SVKM's NMIMS
Mukesh Patel School of Technology Management & Engineering

Program: B Tech (Artificial Intelligence, Computer Engineering, Information Technology, Electronics & Telecommunication Engineering, Mechatronics Engineering, CSE (Cyber), AI and ML, AI and DS, CSBS, Computer Science) MBA Tech (Artificial Intelligence, Computer Engineering, Information Technology)	Semester: II

Course: Python Programming	Code: 702AI0C021

Teaching Scheme				Evaluation Scheme	
Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)	Term End Examinations (TEE) (Marks - 100)
0	2	0	1	Marks Scaled to 50	Marks Scaled to 50

Pre-requisite: Nil

Course Objective

The course is designed to provide basic knowledge of Python programming and how to design and program Python applications

Course Outcomes

After completion of the course, the student will be able to -

1. Recognize various data structures and apply them in solving computational problems
2. Understand and apply different file handling operations
3. Apply core python and object-oriented python concepts to build real world applications
4. Implement database connectivity in python

Detailed Syllabus

Unit	Description	Duration
1.	**Introduction to Python** Installation, Features, Python Interpreter and its working, Syntax and Semantics, comments, imports, indentation, variables, data types, math arithmetic, operators (comparison, logical, bitwise), expressions, print, formatting print, generating random numbers	03
2.	**Python Data Structures & Flow Control** Strings, Lists, Dictionaries, Tuples, Sets; Slicing; properties, operations and methods of these data structures Conditional blocks using if, else and elif, Simple For loop, For loop using Ranges, While loops, Loop manipulation using Pass, Continue, Break List and dictionary comprehension, NumPy to create one-dimensional and two-dimensional arrays, Pandas using dataframes.	09
3.	**Python Functions** Defining and calling functions, return, scope, function arguments (args and kwargs), recursive functions; Built-in functions: Lambda, Map, Filter, Reduce, Zip, Enumerate	06

Signature

(Head of the Department)

4.	**File and Exceptional Handling** File I/O read/write operations, open, close, with, seek, tell; manipulating files and directories Exception, Types of errors, handling an exception, try, expect, else, try-finally clause, Argument of an Exception, Raising an Exception	04
5.	**Classes and Objects** Class definition, object creation, class variables and methods, accessing class attributes, meaning of self, __init__, inheritance, overriding super class	05
6.	**Regular Expression and Database Connectivity using Python** Regular Expressions, Match function, Search function, Matching vs Searching, Wildcard, Database connectivity using SQLite3	03
	Total	**30**

Text Books
1. Dr. R. Nageswara Rao, *Core Python Programming*, 2nd Edition, Dreamtech Pres, Wiley Publication, 2018.
2. Paul Barry, *Head first Python: A Brain Friendly guide*, 2nd Edition, O'Reilly publication, 2016.
3. Martin C. Brown, *Python: The Complete Reference*, 4th Edition, McGrawHill Education, 2018.

Reference Books
1. Bill Lubanovic, *Introducing Python Modern computing in simple packages*, 3rd Edition, O'Reilly publication, 2019.
2. Wes McKinney, *Python for Data Analysis*, 2nd Edition, O'Reilly publication, 2017.
3. Jeeva Jose, P. Sojan Lal, *Introduction to Computing and Problem Solving with Python*, 1st Edition, Khanna Publication, 2019.

Laboratory Work

8 to 10 experiments/programming exercises (and a practicum where applicable) based on the syllabus

Signature

(Head of the Department)