OBJECT ORIENTED PROGRAMMINGS THROUGH PYTHON

III Semester: **CSE / IT**

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
AITB01	Core	3	0	0	3	30	70	100
Contact Classes: 45	Tutorial Classes: Nil	Practical Classes: Nil				Total Classes: 60		

OBJECTIVES:

The students will try to learn:

1. The Fundamental concepts of Object-oriented approach for solving real-time problems.
2. The basic and advanced constructs of Python programming for developing object oriented concepts.
3. The design concepts for developing user interface of real time applications.

COURSE OUTCOMES:

After successful completion of the course, students will be able to:

1. Recall the basic programming constructs in implementing in Python.(Remember)
2. Identify classes, objects, members of a class and relationship among them for real world entities.(Apply)
3. Summarize the object-oriented concepts such as Abstraction, Encapsulation, Inheritance and Polymorphism in real time context.(Understand)
4. Demonstrate abstraction feature with the help of python class properties.(Understand)
5. Make use of polymorphism and inheritance concepts for achieving code reusability.(Apply)
6. Apply inbuilt strings for creating, performing basic operations and testing on text data.(Apply)
7. Develop user-defined functions for better modularity and a high degree of code reusability.(Apply)
8. Explain parameter-passing techniques while invoking recursive and non-recursive functions for solving problems.(Understand)
9. Make use of Python exception mechanisms for handling errors and abnormal termination of program.(Analyze)
10. Develop user-defined exceptions for handling un-interrupted execution of specific programs.(Apply)
11. Demonstrate Python GUI tool kit for designing static user interfaces.(Understand)
12. Make use of widgets, containers and frames for creating user interface of web application.(Apply)

MODULE-I INTRODUCTION TO PYTHON AND OBJECT ORIENTED CONCEPTS

Introduction to Python: Features of Python, Data types, Operators, Input and output, Control Statements.

Introduction to Object Oriented Concepts: Features of Object oriented programming system (OOPS) – Classes and Objects, Encapsulation, Abstraction, Inheritance, Polymorphism.

MODULE-II PYTHON CLASSES AND OBJECTS

Classes and Objects: Creating a class, The Self variable, Constructor, Types of Variable, Namespaces, Types of Methods, Inheritance and Polymorphism – Constructors in inheritance, the super() method, types of inheritance, polymorphism, abstract classes and interfaces.

MODULE-III	STRINGS AND FUNCTIONS
Strings: Creating strings and basic operations on strings, string testing methods. Functions: Defining a function, Calling a function, returning multiple values from a function, functions are first class objects, formal and actual arguments, positional arguments, recursive functions.	
MODULE-IV	**EXCEPTION HANDLING**
Exception: Errors in a Python program, exceptions, exception handling, types of exceptions, the except block, the assert statement, user-defined exceptions.	
MODULE-V	**GRAPHICAL USER INTERFACE**
GUI in Python: The root window, fonts and colors, working with containers, Canvas, Frames, Widgets – Button widget, Label widget, message widget, text widget, radio button widget, entry widget.	

Text Books:

1. R Nageswara Rao, "Core Python Programming", Dreamtech press, 2017 Edition.
2. Dusty Philips, "Python 3 Object Oriented Programming", PACKT Publishing, 2nd Edition, 2015.

Reference Books:

1. Michael H.Goldwasser, David Letscher, "Object Oriented Programming in Python", Prentice Hall, 1st Edition, 2007.

Web References:

1. https://realpython.com/python3-object-oriented-programming/
2. https://python.swaroopch.com/oop.html
3. https://python-textbok.readthedocs.io/en/1.0/Object_Oriented_Programming.html
4. https://www.programiz.com/python-programming/