

# EnergyPlus workshop

**1, 2 & 3 October 2007**  
**CEPT University,**  
**Ahmedabad**

**5 & 6 October 2007**  
**Conference Room,**  
**Bureau of Energy Efficiency**  
**New Delhi**

EnergyPlus is a state of an art building energy simulation software developed by U.S. Department of Energy in collaboration with Lawrence Berkeley National Laboratory, National Renewable Energy Laboratory and several universities. EnergyPlus models building heating, cooling, lighting, ventilation, and electrical, water and other energy flows. While it is based on the most popular features and capabilities of BLAST and DOE-2, it includes many innovative simulation capabilities such as time steps of less than an hour, modular systems and plant integrated with heat balance-based zone simulation, multi zone air flow, thermal comfort, and combined heat and power and photovoltaic systems.

Importance of Energy Simulation and Energy Modeling tools for commercial buildings has increased by an order of magnitude with the launch of Energy Conservation Building Code (ECBC) by Bureau of Energy Efficiency. Architectural and Environmental Design Consulting firms are required to model commercial buildings to show compliance with ECBC. At the same time there are very few firms in India with this specialized knowledge and expertise. This workshop offers a unique opportunity to learn about (a) The concepts of energy simulation (b) State-of-the-art building energy simulation software - EnergyPlus

The skill that architects, consultants, and academicians will learn during this workshop is in tremendous demand because of the unprecedented growth experienced by commercial building sector in India. This workshop will also allow them to develop energy simulation models needed to show compliance with ECBC and LEED rating system.

The objective of this workshop is to introduce EnergyPlus to modelers who are familiar with the basic concepts of building physics & HVAC systems. The course will cover the mechanics of the building using EnergyPlus with an emphasis on basic concepts that provide a foundation for more advanced applications. Participants will model basic building envelopes and systems using the latest version of EnergyPlus on their own laptop computers. Time for questions and answers will be provided for each topic. The course outline is listed below.

## Supported by

- U.S. Department of Energy Office of Energy Efficiency & Renewable Energy Building Technologies Program.
- USAID: ECO-III project & International Resources Group (IRG)
- Indian Society of Heating, Refrigerating and Airconditioning Engineers - ISHRAE

## Target Audience

- Architects designing ECBC compliant and green buildings.
- Energy analysts for ECBC compliant and green buildings.
- Building developers of high performance commercial buildings.
- Academicians engaged in energy simulation dissemination.

## Instructors

**Lead:** Drury Crawley, U.S. Department of Energy, USA  
Dr. Satish Kumar, Chief of Party, USAID ECO-III, New Delhi.  
Rajan Rawal, CEPT University, Ahmedabad

## Registration Details

### Workshop Pricing for Ahmedabad

Early Bird Registration Deadline September 15th, 2007  
For Professionals: INR 24,000 (14 seats only)  
For Faculty member & Students: INR 12,000(4 seats only)

Registration after September 15th, 2007  
For Professionals: INR 30,000  
For Faculty member & Students: INR 15,000

### Workshop Pricing for New Delhi

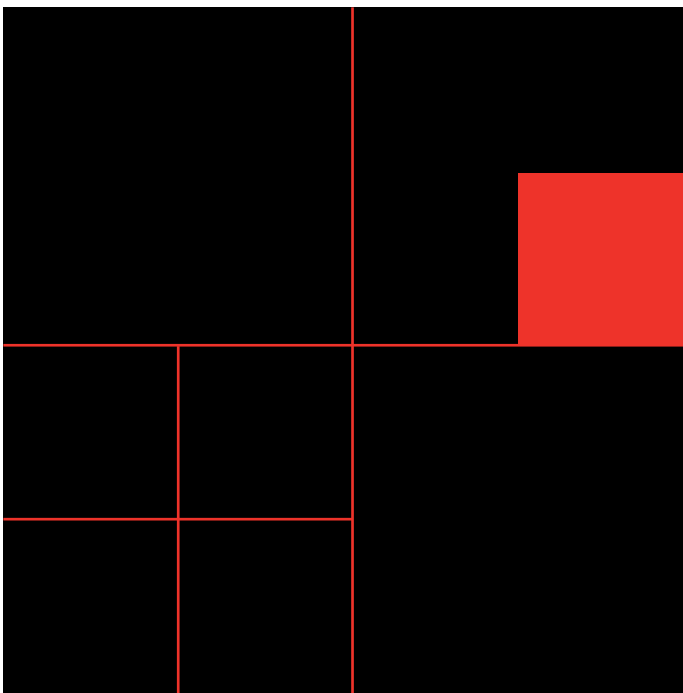
Early Bird Registration Deadline September 15th, 2007  
For Professionals: INR 16,000 (14 seats only)  
For Faculty member & Students: INR 8,000 (4 seats only)

Registration after September 15th, 2007  
For Professionals - INR 20,000  
For Faculty member & Students – INR 10,000

## Payment Details

Payment of registration through demand draft in favor of '**Centre for Environmental Planning and Technology**' payable at Ahmedabad





### Schedule for Workshop at CEPT University, Ahmedabad

#### Monday, October 1, 2007 : Day 1

Introduction – Overview of Energy simulation, Concepts and its Importance in the Context of ECBC

- Lecture 1 EnergyPlus Overview
- Lecture 2 Building Envelope
- Lecture 3 Global Inputs, Outputs, and Auxiliary Tools
- Lecture 4 HVAC Overview, Zone Controls & Zonal Equipment
- Lecture 5 HVAC Central Air-Handling Equipment, Autosizing & Compact HVAC
- Lecture 6 User Interfaces, Weather Data, Miscellaneous Features, & Support Resources

#### Tuesday, October 2, 2007 : Day 2

- Lecture 7 HVAC Outside Air Systems
- Lecture 8 HVAC Water-Side Loops
- Lecture 9 Daylighting and Ground Heat Transfer
- Lecture 10 Output Files and Post Processing

#### Wednesday, October 3, 2007 : Day 3

- Lecture 11 Overview of Creating Model using DesignBuilder
- Lecture 12 Importing DXF data
- Lecture 13 Exporting EnergyPlus, IDF data for EP-Launch.

### Schedule for Workshop at New Delhi

#### Friday, October 5, 2007 : Day 1

Introduction – Overview of Energy simulation, Concepts and its Importance in the Context of ECBC

- Lecture 1 EnergyPlus Overview
- Lecture 2 Building Envelope
- Lecture 3 Global Inputs, Outputs, and Auxiliary Tools
- Lecture 4 User Interfaces, Weather Data, Misc. Features
- Lecture 5 HVAC Overview, Zone Controls & Zonal Equipment

#### Saturday, October 6, 2007 : Day 2

- Lecture 6 Daylighting and Ground Heat Transfer
- Lecture 7 Overview of Creating Model using DesignBuilder
- Lecture 8 Importing DXF data
- Lecture 9 Exporting EnergyPlus IDF data for EP-Launch.

### About CEPT University:

Centre for Environmental Planning and Technology (CEPT) is a renowned institution imparting training in the multi-disciplinary field of the built environment, offering various undergraduate, post graduate and doctoral programs. Established in 1962 with avant-garde vision of the institution, has also made it possible to have close interaction between students & professional experts. CEPT has been accorded the status of Scientific & Industrial Research Organization by Ministry of Science and Technology, Department of Scientific & Industrial Research, Govt. of India. Center for Environmental Planning & Technology has now acquired a status of University. Considering the importance of Sustainable built environment, CEPT University has established the Centre for Sustainable Environment & Energy. (CSEE). CSEE aims at providing an impetus for research in energy efficient sustainable built environment. Its objective is to carry out in-depth research in the field of habitat design, building construction technology and energy audit & management. CSEE has built the capacity in integrated building performance simulation. CSEE is establishing a state of the art laboratory to generate construction material property database for buildings.

### USAID: ECO-III project and International Resources Group:

Bureau of Energy Efficiency (BEE), with support from USAID, developed the Energy Conservation Building Code (ECBC) in India under the USAID ECO-II project. USAID, through its ECO-III project is assisting BEE in the implementation of ECBC during the voluntary phase. International Resources Group (IRG) is an international professional services firm that helps governments, the private sector, communities, and households manage critical resources to build a cleaner, safer, and more prosperous world. Under ECO-3, IRG is assisting BEE in capacity building at State Level for Energy Efficiency Program Implementation, Institutional Development, Education Curriculum and Professional Training. IRG is also supporting Outreach and Extension Activities as well as Development Credit Authority. IRG is responsible for the development of supporting documents, conducting awareness and training workshops for architects, consultants, developers, and government officials, and providing technical assistance to construction projects in the pipeline that will be built as per ECBC specifications.

### Cancellation Policy

100% refund if the organizers cancel the workshop.

90% refund if participant cancels on/before the early registration date.

No refund if participant cancels after early bird registration date.

### Contact information

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