



SCHOOL OF PLANNING AND ARCHITECTURE

An "Institution of National Importance" under an Act of Parliament
(Ministry of Education, Government of India) Indraprastha Estate, New Delhi -110002

ONLINE Certificate Course on Energy Efficient Buildings

Year 2022

The Primary Objective of this Certificate Course is to Build Knowledge Base amongst Stake-Holders in Energy Efficient Buildings with Deep Skills and Understanding in the Passive Cooling Sector.

Under the India Cooling Action Plan in Collaboration with Ministry of Housing & Urban Affairs



WHY IS THIS CERTIFICATE COURSE IMPORTANT?

In India and other developing countries situated in tropical climatic zones, Cooling is linked to human health, productivity and economic growth. Cooling demand is expected to grow manifold in future owing to urbanization, increase in per capita income, cross sectoral nature of cooling and availability of affordable air-conditioners. This will result in increased use of refrigerants and energy use for cooling. The reduction in cooling demand is linked with achieving several UN sustainable development goals (SDGs).

India has developed an India Cooling Action Plan (ICAP) with a long-term vision of addressing cooling demand along with reduction of indirect/direct green-house gas emissions. The ICAP takes a holistic and balanced approach by encompassing both passive and active cooling strategies as well as optimization of cooling loads. [1]

A major source of heat ingress in existing-buildings is through the envelopes. Energy efficiency in new buildings can be achieved by effective passive cooling design strategies including natural & mechanical ventilation. Furthermore, a bulk of cooling load in existing-buildings can be reduced by energy-efficient retrofitting of Roof, Walls and Fenestrations.[2]

This skill development certificate course is important to sensitize various stakeholders on energy efficiency in buildings and also to train them into energy efficiency practices for new and existing buildings.

[1] Ozone Cell, Ministry of Environment, Forest & Climate Change Government of India March, 2019.

[2] B. Jha and B. Bhattacharjee, "Tool for Energy Efficient Building Envelope Retrofitting," *International Building Performance Analysis Conference and Sim-Build*, ASHRAE and IBPSA-USA Chicago, IL, 2018.

WHAT ARE THE COURSE LEARNING OUTCOMES?

The course aims to equip the participants with fundamental understanding, Knowledge and Skills to contribute in the practice of Energy Efficient Buildings in Cities and Move towards related UNSDGs.

OUTCOMES

ON SUCCESSFUL COMPLETION OF THE COURSE THE PARTICIPANTS WOULD BE ABLE TO:

Articulate the Elements of Energy Efficiency in Buildings and its importance for all.

Develop the Understanding of Energy Consumption in Residential and Commercial buildings.

Acquire the knowledge on Effects of Micro-climate in Cooling and Energy Efficiency of Built Environments.

Demonstrate knowledge related to Human Comfort due to Ambient Heat Exchange in Buildings.

Apply Active and Passive Energy Efficiency Systems in Buildings for Cooling and Thermal Comfort.

Demonstrate Building Energy Simulation and Modelling for Energy Efficient Envelop Design.

Articulate the Components of Advanced Building Energy Management Systems including Automation for Energy Optimization in Buildings.

LEARNING

WHAT WOULD THE COURSE COVER?

Course Content & Module Description

1. Need for Building Energy Efficiency

- Introduction to Energy Efficient Buildings
- Definitions and Components
- Historical overview

2. Building Energy Performance Benchmarks

- Heat Exchange & Building Energy Consumption
- Building Energy Use Performance Analysis
- Energy Performance Metrics, Indicators & Measures

3. Energy Efficiency in New Buildings

- Passive Energy Efficiency Systems
- Micro Climate & Thermal Comfort
- Energy Performance Based Building Design

4. Energy Retrofit of Existing Buildings

- Energy Conservation in Buildings-Moving Towards Net Zero
- Energy Efficient Building Envelope Retrofit
- Active Energy Retrofit Systems

5. Energy Efficient Building Envelope

- Energy Efficient Roofing & Wall Systems
- Energy Efficient Fenestrations & Glazing Technology
- Low Embodied Energy Materials & Technology

6. Building Energy Simulation

- Tools for Energy Performance Measurement
- Energy Simulation Using eQuest or Equivalent Software
- Design Decisions based on Building Simulation

7. Building Automation for Energy Efficiency

- Introduction to Intelligent Buildings
- Automating Building Service Systems for Energy Optimization
- Components of Building Management Systems (BMS)

8. Renewal Energy Use

- Introduction to Renewable Energy Use in Buildings
- Calculation of Solar Energy Applications for Energy Efficiency

9. National & International Energy Rating Systems

- Introduction to Sustainability & Energy Rating Systems
- Details of LEEDS, GRIHA, IGBC & other Rating Systems

Course Duration:

Five Working Days – Around 36 Hours

Every Saturday (10AM to 5PM for 5 Weeks)

Training Calendar:

First Batch – Starting Date 26th March 2022

Second Batch – Around 2nd Week of May 2022

Third Batch – Around 2nd Week of July 2022

Next Batches – On Need Basis

Minimum Participants 15 Persons

Maximum Participants 40 Persons for each Batch

Course Delivery Mode : Online

HOW ARE THE PARTICIPANTS EVALUATED?

- *Minimum 75% Attendance .*
- *Assignment Evaluation*
- *Multiple Choice Question Examination*

WHO WOULD DELIVER THE COURSE?

The Course will be delivered by Senior Faculty Members of SPA and Industry Experts.

WHO SHOULD ENROLL FOR THE COURSE?

This Course is most suited for Architects, Engineers & Town-planners working in Urban Local Bodies/ Urban Development Authorities, Town and Country Planning Departments, NBCC, MES, BSF, CPWD, State PWDs, Government & Private Construction Companies, Architectural & Civil Engineering Firms, Faculty of Architectural & Civil Engineering Educational Institutions.

WHO WILL ISSUE THE CERTIFICATE?

School of Planning and Architecture, New Delhi will issue the Certificates on Successful Completion of Course Requirements.

Last Date for Registration/Nomination :

First Batch : 24th March 2022

Second Batch : 7th May 2022

Third Batch : 8th July 2022

Course Fee: NIL

Please use the following link for Registration :

https://docs.google.com/forms/d/e/1FAIpQLScjTi3Ep1YPR9tQwcT-j3rRZZU9yxHpY9IJBsY5AZyC-IE5JA/viewform?usp=pp_url

Please Note:

Each Participant can apply for only one batch.

Eligible Participants would be registered on first cum first basis

If one batch of 40 students gets filled, the next batch would be offered to the participants.

For any other inquiry kindly contact the Course Coordinator Prof. Dr. Bandana Jha at :

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