Academic Council Meeting No. and Date : 03 / February 14, 2022

Agenda Number : 6 Resolution Number : 12 / 5.2

Vidya Prasarak Mandal's
B. N. Bandodkar College of Science (Autonomous), Thane

Certificate course

Python Level – I

With effect from

Academic Year 2022-2023

Preamble :

To transform students into technically competent, socially responsible and ethical Computer Science professionals.

Objective :

- To introduce various concepts of programming to the students using Python
- To make Non-IT students aware of The fundamentals of computer programming, i.e. how the computer works, how the program is executed, how the programming language is defined and constructed, what the difference is between compilation and interpretation, what Python is, how it is positioned among other programming languages.

Eligibility : Standard XII (12^{th}) Pass

Desired Outcome:

- Students should be able to apply the problem solving skills using syntactically simple language i.e. Python
- Non-IT students, who may not be aware of Computer programming, will be trained to understand what programming, programming paradigm is.
- Students should be able to understand the concepts of programming before actually starting to write programs.
- Non-IT students may find iterest in Computer programming and can have career in their concern subject with Computer knowledge.
- Students should be able to develop logic for Problem Solving

Course Code	Description	Lectures
BNBCCPY1T1	Theory	20
BNBCCPY1T1	Practical	20

Syllabus of

Course Code : Course : Python

UNIT	SUB-TOPICS	Lectures	Practicals
I	Basic concepts: interpreting and the interpreter, compilation and the compiler, language elements, syntax and semantics, Python keywords, instructions, indenting, literals: Boolean, integer, floating-point numbers, scientific notation, strings, operators: unary and binary, priorities and binding, numeric operators: ** * / % // + –, bitwise operators: ~ & ^ | << >>, string operators: * +, Boolean operators: not and or relational operators (== != > >= < <=), building complex Boolean expressions assignments and shortcut operators, accuracy of floating-point numbers basic input and output: input(), print(), int(), float(), str() functions, formatting print() output with end= and sep= arguments, conditional	**4**	**4**
II	Statements: if, if-else, if-elif, if-elif-else, the pass instruction simple lists: constructing vectors, indexing and slicing, the len() function simple strings: constructing, assigning, indexing, slicing comparing, immutability, building loops: while, for, range(), in, iterating through sequences, expanding loops: while-else, for-else, nesting loops and conditional statements, controlling loop execution: break, continue strings in detail: ASCII, UNICODE, UTF-8, immutability, escaping using the \ character, quotes and apostrophes inside strings, multiline strings, copying vs. cloning, advanced slicing, string vs. string, string vs. non-string, basic string methods, upper(), lower(), isxxx(), capitalize(), split(), join(), etc. and functions (len(), chr(), ord()), escape characters,	**8**	**8**
II	Lists in detail: indexing, slicing, basic methods (append(), insert(), index()) and functions (len(), sorted(), etc.), del instruction, iterating lists with the for loop, initializing, in and not in operators, list comprehension, copying and cloning lists in lists: matrices and cubes tuples: indexing, slicing, building, immutability tuples vs. lists: similarities and differences, lists inside tuples and tuples inside lists dictionaries: building, indexing, adding and removing keys, iterating through dictionaries as well as their keys and values, checking key existence, keys(), items() and values() methods	**8**	**8**

Evaluation Scheme

Theory Examination: Suggested Format of Question paper

Duration: 3 Hours **Total Marks: 75**

All questions are compulsory

Q. 1	Based on Unit I	25
Q. 2	Based on Unit II	25
Q. 3	Based on Unit III	25

Each question may have following subquestions

Short answer question	5 Marks
Short note questions	5 Marks
Objectives	1 Marks

Internal Assignments have to be submitted in the hard copy format in the department

Total number of assignments: 06 each carrying 4 / 5 marks; Total marks: 25

Practical Examination

Details	Marks	Viva	Journal	Total
Practical I	80	10	10	100

Course Code	Description	Marks
	Total of Internal Assignments	25
	Total of Theory Examination	75
	Total of Practical Examination	100
Total		***200***

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