*Bachelor of Computer Applications (Semester – III)*

**Syllabus for the Students admitted in Session 2019-20**

**Paper III: Introduction to PYTHON Programming**

**Time: 3 Hrs.** **M. Marks: 75**

**Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

## Section A

**Introduction to Python:** Python's Technical Strengths, Execution Model, Process of Computational Problem Solving, Different ways to run Python Programs.

**Data and Expressions:** Literals, Variables and Identifiers, Operators, Expressions, Strings, Statements and Data Types, Boolean Expressions (Conditions), Logical Operators, Selection Control, Nested conditions, Debugging

**Lists & Dictionaries:** List Structures, Lists (Sequences) in Python, Iterating Over Lists (Sequences) in Python, Dictionaries and Files, Looping and dictionaries, Advanced text parsing

## Section B

**Control Structures:** Conditional blocks using if, else and elif,While statement, Definite loops using For, Loop Patterns,

**Functions, Packages and Modules:** Fundamental Concepts, Program Routines, Flow of Execution, Parameters &Arguments, Recursive Functions, Recursive Problem Solving, Iteration vs. Recursion, Understanding Packages, Modules, Top-Down Design, Python Modules Importing own module as well as external modules and packages.

## Section C

**Files:** Opening Files, Using Text Files, Reading files, Writing files, Understanding read functions, read(), readline() and readlines(), Understanding write functions, write() and writelines(), Manipulating file pointer using seek, String Processing, Exception Handling

**Objects and Their Use:** Introduction to Object Oriented Programming, Concept of class, object and instances, Constructor, class attributes and destructors, Real time use of class in live projects, Inheritance, overlapping and overloading operators, Adding and retrieving dynamic attributes of classes, Programming using Oops support

## Section D

**Using Databases and SQL:** Database Concepts, SQL basic summary, SQL Database connection using python, creating and searching tables, Programming using database connections, Basic Data modelling, Programming with multiple tables