

## **Course Outline of FlexSim Course 2 ONLINE Training**

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|-----------------------|---|
| Module code:          | FlexSim Course 2_01 / FENT02_01           |
| Module name:          | Advanced Processflow Training             |
| Pre-requisite module: | FlexSim Processflow Basic Training        |
| Duration / Time:      | 2 Days / Tentative 9 am to 5 pm (7 hours) |

### **Training outline:**

The purpose of this module to help participants to understand Processflow in more detail. The training will expand from the Processflow basic training to cover other activities in the various group such as Basic, Coordination and Pre-emption. The participants will deepen with the understanding of shared resources such as List and Zone. Lastly, the participants will integrate their learning in a warehouse model.

#### Training content:

- Recap on Process Flow
- Tracking resources and jobs using List
- Applying constraints and collecting information using Zone
- Dealing with information through Array and SQL
- Pulling from List Query
- Application: Warehouse modelling

## Course Outline of FlexSim Course 2 ONLINE Training

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|-----------------------|---|
| Module code:          | <b>FlexSim</b> Course 2_02/ FENT02_02   |
| Module name:          | Programming in <b>FlexScript</b>        |
| Pre-requisite module: | FlexSim 3D Modeling Basic Training      |
| Duration / Time:      | 1 Day / Tentative 9 am to 4pm (6 hours) |

### Training outline:

The purpose of this module to introduce the participants with some coding features that are available in **FlexSim**, additional information on label, label table and data bundles and the 4 sets of the programming statement that are commonly used in **FlexSim**.

### Training content:

- Basic programming rules in writing FlexScript
- Four logic statements
  - “If .. else ..” Statement
  - “Switch” statement
  - “While” loop statement
  - “For” loop statement
- Use of Processflow to perform logic statement
- Understanding Label, Label table and data bundle
- **FlexSim** Model Tool
  - User event
  - User Command
  - Global variables
  - Global Macro

## Course Outline of FlexSim Course 2 ONLINE Training

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|-----------------------|--|
| Module code:          | <b>FlexSim</b> Course 2_03 / FENT02_03         |
| Module name:          | Animation and Kinematics in <b>FlexSim</b>     |
| Pre-requisite module: | FlexSim Processflow Basic Training             |
| Duration / Time:      | 1 Day / Tentative 9.00 am to 4.00 pm (6 hours) |

### Training outline:

The purpose of the series is to equip the participants with the knowhow to create animation using the Animation Creator and to create kinematic logic for object within **FlexSim**.

- Animation in **FlexSim** is the movement of the object or part within the model. The purpose is to better visualization and understanding of the model for the stakeholder.
- Many of the 3D objects in **FlexSim** Library come with pre-defined animations. While those animations are generally enough to meet the requirement, but you can also create your own custom animations for your custom objects with the Animation Creator or kinematics such as turning of a work holder, opening and closing of a door and etc.
- Animation creation in **FlexSim** is a feature which one can create the movement of the shape by defining the location and time lapsed. This is done through the use of interface and by dragging the shape.
- Kinematics is another approach to create animation of an object. Kinematics is code-based approach to create the logic. With the use of the code, more exact information can be input into the system for more accurate animation.

### Training content:

- Concept of animation creation in **FlexSim**
- Creation of component and the concept of draw surrogate
- Hide and unhide shapes
- Use animation variables to change animation
- Concept of Kinematics in **FlexSim**
- Kinematics functions
- Use shape frame to change the visualization of the shape
- Use Processflow to control the kinematics

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**Course Outline of FlexSim Course 2 ONLINE Training**

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|-----------------------|---|
| Module code:          | FlexSim Course 2_04/ FENT02_04                          |
| Module name:          | Data Collection and Analysis in FlexSim                 |
| Pre-requisite module: | FlexSim 3D Basic Training or Processflow Basic Training |
| Duration / Time:      | 1 Day / Tentative 9 am to 4.00 pm (6 hours)             |

**Training outline:**

The purpose of this module is to enable participants to use **FlexSim's** powerful Statistics Collector and Calculated Table. This can be done through effective configuration of the model in order to collect the type of statistics required. In addition, the participants will be exposed to the use of Experiments and OptQuest modules for data analysis and optimisation.

- Data collection and analysis are the most important part of simulation and modelling. **FlexSim** has a powerful Statistics Collector for user to capture the result from the simulation. Besides the templates and standard charts provided, the participants will be trained in the way to configure customised charts for the data required.
- Experiments is a tool for modeller to analyse the impact of input parameters. By changing these parameters, one can see how result vary accordingly. With this arrangement, one can decide a probable input value to best meet the desired result.
- In addition to Experiment, **FlexSim** has an add-on optimisation tool - OptQuest. OptQuest is developed by OpTrek Inc. The purpose of optimisation is to search for the set(s) of input parameters that meet the objective of the optimisation such as maximizing or minimizing of a certain result that within some constraint.

**Training content:**

- Data presentation using dashboard and standard charts/template charts
- The working mechanism of statistic collector and Calculated Table
- Customisation of standard charts
- Custom data collection with Statistics Collector and Calculated Tables
  - Custom charts
  - Tracked Variable
  - Use SQL for Calculated Table
  - Import/Export to external database
- Application
  - Equipment utilization per time slot
  - OEE
- Experimenter
  - Configuration of Experimenter
  - View result and generate report
- OptQuest
  - Configuration of OptQuest
  - View result