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:

I Acquire programming skills in core Python.
II Acquire Object-oriented programming skills in Python.
III Develop the skill of designing graphical-user interfaces (GUI) in Python.
IV Develop the ability to write database application in python
V Acquire Python programming skills to move into specific branches - Internet of Things (IoT), Data Science, Machine Learning (ML), Artificial Intelligence (AI) etc.

COURSE OUTCOMES:

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

CO 1 **Setup** python to develop simple applications.
CO 2 **Make use of** the python programming languageto construct basic programs.
CO 3 **Know**how to use collections such as list, tuple, range, dictionary and sets.
CO 4 **Make use of** functions, classes and objectsfrom those classes.
CO 5 **Understand** the concepts of inheritance and polymorphismfor code reusability and extensibility.
CO 6 **Write** robust code using exception handling.
CO 7 **Create** and animate a variety of shapes and develop an applicationwith graphical user interface (GUI).
CO 8 **Extend** the knowledge of python programmingto build successful career in software development.

MODULE-I	INTRODUCTION TO PYTHON AND OBJECT ORIENTED CONCEPTS	Classes: 09

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: 09

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	Classes: 09

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	Classes: 09
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**	**Classes: 09**
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/