OBJECT ORIENTED PROGRAMMINGS THROUGH PYTHON

III Semester: CSE / IT

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Category</th>
<th>Hours / Week</th>
<th>Credits</th>
<th>Maximum Marks</th>
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<tr>
<td>AITB01</td>
<td>Core</td>
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<td>3 0 0 3 30 70 100</td>
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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 language to 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 objects from those classes.
CO 5  Understand the concepts of inheritance and polymorphism for code reusability and extensibility.
CO 6  Write robust code using exception handling.
CO 7  Create and animate a variety of shapes and develop an application with graphical user interface (GUI).
CO 8  Extend the knowledge of python programming to 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.

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<th>MODULE-V</th>
<th>GRAPHICAL USER INTERFACE</th>
<th>Classes: 09</th>
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<td>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.</td>
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**Text Books:**


**Reference Books:**


**Web References:**