SysIntelligence
Institute of Technology

INTERMEDIATE PYTHON

COURSE OVERVIEW

This course covers some Python introduction topics in more detail, and adds many new ones, with a focus on enterprise development. This is a hands-on programming class. All concepts are reinforced by informal practice during the lecture followed by lab exercises. Many labs build on earlier labs, which helps students retain the earlier material.

PREREQUISITE

Students should be able to write simple Python scripts, using basic data types, program structures, and the standard Python library.

WHAT YOU'LL LEARN

- OS Services
- Various pythonic programming principles
- How to use various modules and packages
- Define and use Classes
- Implement Metaprogramming
- Use Python developer tools
- Access databases using Python programming
- Use PyQt4 framework
- Understand and use network programming
- Use Python programming for System Administration and Scripting
- Understand and use XML and JSON

CONTACT US

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COURSE OVERVIEW

Module 1: Python Refresher
- Review of content from Introduction to Python

Module 2: OS Services
- The OS Module
- Paths, Directories and Filenames
- Environment Variables
- Launching external Programs
- Walking Directory Trees
- The Datetime Module
- The Calendar Module

Module 3: Pythonic Programming
- The Zen of Python
- Common Python Idioms
- Unpacking Function Arguments
- Lambda Functions
- List Comprehensions
- Iterables
- Writing Generator
- String Tricks & Formatting

Module 4: Modules and Packages
- Using import
- Module Search Path
- Namespaces
- Executing Modules as Scripts
- Packages
- Configuring Import
- Name Resolution
- Python Style

Module 5: Classes
- Defining Classes
- Instance Objects, Attributes & Methods
- __Init__
- Properties
- Class Data & Methods
- Inheritance & Multiple Inheritance
- Using Super ()
- Special Methods
- Class-Private Variables
- Static Methods

Module 6: Metaprogramming
- Globals() and Locals()
- Working with Attributes
- The Inspect Module
- Decorator Functions
- Decorator Classes
- Decorator Parameters
- Creating Classes at Runtime
- Monkey Patching

Module 7: Developer Tools
- Program Development
- Comments
- Pylint
- Customizing pylint
- Using pyreverse
- The unittest module
- Fixtures
- Skipping Tests
- Making a Suite of Tests
- Automated Test Discovery
- Using Nose
- The Python Debugger
- Starting Debug Mode
- Stepping Through a Program
- Setting Breakpoints
- Profling
- Benchmarking

Module 8: Database Access
- The DB API
- Available Interfaces
- Connecting to a Server
- connect() examples
- Creating a cursor
- Executing a statement
- Parameterized statements
- Dictionary cursors
- Metadata
- Transactions
- Object-relational mappers