



## **Building Energy Performance Analysis using IES<VE>**

### **Introductory Course**

**Course Curriculum (Duration: 50 Hrs.)**

#### **Chapter 1: Introduction to IES<VE>**

- Introduction
- Building Simulation & Energy Modeling
- Virtual Environment Interface
- Energy Modelling Workflow

#### **Chapter 2: Building Geometry Modeling For Analysis**

- Create Central 3D Analysis Model Geometry
- Use of CAD Drawings Import For Model Creation
- Import Geometry From Sketchup and Revit Using IES Plugins
- Setup Weather Files And Site Orientation

#### **Chapter 3: Solar Analysis**

- Perform Solar Shading Calculations
- Optimise Shading
- Shadow Image Generation
- Analyse Right To Light
- Solar Energy and Exposure Analysis

#### **Chapter 4: Lighting Design/Analysis**

- Daylight Assessment
- Define Surface Properties
- Placement of Lighting Fixtures
- Combined Lighting Assessment
- Glare Analysis
- Dynamic Daylight Simulation
- Useful Daylight Illuminance Analysis
- Use of Dimming Sensors
- Calculation of 'Vertical Sky Component'

### **Chapter 5: Dynamic Thermal Simulation**

- Model Organization
- Checking Geometry
- Context of Basic Training Analysis (Energy/Carbon/Comfort)
- Create & Assign Constructions
- Define Profiles For Building Operations And Internal Gains
- Daily, Weekly and Yearly Profiles
- Set Building Thermal & Construction Templates
- Assigning Thermal / Construction Templates
- Making Zone Level Input Data Edits Using 'Query' And 'Group Edit Attributes'
- Tabular Room Data For Tabular Room Edits
- Dynamic Thermal Simulation Settings
- Result Analysis

### **Chapter 6: Natural Ventilation Analysis**

- Define Opening Type
- Operation of Windows
- Window Assignment
- Dynamic Thermal Simulation For Natural ventilation
- Result Analysis

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