

Vishwakarma Institute of Technology

Syllabus Template **Course Code: CSXXX** **Course Name: Python Programming**

Credits: 5

Teaching Scheme: Theory: 3hrs /week
Lab : 4hrs/week

Section 1:

Fundamentals of Python

Features of Python , How to Run Python , Identifiers , Reserved Keywords , Variables , Comments in Python , Indentation in Python , Input, Output statements.

Operators : Arithmetic Operators , Comparison Operators , Assignment Operators , Logical Operators , Operator Precedence .

Data Types and Operations: Numbers , Mathematical Functions , Trigonometric Functions , Random Number Functions , Strings , Escape Characters , String Formatting Operator , String Formatting Functions ;List : Built-in List Functions , Built-in List Methods ;Tuple : Built-in Tuple Functions ,Set : Built-in Set Functions , Built-in Set Methods ;Dictionary : Built-in Dictionary Functions . Mutable and Immutable Objects, Data Type Conversion

Flow Control and Loops

Decision Making: if statement, if...else statement , if .. elif .. else statement , Nested if statement.

Loops : for loop ;range() function for loop with else statement , while loop , while loop with else statement ; Nested Loops ; Control Statements : break statement , continue statement , pass statement ;List Comprehensions : Nested List , Nested List Comprehensions ; Set Comprehensions ; Dictionary Comprehensions ; Nested Dictionaries

Functions and Modules

Function Definition ,Function Calling , Function Arguments ,Anonymous Functions (Lambda Functions) , Function with more than one return value

Modules and Packages :Built-in Modules , Creating Modules , import Statement , import with renaming , from...import statement , import all names , Locating Modules , PYTHONPATH variable Namespaces and Scope : The dir() function , The reload() function , Packages in Python .

Importing modules from a Package : The time module , The calendar Module , The datetime Module

Section2:

GUI Programming : Easygui and Tkinter

boolbox(),buttonbox(),ccbox(),choicebox(),codebox(),diropenbox(),enterbox(),exceptionbox(),fileopenbox(),filesavebox(),indexbox(),integerbox(),msgbox(),multichoicebox(),multenterbox(),multipasswordbox(),passwordbox(),textbox(),ynbox()

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Tkinter Widgets , Label , Message Widget , Entry Widget , Text Widget , tk Message Box , Button Widget , Radio Button , Checkbutton , Listbox , Frames , Toplevel Widgets , Menu Widget , Menubutton Widget , Scrollbar , Scale Widget(Slider Widget) , Canvas , Layout Managers , Pack Place , Grid

File Handling and Database Programming

Opening a File , Modes for Opening a File , Attributes of file object , Closing a File , Writing to a File with Statement , Reading from a File , File Methods , Renaming a File , Deleting a File , Directories in Python , mkdir() method , chdir() method , getcwd() method , rmdir(), method
Connecting to a Database , Creating Tables ,INSERT Operation , UPDATE Operation , DELETE Operation , READ Operation , Transaction Control , COMMIT Operation , ROLLBACK Operation Disconnecting from a Database

Exception Handling and Regular Expressions

Exception Handling : Built-in Exceptions , Handling Exceptions , try...except , except clause with no Exception , except clause with multiple Exceptions , try...finally , Exception with Arguments , Raising an Exception , User-defined Exception , Assertions in Python , Exception Handling in Databases

Regular Expressions : The match() function , The search() function , Search and Replace , Regular Expression Modifiers: Option Flags , Regular Expression Patterns ,Character Classes, Special Character Classes , Repetition Cases , findall() method

Text Books:

1. " *Programming And Problem Solving With Python*", Ashok Kamthane and Amit Ashok Kamthane , ISBN 9789387067578
2. " *Beginning Programming with Python for Dummies*", John Paul Mueller, Wiley Publishing, 9788126553488

Reference Books:

1. *Dive into Python 3: Mark Pilgrim, Jesse Noller, Wiley Publishing , ISBN 9788184899115.*
2. *Python in Easy Steps, Tata Mc Graw Hill Education, ISBN 9789351343080*
3. *Learning Python, 5th Edition, Mark Lutz, O'Reilly, ISBN 978-1449355739*

Course Outcomes:

Upon completion of the course, graduates will be able to –

1. Understand the power and simplicity of Python Programming.
2. Demonstrate various features and operators available in Python Programming.
3. Justify modular programming approach by making use of functions and modules
4. Implement real world problems using GUI libraries available in Python.
5. Apply file handling and data base concepts for permanent storage of data.
6. Use exception handling and regular expressions to build flawless applications.