BCSC 0063: COMPUTER PROGRAMMING- II

Course Objectives: *The course is designed to provide advance concepts of OOPS, GUI and Network Programming.*

Credits: 02 **L–T–P: 2–0–0**

Module No.	Content	Hours
I	**Introduction to OOP concepts:** Object Oriented Concepts- Class, Instance, Object, Attribute, Method, Class variables and Instance Variables, Super class and Subclass, Data Encapsulation, Data Abstraction, Constructors- __init__ () method, self-keyword, class method, static method, instance method, **Inheritance**- Single Inheritance, Multiple Inheritance, Multi-level Inheritance, Hybrid Inheritance, Method Overloading and Method Overriding, MRO, Duck-typing **Comparison Methods-__**eq__(self, other), Numeric Methods-__abs__(self) Function and Class Decorators, Abstract Classes and Abstract Methods.	**16**
II	**GUI Programming-** Widgets/Controls, windows, title and title bars, buttons, icons, labels etc., Event-driven programming, binding methods using bind() method, managing widgets with the grid and place managers. **Network Programming:-** Understand and explain the basic concepts of network programming, Domains, addresses, ports, protocols, and services, socket module **Modules –** numpy, pandas and matplotlib **Django Framework-** Describe and build a data model in Django, Apply Django model query and template tags/code of Django Template Language (DTL), Define Class, Instance, Method, Build forms in HTML, Define Django sessions and how cookies are used to support sessions, Apply built-in login functionality in Django and manage login users in views.	**16**

Text Books:

- Irv Kalb: Object Oriented Python “O’Reilly".
- Python 3 Object Oriented Programming.

Reference Books:

- Python GUI Programming with Tkinter: Develop Responsive and Powerful GUI Applications with Tkinter.

Outcome: Upon completion of this course, the students will be able to:

- CO1: Understand to solve problems with OOP concepts.
- CO2: Apply the concepts of Function Decorators.
- CO3: Use in-built packages (numpy, pandas and matplotlib) defined in Python.
- CO4: Develop the programs using GUI Programming.
- CO5: Develop the programs using Network Programming.