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Learning Style: Virtual Classroom

Technology:

Difficulty: Beginner

Course Duration: 3 Days

Introduction to Programming with Python (for Non-Developers) (TTPS4803)

About This Course:

Introduction to Programming with Python (for Non-Developers) is a hands-on course that teaches students from non-development backgrounds the basics of programming and scripting, using Python. This course gently leads through programming essentials, working through the fundamentals of writing and running Python scripts to more advanced features such as file operations, regular

expressions, working with binary data, and using the extensive functionality of Python modules.

This course provides an excellent kick start for users new to Python and scripting, enabling them to use basic Python skills on the job in a variety of ways. Students can apply the course skills to use Python in basic web development projects or automate or simplify common tasks with the use of Python scripts. The course also serves as a solid primer course / foundation for continued Python study in support for next level web development with Python, Python for data science / machine learning or Python for systems admin or networking support.

Course Objectives:

- Thinking as a Software Developer, including coding logic and structures
- Create working Python scripts following best practices
- Use python data types appropriately
- Read and write files with both text and binary data
- Get familiar with the standard library and its work-saving modules
- Know when to use collections such as dictionaries, and sets
- Understand Pythonic features such as comprehensions and iterators

Audience:

- This basic level course provides an excellent kick start for users new to Python and scripting or programming, enabling them to use basic Python skills on the job in a variety of ways. This in a basic-level Python course geared for student who are new to Software Development and use Python in projects, or system administrators and web site administrators who want to use Python to support their server installations, as well as anyone else who wants to automate or simplify common tasks with the use of Python scripts.

Prerequisites:

- Ability to use computers to start programs, open and save files, navigate application menus and interfaces
- Ability to understand logical concepts such as comparisons
- Understand number theory

- Ability to create, understand, and follow structured directions or step-by-step procedures
- Ability to understand and apply abstract concepts to concrete examples

Course Outline:

An Overview of Software Development

- Thinking as a developer
- Pseudocode as a design tool
- Analysis - Understanding the problem
- Design - creating the solution
- Let's Get Hands-On: Scripting and programming basics

An Overview of Python

- What is python?
- Python Timeline
- Advantages/Disadvantages of Python
- Getting help with pydoc

The Python Environment

- Starting Python
- Using the interpreter
- Running a Python script
- Python scripts on Unix/Windows
- Editors and IDEs

Getting Started

- Using variables
- Builtin functions

- Strings
- Numbers
- Converting among types
- Writing to the screen
- Command line parameters

Flow Control

- About flow control
- White space
- Conditional expressions
- Relational and Boolean operators
- While loops
- Alternate loop exits

Array Types

- About array types (AKA sequences)
- Lists and list methods
- Tuples
- Indexing and slicing
- Iterating through a sequence
- Nested sequences
- Sequence functions, keywords, and operators
- List comprehensions
- Generator Expressions

Working with Files

- File overview

- Opening a text file
- Reading a text file
- Writing to a text file

Dictionaries and Sets

- About dictionaries
- Creating dictionaries
- Iterating through a dictionary
- About sets
- Creating sets
- Working with sets

Functions

- Defining functions
- Returning values
- Parameters
- Global and local scope