

## COURSE OBJECTIVE

Energy management can help industry control its operating costs. Energy management is also important for reducing local, regional and global emissions and can help mitigate the problem of global warming. This course will help industry professionals acquire the skills and techniques required to implement energy management. This course will also benefit researchers and students who are interested in working on energy management. In the context of the Energy Conservation Act 2001, the Bureau of Energy Efficiency has emphasised the importance of Energy Managers and Certified Energy Auditors. This course is designed to provide the background required for engineers to meet this role. The newly introduced PAT scheme provides an additional incentive for benchmarking and improving industrial energy efficiency.

Apart from the lectures, hands-on laboratory sessions on efficiency testing are planned at IIT. The course also includes tutorials to help participants understand the concepts involved.

## ABOUT IIT BOMBAY & DESE

The Indian Institute of Technology Bombay is one of the premier technological institutes in India with students and faculty who are comparable with the best in the world. IIT Bombay has several undergraduate, postgraduate and doctoral programmes in the engineering, basic sciences, humanities and management and has also initiated programmes in inter-disciplinary areas like energy systems, environmental sciences, bio-medical etc. The institute has a vibrant research culture and has several linkages with Indian and international industries and institutes.

The Department of Energy Science Engineering (DESE) is one of the leading energy departments in the country, set up in 2007 with a mission to develop sustainable energy systems and solutions for the future.

DESE offers a dual-degree (B.Tech-M.Tech) programme, a M.Tech programme, a Dual Degree (M.Sc-Ph.D) programme and a Ph.D programme and currently has 24 faculty members and 400 students. DESE also has several state of the art research facilities in the field of renewable energy and hosts the National Centre for Photovoltaic Research and Education (NCPRE) in 2010 and a 1 MW National Solar Thermal Power Plant project (funded by Ministry of New and Renewable Energy (MNRE)-Govt. of India) along with the Cummins Engine Research Facility and the Forbes Marshall Energy Efficiency Laboratory.

## COURSE CONTENTS

- Overview of India's Energy Scenario
- Fundamentals of Energy Engineering
- Energy Auditing
- Energy Efficiency in Motor drive Systems

- Cogeneration
- Efficiency in Boilers and Steam Systems
- Infrared Thermography for Energy Applications
- Energy Conservation in Buildings
- Energy Conservation using Heat Pumps
- Industrial Applications of Solar Thermal
- Energy Economics, Pinch Analysis
- Efficiency Conservation in Pumping/Compressed Air
- Energy Efficient Lighting
- Waste Heat Recovery
- Thermal Insulation
- Photovoltaic (PV) Technology & Systems
- Benchmarking for energy intensive industrial process
- Energy Performance Study of HVAC
- Energy and Climate Change and CDM
- Energy Regulation and Policies – PAT, ISO 50001
- Laboratory Experiments- Boiler, Motor Efficiency, Lighting, Pumping Control
- Lab visits – Heat Pump, Forbes Marshall Energy Efficiency Lab, etc.

## COURSE VENUE

The programme will be held at the Conference Hall (Ground Floor), Jal Vihar Guest House, IIT Bombay.

IIT Bombay is a small township in itself. The campus has a green cover, rich in natural flora and fauna. The campus extends over 220 hectares amidst picturesque surroundings with Vihar and Powai lakes on either side.

## COURSE FEE

Per participant

- ₹ 25960/- (inclusive of GST @ 18%) (Industry/Govt. organisations)
- ₹ 17700/- (inclusive of GST @ 18%) (Academic institutions)
- ₹ 8260/- (inclusive of GST @ 18%) (Students)

**Course fees can be paid online at the registration portal.**

No income tax is to be deducted at source from the course fee, as IIT Bombay is exempt from the same. The course fee includes course material, lunch and coffee/tea; it does not include the cost of boarding and lodging for the participants.

## REGISTRATION

The participants should register for the course and pay the respective course fees **online** at the following portal on or before 16 November 2017.

<https://portal.iitb.ac.in/ceqipapp/>

Only online registration for this course is accepted.

## ACCOMMODATION

Accommodation charges are not included in the course fee and should be paid directly by the participant. Limited accommodation in the institute guest house (on additional payment) will be available on twin sharing basis on first-cum-first served basis.

## IMPORTANT DATES

Course dates: **November 20 – 24, 2017.**

Last date for online registration: **16<sup>th</sup> November 2017**

## ADDRESS FOR CORRESPONDENCE

### Prof. Rangan Banerjee

Forbes Marshall Chair Professor

Course Co-ordinator

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# CEP Course on **ENERGY MANAGEMENT**

**November 20 – 24, 2017**

Coordinator

**Prof. Rangan Banerjee**

Department of Energy Science and Engineering

Office of  
Continuing Education & Quality Improvement Programmes

**Indian Institute of Technology Bombay  
Powai, Mumbai – 400 076**