under the **National Mission on Education through ICT**. 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 / 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 be made for all contributors.

## Accommodation and other support

Remote centers are being funded to provide tea/lunch on each day of the workshop, and for accommodation, wherever available\*, for limited number of outstation participants. **Travel expenses up to Rs. 2000/- will be reimbursed against proof of actual expenditure.**

\* Accommodation is not guaranteed.

## 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 workshop should enroll online at this website

<http://ekalavya.it.iitb.ac.in/eOutreachHome.do>.

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

The online form contains a list of remote centers. Please select a center close to your institute, from the list to indicate where you would wish to attend the workshop. Last date for enrollment is **21<sup>st</sup> October 2011**. A list of selected participants will be put up on this website on **24<sup>th</sup> October 2011**. The selected participants will also be informed by email.

**LAST DATE FOR ONLINE ENROLLMENT:  
21<sup>st</sup> October 2011.**

**For queries, contact:**

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**Fax : +91-22-2572 0022**

**Email: eoutreach@it.iitb.ac.in**

## Remote Centers

### Andhra Pradesh

Kakinada Instt. Of Engg. and Technology, **Kakinada**  
Muffakham Jah College of Engineering and Technology,  
**Hyderabad**

### Assam

Don Bosco college of Engineering and Technology,  
**Guwahati**

### Gujarat

Institute of Technology, Nirma University, **Ahmedabad**

### Jammu & Kashmir

DOEACC Center, Srinagar

### Kerala

Amal Jyothi College Of Engineering, **Kottayam**  
St Joseph's College of Engineering, **Palai**

### Madhya Pradesh

Maulana Azad National Institute of Technology, **Bhopal**  
SGSITS, **Indore**  
Truba College of Engineering & Technology, **Indore**

### Maharashtra

VPCOE, **Baramati**  
Kolhapur Institute of Technology, **Kolhapur**  
K.J. Somaiya College of Engineering, **Mumbai**  
MES's Pillai's Institute of Information Technology, **New Panvel**  
MES's IMCC, **Pune**

### Rajasthan

Jaipur Engineering College, Kukas, **Jaipur**  
Techno India NJR Institute of Technology, **Udaipur**

### Tamil Nadu

Rajyalaxmi Institute of Technology, **Chennai**  
PSG College of Technology, **Coimbatore**  
Periyar Maniammai University, **Thanjavur**  
SASTRA University, **Thanjavur**  
Vellore Institute of Technology, **Vellore**

# 2-WEEK ISTE WORKSHOP

(5 Weekends)

on

**Software Development Techniques for  
Teachers of Engineering and Science  
Institutes**

Under the

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

**5<sup>th</sup> November to 4<sup>th</sup> December, 2011  
(5-6, 12-13, 19-20, 26-27, 3-4)**

**Conducted by IIT Bombay**



Coordinators:

**Prof Prabhu Ramachandran**  
**Mr. Asokan Pichai (TalentSprint)**  
**Prof. Madhu Belur**

Depts. of Aerospace and Electrical Engineering  
IIT Bombay

Project Coordinator:

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