



## Course Objectives:

1. Understand VPL concept
2. Ability to use nodes and create one.
3. Ability to create parametric mass
4. Ability to complete script for Revit

## Course Outline:

This course including the following:

### First

- Introduction to Visual Programming in BIM Process.
- Getting Started with Dynamo.
- Access Dynamo plug-in inside Revit.
- Opening and Saving Dynamo files.
- User Interface.
- Switch between script and model environment.
- The Structure of Visual Programming.
- Node Library.
- Introduction to Nodes.
- Wires.
- Dynamo Geometry.

- Points.
- Curves.
- Surfaces.
- Solids.
- Working with Nodes.
- Placing Nodes.
- Working with Wires.
- Aligning Nodes.
- Working with identical Nodes.
- Using String and Number Nodes.
- Creating Groups.
- Using Code Blocks.

### Second

- Working with Custom Nodes.
- Understand Design Script Syntax Basics.
- Switching from Nodes to Code.
- Working with Lists.
- Understand Lists.
- List Structure.
- Creating Lists.
- Creating Ranges and Sequences.
- Understanding Lacing.
- Using List at Level.
- Working with Lists within Lists.
- Extracting Items from a Single List.
- Extracting Items from Lists within Lists.
- Filtering Lists by Boolean.
- Working with Excel.
- Importing Lists from Excel.
- Exporting Lists to Excel.
- Dynamo Package.

- Searching for Dynamo Package.
- Installing Dynamo Package.
- Find Package Nodes.
- Introduce the common used packages.
- Use packages for sample work.
- Custom Nodes.
- Create Custom Nodes.
- Edit Custom Nodes.
- Connecting Dynamo with Revit for Process Automation.
- Get Revit Parameters Data.
- Set Revit Parameter Data.
- Dynamo Scripts for Revit.
- Auto Generate Family types from Excel Sheets.
- Auto Model Columns, walls ...etc.
- Auto Generate Element Reinforcement.
- Auto Generate Sheets and views.



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### Third

Sample Automated Workflows.

- Sheets.
  - Create Sheets from Excel.
  - Add Legend to Sheets.
  - Duplicate Sheets.
  - Renumber Views on Sheet.
  - Batch Print PDF.
- Views.
  - Hide Categories in Views.
  - Tag Elements in Multiple Views.
  - Duplicate Views as Dependents.
  - Rename Dependent Views and Assign Scope boxes.
  - Annotation.
    - Dimension Grid Lines.
    - Tagging for multiple Views.

 **AUTODESK.** Make anything.

**knowledge**  
makes a difference

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