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| **Course Code: CSOE2** | **Course Title: Python Programming Concepts** |
| **Course Credits:** 03 | **Hours/Week:** 03 |
| **Total Contact Hours:** 42 | **Formative Assessment Marks: 40** |
| **Exam Marks: 60** | **Exam Duration: 03 Hrs.** |

**Learning Outcome:**

* An understanding of the principles behind the object oriented development process.
* Competence in the use of object oriented programming language in the development of small to medium sized application programs.

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| **Content** | **Hours** |
| **Unit – 1** | |
| **Introduction to Python**:  Getting Started with Python, Essentials of Python Programming,  **Fundamentals of Python**: indentation, comments, variables, operators,  **Data Types**: Numeric, String, Collections: Lists, Tuples, Dictionary | 7 |
| **Unit – 2** | |
| Type Conversion, Decision making and Control flow ( Loops) while and for loop  **Loop control statements**: break, continue, pass. | 9 |
| **Unit – 3** | |
| **Functions** : Functions with arguments ,lambda functions  **Introduction to Object Oriented Programming in Python :**  Objects, Classes, Python Classes, Specifying Attributes and Behaviors, Abstraction, Encapsulation , Polymorphism, Inheritance, | 9 |
| **Unit – 4** | |
| **Creating Python Classes**- Adding Attributes and making it perform a task, initializing the Object. Constructors  **Custom Classes**: Attributes and Methods, Inheritance and Polymorphism, programs Using Inheritance and File handling. | 9 |
| **Unit – 5** | |
| Hands on practice Using Python Programming | 8 |

**Text Book:**

Python for Everybody by Dr. Charles R. Severance

**Reference books:**

* Head-First Python: A Brain-Friendly Guide (2nd Edition)
* Learn Python the Hard Way: 3rd Edition.
* Python Programming: An Introduction to Computer Science (3rd Edition)

**BLUEPRINT**

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| Chapter | No. of hours | Total marks for which questions are to be asked  (Including bonus questions) |
| Unit 1 | 10 | 6 |
| Unit 2 | 10 | 10 |
| Unit 3 | 6 | 21 |
| Unit 4 | 6 | 21 |
| Unit 5 | 10 | 25 |
| **TOTAL** | 42 | 83 |
| **Maximum marks for the paper (Excluding bonus questions) = 60** | | |