Course No.	Title of the Course	Course Structure	Pre-requisite
FCCS002	Computer Programming	3L - 0T - 2P	None

COURSE OUTCOMES (COs):

1. To understand the basic terminology and program structures used in computer programming to solve real world problems.
2. To understand the need for continuing to learn new languages to solve complex problems in different domains.
3. To learn the process of representing problems and writing, compiling and debugging programs.
4. To develop programming skills in using different types of data, decision structures, loops functions, pointers, data files and dynamic memory allocation/de-allocation.
5. To be able to code using Procedural and Object-Oriented languages.

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO11	PO12
CO 1	3	2	2	2	2	-	-	-	-	-	-	-
CO 2	3	2	2	2	2	-	-	-	-	-	-	-
CO 3	3	2	2	2	2	-	-	-	-	-	-	-
CO 4	3	2	2	2	2	-	-	-	-	-	-	-
CO 5	3	2	2	2	2	-	-	-	-	-	-	-

COURSE CONTENT:

UNIT-I

Basics of C: Basic features of C Language like Identifier, Keywords, Variable, data types, Operators and Expression, basic screen and keyboard I/O, Control Statements, iteration, nested loops, Enumerated data types, bitwise operators, C Preprocessor statements. **[6 hours]**

UNIT-II

Arrays and Pointers: One and multidimensional dimensional arrays, strings arrays, operations on strings, Array and Pointers, Pointer to Pointer, other aspect of pointers, User Defined Data Types: Structures, Unions. **[6 hours]**

UNIT-III

Functions: Concept of modular programming, Using functions, Scope of data, Recursive functions, Pointers and functions, Command line arguments.
Files: Types of files, working with files, usage of file management functions.
[6 hours]

UNIT-IV

Overview of Object Oriented Programming: Python Programming, Concepts and Terminology. Data Types and Collection Data Types: Identifiers and keyword, Integral types floating point types, operations and formatting, Sequence types, Tuples, named Tuples, lists, set Types, sets, frozen sets, mapping types, Dictionaries, Iterating and Copying collections iterators and interactable operations and functions copying collection.

Central Structures and Functions: Conditional branching, looping, Exception handling catching and raising exceptions, custom exceptions custom functions, Names and Docstrings, Argument and Parameter unpacking, Accessing variables in Global scope, lambda functions. **[9 hours]**

UNIT-V

Modules and Packages: Packages, custom modules, overview of python's standard library, string handling, mathematics and Numbers, Times and dates, File formats, Data persistence.
File Handling: Writing and Reading binary data, raw binary data, compression, parsing text files, Random Access binary files, generic binary record file class.
[9 hours]

Guidelines for practical work:
Programs based on concepts of above languages.

SUGGESTED READINGS:

1. B. W. Kernighan and D.M. Ritchie, "The C programming language", Prentice Hall.
2. Herbert Schildt and Tata McGraw Hill, "The Complete Reference".