PYTHON PROGRAMMING LANGUAGE – Course Outline

Part 1: Introduction to Python Programming

Week 1: Introduction

- Brief Introduction: Aims, Objectives and Deliverables

- Python Setup

- Python Basics: Variables, Operators, Strings, Input

Week 2: Program Flow Control

- An Introduction to Program Flow Control

- If, elif and else statements

- For loops

- While loops

Week 3: Lists, Ranges & Tuples

- Lists in Python

- Iterators

- Ranges

- List Comprehension

- Tuples

Week 4: Dictionaries, Sets and I/O

- Python Dictionaries and Sets

- Input and Output in Python

Week 5: Modules and Functions

- Modules and Import

- The standard Python library

- WebBrowser Module

- Time and DateTime in Python

- Tkinter

- Functions in Python – Defining a function, passing arguments, return values, passing a list, passing an arbitrary number of arguments, storing your functions in Modules, styling functions.

Week 6: Object Oriented Programming

- Creating and Using a class

- Working with classes and instances

- Inheritance

- Importing classes Further Reading:

- Using Databases in Python

- Generators, Comprehensions and Lambda Expressions

- Packages Part 2: Machine Learning (ML)

Week 7: Introduction to Machine Learning

- Examples of ML in use

- A Quick History of Machine Learning

- What is Machine Learning?

- Types of Machine Learning

- Overview of Supervised Learning Algorithm

- Overview of Unsupervised Learning Algorithm

- Overview of Semi-supervised data

- Overview of Reinforcement Learning

Week 8: Python for Data Science and Machine Learning

- Numpy

- Pandas

- Matplotlib

- Seaborn