e.Soft ®
Technologies

Python Programming

This course offers coverage to python language from Basic to Advance.

Program objectives

Some of the key skills you will gain upon completion of this program include:
- ☐ Basic Language Syntax
- ☐ Object Oriented Features in Python
- ☐ Exception Handling
- ☐ Regular Expression
- ☐ Working with inbuilt database support (SQLite)
- ☐ Itertools and Collections framework
- ☐ Testing
- ☐ Socket Programming
- ☐ Threading
- ☐ Web Technology using Django

Prerequisite

This course is for the beginners. The participants need not have any prior exposure to Python programming language. Prior familiarity with some other programming language (such as Java or C++) would be useful, but it is not mandatory.

Audience

The course coverage and pace would vary slightly, depending on the composition of the batch. If the training is for participants who are already familiar with some other object-oriented programming language, such as C++ or Java, the initial parts covering the basic language constructs as well as introduction to the OO concepts could be completed faster, and more time could be spent on some of the advanced aspects of the course.
If the training is for a batch of participants who are new to any programming language, then even the basic language constructs would require more detailed explanation and practice work, and coverage of some of the later, advanced topics would be curtailed.

Set up Requirements

Computer with the following software
Operating System: Red Hat Linux / Window XP/Vista/7
Python 3.1 / Active Python

Day	Module	Topics
Day 1	Module 1	Introduction to Python , Linux
	Module 2	Simple Program, Aptana Studio 3
	Module 3	Basic Language Construct
	Module 4	Control Structure
	Module 5	Functions
Day 2	Module 6	Data Structures
	Module 7	Modules
	Module 8	Object Oriented Programming
Day 3	Module 9	Files
	Module 10	Exception Handling
	Module 11	File and Directory handling
Day 4	Module 12	Regular expressions
	Module 13	Itertools and Collections framework
	Module 14	Testing (Unit and Doc Testing) and Debugging
Day 5	Module 15	Database Connectivity using SQLite database file
	Module 16	Socket Programming
	Module 17	Threading
Day 6	Module 18	Introduction to Django
	Module 19	Generating Simple Django Views
	Module 20	Configuring URLconf's
Day 7	Module 21	Django Templates
	Module 22	Forms
	Module 23	Database Models with Django
Day 8	Module 24	Using the Django Admin Interface
	Module 25	Access Control with Sessions and Users
	Module 26	Generic Views
Day 9	Module 27	Deploying Django Applications
	Module 28	Django Case Studies

Course Outline

Module 1: Introduction to Python

- ☐ Introduction to Python
- ☐ Features of Python
- ☐ Why Python

Module 2: Simple Program

- ☐ Python shell
- ☐ Python command
- ☐ Prepare source File and execute the code
- ☐ Print "Hello World"
- ☐ Comments
- ☐ Help command

Module 3: Basic Language Consructs

- ☐ Data types and Variables
- ☐ String type
- ☐ Format method
- ☐ Operators and Expressions
- ☐ Indentation

Module 4: Control Structure

- ☐ If
- ☐ While loop
- ☐ For loop
- ☐ Break & Continue Statements

Module 5: Functions

- ☐ Simple Function declaration
- ☐ Function with parameter
- ☐ Variable Scope
- ☐ The "global" statement
- ☐ Function with default arguments
- ☐ Function with return type

Module 6: Data Structures

- ☐ List
- ☐ Tuple
- ☐ Dictionary
- ☐ Sequences
- ☐ Set

Module 7: Modules

- ☐ What is module?
- ☐ Use of modules
- ☐ Import statement
- ☐ Global and local module
- ☐ Standard library module
- ☐ User defined modules
- ☐ The dir() Function

Module 8: Object Oriented Programming Concepts

- ☐ Introduction to object oriented concepts
- ☐ Classes and Objects
- ☐ The "self" keyword
- ☐ Methods and Attributes
- ☐ Constructor and Destructor
- ☐ Instance and static member
- ☐ Class Inheritance
- ☐ Super keyword

Module 9: Files

- ☐ What is File Input output?
- ☐ How to open a file
- ☐ How to close a file
- ☐ Read and write data to a file
- ☐ Pickle Module

Module 10: Exception Handling

- ☐ What is an Exception?
- ☐ Run time Exceptions
- ☐ try … except statements

- ☐ Multiple except statements
- ☐ Clean up statement (finally)
- ☐ Raised exceptions
- ☐ User defined exceptions

Module 11: File and Directory handling

- ☐ File I/O operations
- ☐ Built-in file and directory handling libraries
- ☐ fileinput
- ☐ stat
- ☐ filecmp and dircmp
- ☐ glob, zipfile and tarfile
- ☐ pickle and shelve modules
- ☐ Serialization using json

Module 12: Regular Expression

- ☐ Introduction to regexps
- ☐ Special symbols and characters for RE
- ☐ Metacharacters and Metasymbols
- ☐ Character classes
- ☐ Quantifiers and Positions
- ☐ Searching/Matching a string/pattern
- ☐ Search and replace operations
- ☐ Splitting and joining strings
- ☐ Practical examples

Module 13: Itertools and Collections framework

- Iterators and generators Collections
- Deque
- defaultdict

Module 14: Testing and Debugging

- Using the unittest module for writing testcases Using doctest
- Regressing testing using test module
- Debugging Tools

Module 15: Database connectivity using SQLite database file

- ☐ Introduction to SQLite database file
- ☐ Connection class
- ☐ Cursor
- ☐ Execute method
- ☐ Fire the SQL statements like select, Insert, Update, Delete
- ☐ Write parametized query
- ☐ Join

Module 16: Socket Programming

- ☐ What is Socket Programming?
- ☐ What is protocol?
- ☐ Types of protocol
- ☐ What is "host" and "port"
- ☐ socket class
- ☐ methods of socket class
- ☐ type of socket

Module 17: Threading

- ☐ What is process?
- ☐ What is thread?
- ☐ Thread class
- ☐ Life cycle of a thread
- ☐ Methods of thread class
- ☐ Time class
- ☐ Synchronization
- ☐ Lock class methods

Module 18: Introduction to Django

- ☐ Introduction
- ☐ About Django
- ☐ Django Components
- ☐ Installing & Configuring Django Components
- ☐ Django Pre-Requisites
- ☐ Downloading & Installing Django
- ☐ Choosing a Database
- ☐ Creating a New Project

Module 19: Generating Simple Django Views

- [ ] Generating Simple Django Views
- [ ] About View Functions
- [ ] Using Django's HttpResponse Class
- [ ] Understanding HttpRequest Objects
- [ ] Using QueryDict Objects

Module 20: Configuring URLconf's

- [ ] Configuring URLconf's
- [ ] About URLconf
- [ ] Regular Expressions
- [ ] Expression Examples
- [ ] Simple URLConf Examples
- [ ] Using Multiple URLConf's
- [ ] Passing URL Arguments

Module 21: Django Templates

- [ ] About Templates
- [ ] Template Fundamentals
- [ ] Creating Template Objects
- [ ] Loading Template Files
- [ ] Filling in Template Content (Context Objects)
- [ ] Template Filters
- [ ] Template Tags
- [ ] More on For Loops
- [ ] Template Inheritance
- [ ] Easy Rendering of Templates
- [ ] RequestContext Processors
- [ ] Global Context Processors

Module 22: Forms

- [ ] Getting Data From the Request Object
- [ ] A Simple Form-Handling Example
- [ ] Making a Contact Form
- [ ] Tying Form Objects Into Views

Module 23: Database Models with Django

- ☐ About Database Models
- ☐ Configuring Django for Database Access
- ☐ Understanding Django Apps
- ☐ About Django Models
- ☐ Defining Django Models
- ☐ Understanding Model Fields & Options
- ☐ Table Naming Conventions
- ☐ Creating A Django Model
- ☐ Adding the App to Your Project
- ☐ Validating the App
- ☐ Generating & Reviewing the SQL
- ☐ Adding Data to the Model
- ☐ Primary Keys and the Model
- ☐ Simple Data Retrieval Using a Model
- ☐ Understanding QuerySets
- ☐ Applying Filters
- ☐ Specifying Field Lookups
- ☐ Lookup Types
- ☐ Slicing QuerySets
- ☐ Specifying Ordering in QuerySets
- ☐ Common QuerySet Methods
- ☐ Deleting Records
- ☐ Managing Related Records
- ☐ Retrieving Related Records
- ☐ Using Q Objects
- ☐ Creating Forms from Models

Module 24: Using the Django Admin Interface

- ☐ Using the Django Admin Interface
- ☐ Enabling the Admin Interface
- ☐ Creating an Admin User

Module 25: Access Control with Sessions and Users

- ☐ Access Control with Sessions and Users
- ☐ Cookies & Django
- ☐ The Django Session Framework
- ☐ Sessions in Views

- ☐ Installing Django User Authentication
- ☐ Using Authentication in Views
- ☐ Session Tuning
- ☐ Login and Logout
- ☐ Building your Own Login/Logout Views
- ☐ Authentication Decorators
- ☐ Adding & Deactivating Users
- ☐ Asynchronous Messaging
- ☐ Managing Permissions

Module 26: Generic Views

- ☐ Simple Generic Views
- ☐ Using Generic Redirects
- ☐ Other Generic Views
- ☐ Create/Update/Delete Generic views

Module 27: Deploying Djanogo Applications

- ☐ Deploying Django Applications

Module 28: Django Case Studies

- ☐ Django Case Studies.

Special Notes and Classes for Project help:
(1). Time to Time e. Soft provides useful printed materials,FAQ's related to the technology.
(2). Special classes taken by the Highly Experienced Software Professionals of e.Soft.
(3). Gives Technical and HR Interview tips of the students and also take a Mock interview at the end of the Project.