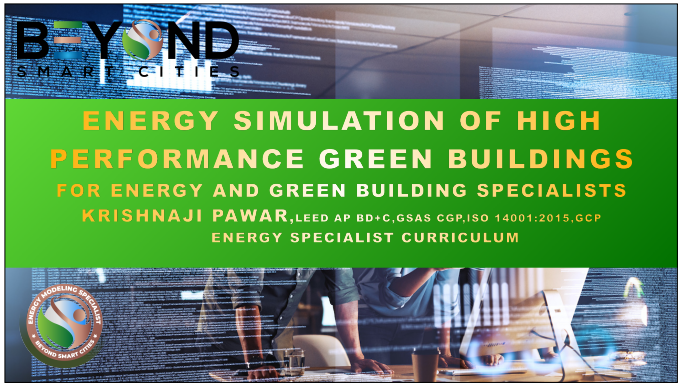
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FOR ENERGY AND GREEN BUILDING SPECIALISTS
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THE PROCESS OF CARRYING OUT ENERGY SIMULATION
FOR ENERGY AND GREEN BUILDING PROFESSIONALS
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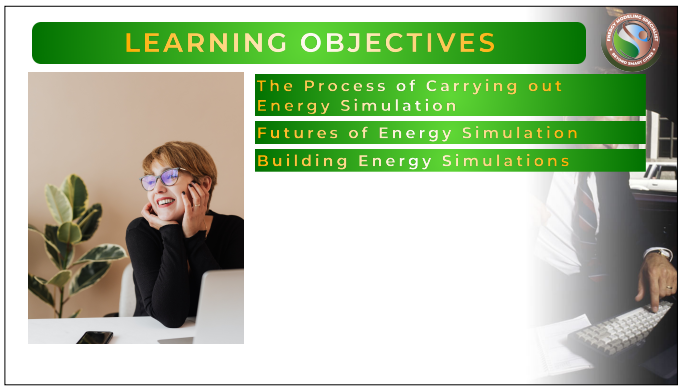
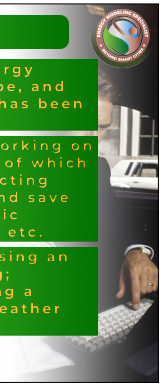

LEARNING OBJECTIVES
The Process of Carrying out Energy Simulation
Futures of Energy Simulation
Building Energy Simulations

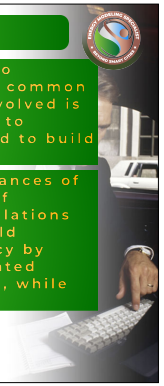
BUILDING ENERGY SIMULATIONS

- Buildings are responsible for a large form of energy consumption and carbon emission across the globe, and efforts to reduce the emission of carbon dioxide has been on for more than a decade.
- As a part of this process, scientists have been working on various building energy simulation models, some of which include studies like behavioural models for predicting personal action taken to adjust lighting levels, and save energy in response to physical conditions, dynamic thermal simulation programs (DSPs) of buildings, etc.
- Building simulation is basically the process of using an application to build a virtual replica of a building; building the component parts and then performing a simulation by taking that building through the weather conditions of an entire year.



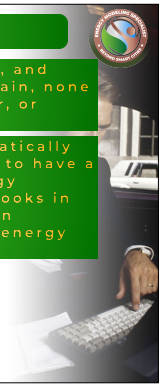
BUILDING ENERGY SIMULATIONS +

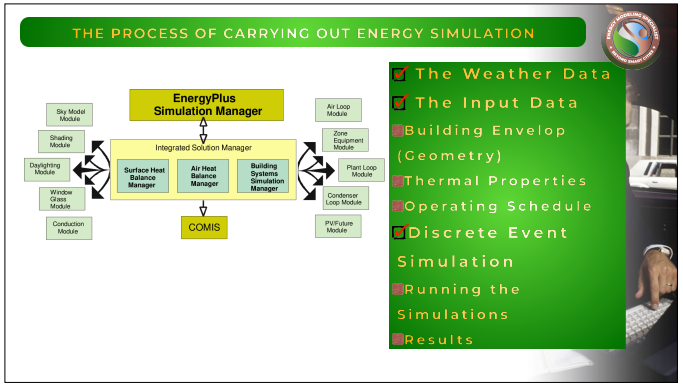
- Building simulation is commonly divided into two categories: load design, and energy analysis. The common phrase for building simulation when energy is involved is energy modeling. The simulations help scientists to quantitatively predict the future and thus be used to build efficient buildings.
- Since these simulations enable real-life performances of the energy efficiency and operational life cycle of buildings, the design and programs of these simulations are highly critical. Effective simulations help build buildings that reduce barriers to energy efficiency by enabling the use of practitioner-oriented, integrated design,management of the peak load of buildings, while focusing on controls and automated diagnostics.



BUILDING ENERGY SIMULATIONS +

- Although the simulation process is so important, and various softwares are available in the public domain, none of them can be adequately used without a mentor, or hands-on experience.
- Students or researchers wanting to work systematically using exercises and examples using a book today to have a good grasp of the fundamentals of building energy simulation fail because of the lack of such workbooks in the market. A book that helps students learn in an interactive way using examples and exercises on energy simulations is the need of the hour.




THE PROCESS OF CARRYING OUT ENERGY SIMULATION
EnergyPlus Simulation Manager
Integrated Solution Manager
Surface Heat Balance Manager
Air Heat Balance Manager
Building Systems Simulation Manager
COMIS
Sky Model Module
Shading Module
Daylighting Module
Window Glass Module
Conduction Module
Air Loop Module
Zone Equipment Module
Plant Loop Module
Condenser Loop Module
PV/Future Module
The Weather Data
The Input Data
Building Envelop (Geometry)
Thermal Properties
Operating Schedule
Discrete Event Simulation
Running the Simulations
Results

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