

*November 2023 Training Course:*

*Artificial Intelligence Applications in Structural Engineering*

**Week 1: Data Science & Software Dev - 04**

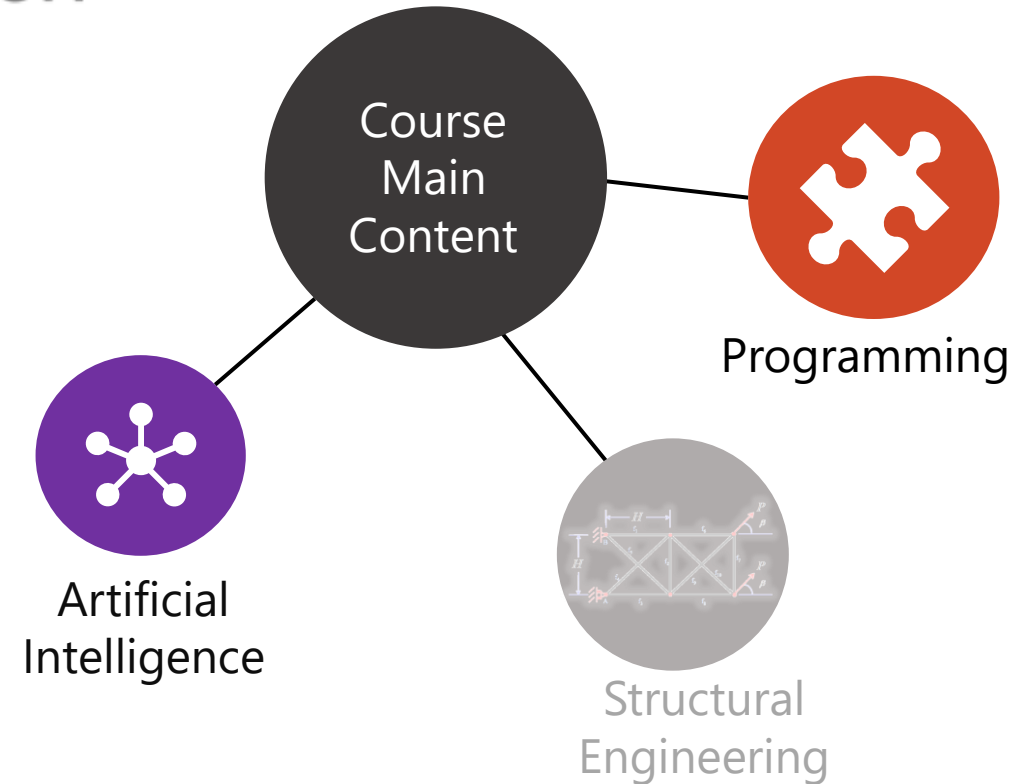
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# Week 1 – Day 1 and Day 2

Programming with Python:









1. **Software Development**
2. **Data Science** Modules
3. **OpenSEES introduction**



# Software Development – Your Prog.

A flowchart is a diagrammatic representation of an algorithm. A flowchart can be helpful for both writing programs and explaining the program to others.

The software development lifecycle (SDLC) is the cost-effective and time-efficient process that development teams use to design and build high-quality software. The goal of SDLC is to minimize project risks through forward planning so that software meets customer expectations during production and beyond.

Symbol	Purpose	Description
	Flow line	Indicates the flow of logic by connecting symbols.
	Terminal(Stop/Start)	Represents the start and the end of a flowchart.
	Input/Output	Used for input and output operation.
	Processing	Used for arithmetic operations and data-manipulations.
	Decision	Used for decision making between two or more alternatives.
	On-page Connector	Used to join different flowline
	Off-page Connector	Used to connect the flowchart portion on a different page.
	Predefined Process/Function	Represents a group of statements performing one processing task.

Open the python file:  
linear\_reg.py

## Installation First!

```
pip install comtypes  
pip install openseespy  
pip install pyswarms  
pip install geneticalgorithm2
```

## Simple Truss!