The total number of participants is limited to 20. Participants would be welcome to present case studies on building energy analysis (please contact the organizers to schedule your presentation).

ELIGIBILITY

1. Basic knowledge of Personal Computer (PC) application software and Microsoft Windows.

2. Knowledge of fundamentals of heat transfer and programming would be helpful.

GENERAL INFORMATION

- Outstation participants (limited to ten) would be accommodated in the SEC guesthouse located in the campus at Gwal Pahari (Gurgaon). However, the participants would be free to make their own arrangements.

- The participants will be entitled for lunch and Tea/Coffee during the training workshop. Dinner will be available in SEC guesthouse.

- A bus will be available for the participants from CGO Complex, Lodhi Road, New Delhi in the morning, and will return in the evening from SEC.

- The participation in the training workshop is free.

- Computers will be available for the participants during hands-on-training sessions.

Solar Energy Centre

The Centre has been established by Government of India as a part of Ministry of Non-conventional Energy Sources to undertake activities related to design, development, testing, standardization, consultancy, training and information dissemination in the field of Solar Energy. It is actively involved in the following areas.

- Solar Thermal Testing, Standardization & System Design
- Solar Passive Architecture
- Solar PV Testing, Standardization and System Design
- Material Testing
- Solar Thermal Power Generation
- Interactive Research & Development
- Consultancy
- International Co-operation
- Training & Information Services
- Salient Reports and Research Publications

Solar Energy Centre

Ministry of Non-conventional Energy Sources
Government of India
Phone (0124) 257 9215, (011) 2436 1932
Fax (0124) 257 9208
Email: anildhussa@yahoo.com, or
lesolarch@yahhoo.com

TRNSYS for Building Simulation

Customized training workshop for Architects, Energy Specialists and Building Construction & HVAC Consultants

17–19 March 2004

Organized and sponsored by

Solar Energy Centre
Ministry of Non-conventional Energy Sources
Gwal Pahari, Gurgaon (Haryana)
(18th km Stone on Gurgaon–Faridabad Road)

BUILDING SIMULATION

Energy consumption in a building and its indoor climate result from complex dynamic thermal interactions between outdoor environment, building structure, environmental control systems, and occupants. This reality is very complicated to be expressed in terms of simple expressions, rules or graphs. The complexity of a building however can be addressed satisfactorily using computer simulation technique.

A mainstream simulation model would allow the user to analyse building energy performance, determine the suitability and contribution of a solar passive feature, study of energy management and control strategy to optimise the building design.

BENEFITS OF BUILDING SIMULATION

- Popular applications of building simulation include Building heating/cooling load calculation (peak energy demand and its profile). Building load is the criteria to select and size HVAC equipment, systems, and plants.

- By analysing the annual energy consumption, optimal design of a building and its mechanical systems can be realized, and energy budget can be estimated for making energy policy. Furthermore, energy innovative strategies like new HVAC systems, heat recovery system, and thermal storage system can be evaluated.

- Analysis of a Building energy management and control system (BEMCS) guidelines for selecting appropriate systems, the development of management rules, diagnostic and fault detection techniques, and the evaluation of emulation methods.

- Checking compliance with building regulations/codes/standards for energy audit, envelope insulation, indoor overheating, surface condensation, daylighting level, etc.

- Detailed analysis of life cycle cost (LCC) of a building. LCC is the best way to evaluate a building design.

- Users can investigate the technical and economical feasibility of passive design options such as daylighting, evaporative cooling, earth cooling, night ventilation, solar heat collectors, windows shading, Trombe walls, transwalls, phase change material walls, roof pond, and movable insulation etc.

- TRNSYS allows the users to carry out the whole building analysis, which can be used to predict the performance of a building while it is still at the design stage. This offers a tremendous opportunity to explore the areas of wasteful energy use, and modify suitably to achieve an efficient design.

TRNSYS: TRaNsient SYstem Simulation
IISiBat: Intelliogent Interface for Simulation of Buildings
TRNSED: A Windows front-end for TRNSYS

TRNSYS, a powerful modular system simulation program, offers tremendous flexibility to its users but demands a certain degree of expertise for use. Any transient system is modeled by assembling its components drawn from the TRNSYS library, and connected through simple links in the graphic interface called IISiBat.

COURSE OUTLINE

Day 1
Basic Concepts (Psychrometrics and energy flows)
TRNSYS Concepts & Components
Input Data
The TRNSYS solver
Simulation Results
Peripheral TRNSYS Tools
Working with IISiBat

Day 2
Developing a First Project (hands-on session)
Simulating Buildings with TRNSYS
Type56 Concepts
Working with TRNSED

Day 3
Developing a Building Simulation (hands-on session)
Creating New TRNSYS Icons & Components
Creating New Window types
Creating Executables
Tour of the facilities at the Solar Energy Centre

REGISTRATION

Please register for the Training Workshop before 10 March 2004 by sending a letter to Dr T. C. Tripathi (Advisor & Head) or Mr Anil Dhussa (Director) at the following address:

Ministry of Non-conventional Energy Sources
Block No. 14, CGO Complex
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Phone (0124) 257 9215, (011) 2436 1932
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Email: anildhussa@yahoo.com, or
lesolarch@yahhoo.com

Call 0124 – 257 0215, or 011 – 2436 1932