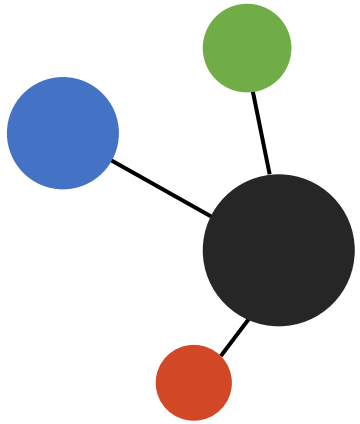


The BRITISH UNIVERSITY IN EGYPT | SCE SCHOOL OF CONTINUING EDUCATION | FACULTY OF ENGINEERING

November 2023 Training Course:

Artificial Intelligence Applications in Structural Engineering

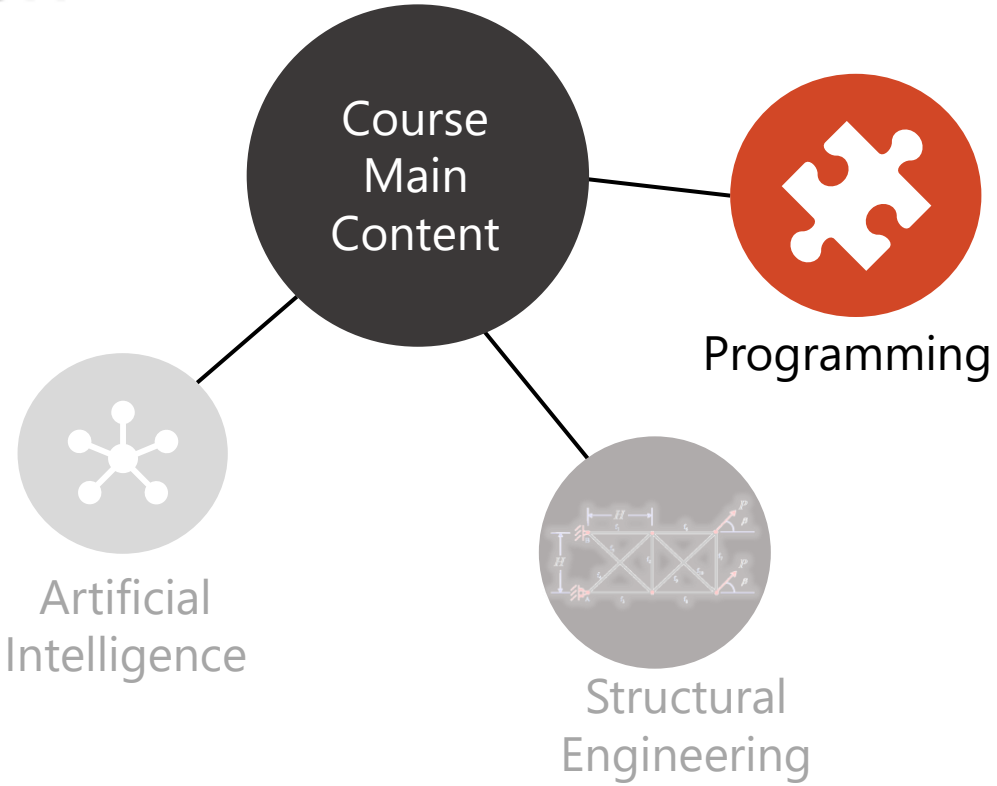
Week 1: **Python Basics - 01**

Dr. Ahmed A. Torky – Civil Engineering Department

Week 1 – Day 1 and Day 2

Programming with Python:

1. Python installation instructions
2. Language Basics: Data Types, Loops, If-statements
3. Simple Operations and Matrix Operations
4. Plotting
5. Functions/Classes
6. Modules and Online Libraries
7. Best Practices – Type-hinting and Doc-strings



Python – Data Types

Python has several **built-in data types** to represent different kinds of values.

- **Numeric** Types: There are three numeric types in Python: **integer**, **float**, and **complex**.
- **Boolean** Type: True and False values.
- **String** Type: This type is used to represent text. A string is a sequence of characters enclosed in quotes.
- **List** Type: This type is used to represent a collection of items. **Square brackets**. [ ]
- **Tuple** Type: This type is like a list, but it is immutable (i.e., contents cannot be changed once created). **Parentheses**. ( )
- **Set** Type: This type is used to represent a collection of unique items. **Curly braces**. { }
- **Dictionary** Type: A dictionary is an unordered collection of key-value pairs enclosed in **curly braces**, where each key is associated with a value.

These data types can be combined and used in various ways to represent and manipulate data in Python.

Try it out – Exercise!

OPEN THE NOTEBOOK:

01-Python Basics.ipynb

Try it out – Assignment!

1. Install Anaconda on YOUR home PC!
2. Complete the Notebook Exercises.
3. Test these Exercises in Spyder.