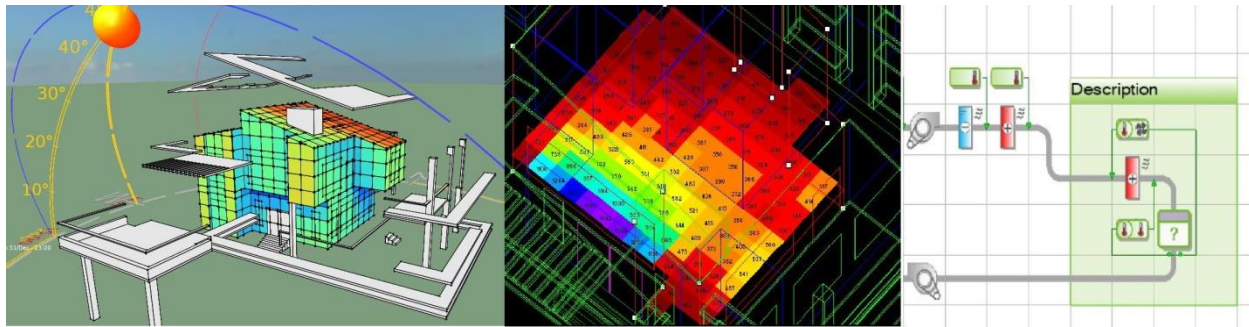


Course code: RDT-A004



## IES VE 6 days Core training program

(Duration: 6 Days 10am to 5pm)

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This is a 6 days special core training course in IES VE software. We will teach you simulation techniques and methods to enable more sustainable design practices using the enhanced features of VE software. Attendees of the course will receive 60 days trial IES license to practice & get hands on experience. This is the certificate course, after successfully completing the course attendee will get the certificate from IES

### Day 1

#### Part 1: Basic introduction to building energy modeling and simulation

- Participants will get clear idea about what is building energy modeling and its purpose in our industry?
- Some more explanation on simulation and tools used for the same

#### Part 2: VE software Interface and introduction to different modules in software

- Brief introduction to software interface, tools for creating, editing geometry with some important shortcuts for fast modeling.

- Quick introduction to all the different types of modules available within software for different types of analysis.

### Part 3: ModelIT, SunCast, Solar exposure & FlucsDL

- ModelIT tool, in this module we can see different techniques used to model 3D thermal geometry of the building
- SunCast, in this module we can calculate the position of the sun in the sky, track solar penetration throughout the building interior and calculate shadows of different design elements such as vertical & horizontal fins, pergolas, adjacent buildings etc.
- Solar exposure study for our building geometry can be analyzed for any specific time throughout the year
- FlucsDL, in order to determine daylight levels in any specific room or group of rooms we can use this systematic point-by-point daylight analysis tool.

### Hands on training and practice session for Day 1

#### Day 2

### Part 4: LightPro, FlucsPro, RadianceIES & MacroFlo

- LightPro, in this module we will see how to select luminaires from software existing database and place that in any selected room in our 3D building geometry
- FlucsPro, using this module we can estimate number of luminaires required in a particular room by performing lighting design calculation
- RadianceIES, this is detailed 3D simulation tool designed to predict daylight and the appearance of internal spaces prior to construction
- MacroFlo, using this we can perform natural ventilation study and simulate airflow driven by wind pressure and buoyancy forces using a fast multi-zone thermo-fluid solver

### Hands on training and practice session for Day 2

#### Day 3

### Part 5: Day-lighting, Artificial lighting & Radiance simulation in more detail

- Day light analysis for complex design, shading analysis for customized fins, pergolas and solar shades. Changing properties of surface materials such as reflectance, VLT for glazing and make comparative analysis of different design decision based on results generated at early design stage
- Artificial lighting placement and editing, review properties of each luminaire before placing in room, check lighting levels with different combination and number of light fixtures

- Glare analysis, lux level, daylight factor, building external and internal detail lighting analysis using RadianceES tool. Changing surface material, colour, reflectivity of different surface like walls, floor, ceiling etc for accurate design case analysis is possible in this module.

### Hands on training and practice session for Day 3

#### Day 4

#### Part 6: Fast geometry creation methods, importing geometry from Cad, Sketch-up and Revit in VE

- Avoid time spent on modeling in VE and use experts techniques for fast geometry creation
- Tips and tricks for fast floor to floor modeling, zones, grouping, glazing, shading geometry and many more
- How to quickly create ceiling voids, unconditioned space, services shafts, lifts, staircase running throughout building, basement spaces etc.
- How to fix the errors, model checking, surfaces rectification, fixing run time error etc.
- Complex design form modeling, importing DXF, Sketch-up and Revit model in VE and efficient way to work with these techniques.

#### Part 7: MacroFlo for natural ventilation analysis

- In this module, we will create detail natural ventilation analysis for a building with specific weather file
- We will create all the different types of openings for our model and assign all the detailed properties for each window based on its opening type, % opening, exposure to wind etc.
- We can see inflow and outflow % of wind after running simulation and based on that we can make changes in design, opening size as required for efficient natural ventilation.

### Hands on training and practice session for Day 4

#### Day 5

#### Part 8: Running dynamic thermal simulation using ApacheSim

- Introduction to detailed ApacheSim, tabular building template manager & setting up weekly and annual profiles using APpro
- Setting up apache systems using the apache systems dialogue
- Creating thermal templates, Setting up constructions using APcdb
- Apply thermal template to selected rooms, modifying thermal data for single room, modifying constructions for single room and individual elements, input data visualize viewer
- Editing multiple adjacencies, setting fuel carbon emission data, defining renewable, setting location and weather data, setting simulation options & running the dynamic simulation

Hands on training and practice session for Day 5

## Day 6

### Part 9: VistaPro for result analysis from dynamic simulation

- Introduction to VistaPro, Selecting the result file and required category
- Viewing graph of room conditions, synopsis of room condition, performing range test
- Viewing the energy consumption, CO2 emission of whole building, generating the summary report
- Comparing results from different simulations

### Part 10: ApacheHVAC

- Introduction to ApacheHVAC module and user interface
- ApacheHVAC Tools, introduction to creating heating and cooling sources
- Introduction to controls

Hands on training and practice session for Day 6