

Introduction to the STTP under T10KT project

Over 6 years ago, we started conducting ISTE Short Term Training Programme (STTP) for empowering teachers of engineering colleges. We first scaled up to engage 1,000 teachers at a time, in subject specific training programme of two week duration. In 2013 we scaled this program further, to train up to 10,000 teachers at a time (T10KT), using 352 established remote centers across India. IIT Kharagpur is our partner Institution. Together, we have a mandate through a funded project from the National Mission on Education using ICT (NME-ICT) of MHRD, to train 1,50,000 teachers in 15 such STTPs.

Since December 2009, we have conducted several two-week ISTE STTP on various engineering subjects. We have reached out to more than 100,000 teachers and helped them to enhance their teaching skills in these subjects.

In order to run these STTP at selected remote centers, we invite expert faculty from various remote centers to a five-day Coordinators' training programme which is held in IIT Bombay, typically two months before the main STTP. These faculty members then act as Workshop Coordinators during the main training programme to be conducted later for 10,000 teachers, during which, the Coordinators supervise the conduct of tutorials and Labs at their Centers. They liaise between the participants at their Remote Centers and IIT Bombay, from where the interactive lectures are transmitted live. All the lectures and tutorial sessions are recorded. The final edited audio-visual contents, along with other course material, are to be released in Open Source. The content can be freely used later by all teachers, students and other learners.

MHRD has decided to use the platform of "Teachers' Training Programme" by IIT Bombay, to train the teachers. The main STTP will provide training to teachers from Engineering Colleges and Polytechnics.

One-Week Coordinators' STTP

The proposed Coordinators' STTP, to support the above, is being organized at IIT Bombay from 7th to 11th September, 2015. This STTP will provide a complete orientation to the prospective Workshop Coordinators, on the methodology to be followed. This methodology will include the delivery of live lectures through the AVIEW mechanism of interaction with participants, and the local conduct of tutorials and labs.

Introduction to the Course

The course is modeled after the Engineering Physics curriculum recommended by AICTE. The course consists of several basic areas of physics with emphasis on applications of principles of physics.

The topics to be covered in this STTP include:

1. Optics: Interference, Diffraction, polarization, Fiber optics, Lasers and holography.
2. Electrostatics and Electrodynamics: Maxwell's equations in differential form, concept of vector potential and gauge, wave propagation in free space and dielectric media, Poynting theorem.
3. Special Theory of Relativity: Inertial frames, Michelson Morley experiment, Lorentz transformation, Mass energy relation.
4. Quantum Mechanics: Compton effect, Born concept, Postulates of quantum mechanics, particle in a box, potential barrier and tunneling.
5. Crystallography and Solid State: Crystalline and amorphous solids, Miller indices, Bragg's law and Laue method, Free electron theory, Brillouin zone and reciprocal lattice, Magnetic materials, Superconductivity and applications.
6. Nuclear Physics: Radioactivity, Nuclear reactions, Fission and Fusion, Liquid drop model, Particle accelerator, Standard model of particle physics.

Teaching Faculty

Prof. Shiva Prasad, Dept. of Physics, IIT Bombay
Prof. Dipan K. Ghosh, Dept. of Physics, IIT Bombay
Prof. K. G. Suresh, Dept. of Physics, IIT Bombay

Who may benefit

This STTP is for the benefit of faculty colleagues, who are willing to be prospective Workshop coordinators for the larger main training programme to be held tentatively from 8th to 18th December, 2015.

It is mandatory that the prospective coordinators should have taught a course related to Engineering Physics at least for 1 or 2 times. He/she should be familiar with the topics listed in course content. It is preferable that they should have at least 3 years of teaching experience with some experience in conduct of ISTE, QIP workshops.

Duration and Venue

The duration of the Coordinators' Short Term Training Programme (STTP) is one week (7th - 11th September, 2015), and it will be conducted at IIT Bombay.

Note

Please note that this STTP is conducted under the T10KT project of IIT Bombay. Live recording of the course and other created content would be released under Open Source, through a portal. The recorded CD/DVD of the course lectures would be available for distribution at cost, to any individual / institution. All participants are required to sign a No Objection certificate for such release of contents contributed by them during and after the STTP. All contributors will be acknowledged.

Accommodation and other support

Shared Guest House accommodation with standard boarding will be provided free to the participants depending on availability.

Course Fee and Travel Allowance

Since the STTP is funded by the National Mission on Education through ICT (MHRD, Government of India), there is no course fee for participation. Travel fare reimbursement will be made for up to A/C 2-tier or lowest return airfare, as per GOI entitlement.

Important Note:

It is mandatory that the participant's Institute is well equipped to conduct the training programme through the NKN/internet for a minimum of 50 participants. For a remote center, a primary requirement is provision of one computer per participant, with Linux (preferable) or Windows as the operating system. This is for the laboratory component of the course.

It is also mandatory that the participants bring a document from the Heads of their institutes to the effect that the participant has been officially nominated by the Institute to be the Workshop Coordinator for this training programme. The format is provided on the registration page.

The prospective coordinators are expected to read all the relevant material available on moodle before coming to IIT Bombay. They will be given their moodle log-in ids once they are confirmed as participants for the training programme.

How to Apply

Those wishing to attend this course should register online at <http://www.it.iitb.ac.in/nmeict>

Due to limited seats, only one registration from each remote center is allowed. Confirmation of registration will be sent by email. **Enrollment will be strictly online.**

LAST DATE FOR ONLINE ENROLLMENT:
31st August, 2015

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One Week ISTE STTP for Coordinators

on

Engineering Physics

Under the

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

7-11 September, 2015

Conducted by IIT Bombay



Course Coordinators:
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