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## CTR-503 Python Basics

### Overview

#### *About This Course*

No previous knowledge.

#### *Audience Profile*

For people that want an introduction to the software programming industry.

#### *At Course Completion*

At the end of the course the participants will know all Python basics.

#### *Course outline*

Introduction to Python:

- Overview of the language, installation, and basic syntax
- Variables, data types, and operators

Control Flow:

- Conditional statements (if/else)
- Loops (for/while)

Functions:

- Defining and calling functions
- Arguments and return values.
- Scopes

Data Structures:

- Lists
- Tuples
- Dictionaries
- Sets

Modules and Packages:

- Importing and using external libraries
- Creating and publishing packages

File Input/Output:

- Reading and writing files
- Exception handling

Object-Oriented Programming:

- Classes and objects
- Inheritance and polymorphism

Advanced Topics (optional):

- Decorators
- Generators
- Context managers
- Regular expressions

Project:

- Designing and building a small project using the concepts learned throughout the course.