|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NAME OF DEPARTMENT:** | | | | | | | | | | | | | | | | | | | School of Computing | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Course Name:** | | | | | | | | | Bachelor of Computer Applications (BCA) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | |
|  | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | |  | | |
| **Subject Name:** | | | | | | | | | Python Programming | | | | | | | | | | | | | | | | | | | | | | | | **Subject Code:** | | | | | | | | | | TBC 202 | | |
|  | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | |  | | | | |
| **1** | **Contact Hours:** | | | | | | | | | | 45 | | | | |  | | | | | | | | | | | | | | | | | | **L** | | 3 | | | | **T** | | | 0 | **P** | 0 |
|  |  | | | | | | | | | |  | | | | |  | | | | | | | | | | | | | | | | | |  | |  | | | |  | | |  |  |  |
| **2** | **Examination Duration(Hrs):** | | | | | | | | | | | | | | | | | | | | |  | **Theory** | | | | | 0 | 3 |  | **Practical** | | | | 0 | | | 0 | |  | | | | | |
|  |  | | | | | | | | | | | | | | | | | | | | |  |  | | | | |  |  |  |  | | | |  | | |  | |  | | | | | |
| **3** | **Relative Weightage:** | | | | | | | | | | | | |  | | | | | **CWE:** | | | | | | | 25 | | **MTE:** | | | 25 | | **ETE:** | | | | 50 | | | | |  | | | |
|  |  | | | | | | | | | | | | |  | | | | |  | | | | | |  | | |  | | |  | |  | | | |  | | | | |  | | | |
| **4** | **Credits:** | | | | | | 0 | | | 3 |  | | | | | | | | | | | | | |  | | |  | | |  | |  | | | |  | | | | |  | | | |
|  |  | | | | | |  | | |  |  | | | | | | | | | | | | | |  | | |  | | |  | |  | | | |  | | | | |  | | | |
| **5** | **Semester:** | | | | | | |  | | |  | | | | \* | | |  | | |  | | |  | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | **Autumn** | | | | | | **Spring** | | | | | | | | **Both** | | | | | | |  | | | | | | | | | | | | | | | | | | |
|  |  | | | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | | | | | | | | | | | | | | | |
| **6** | **Pre-Requisite:** | | | | | | | | | | | | Basic fundamentals of Database | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **7** | **Subject Area:** | | | | | | | | | | | | Computer Science | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **8** | **Objective:** | | | | | | | | | | | | To learn Python programming. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **9** | **Course Outcome:** | | | | | | | | | | | | A student who successfully fulfills the course requirements will be able to- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | **CO 1** | | | | Understand the basics of object oriented python programming. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | **CO 2** | | | | Knowledge of advanced libraries of python. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | **CO 3** | | | | Knowledge of structures used in python. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | **CO 4** | | | | Processing the data with numpy. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | **CO 5** | | | | Use of pandas and matplotlib. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **10** | | **Details of the Course:** | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Unit No.** | | | | **CONTENT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **CONTACT HOURS** | | | | | | |
| **1** | | | | **Introduction to Python**: Where is Python used in the Real World? Installation of Python in Windows, Linux and Osx, Using Interactive shell. Creating, Saving and Running a Python Script. Intro to Python's data types: String, Lists, Dictionaries, Tuples, Files | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | | | |
| **2** | | | | Variables, Assignments; Variables; Numerical types; Arithmetic operators and expressions; Dynamic Programming. **Functional Programming:** Understanding If-Else, While, For, Iterations. Functions Basics, Scopes and Argument Passing. Advanced Functions. Modules creation and Managing Code with modules | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | | | |
| **3** | | | | Object oriented programming with Classes. Classes basics and Operator Overloading. Exception Handling: Basics, passing Custom data to Exceptions. Managed Attributes and Decorators. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | | | |
| **4** | | | | **Essential Python Libraries:** "NumPy " & "Pandas". | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | | | |
| **5** | | | | **NumPy Basics:** Arrays and Vectorized Computation, Data Processing Using Arrays. Getting Started with pandas. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | | | |
|  | | | | **TOTAL** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **45** | | | | | | |
|  | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | |
|  | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | |
| **11** | | **Suggested Books:** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | |
| **Sl. NO.** | | | **NAME OF AUTHORS/BOOKS/PUBLISHERS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **YEAR OF PUBLICATION** | | | | | |
| **1** | | | "Learning Python" by Mark Lutz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | |
| **2** | | | "Python Essential Reference" by David Beazley | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | |
| **3** | | | "Python Cookbook" by David Beazley | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | |
| **4** | | | "Python for Data Analysis" by Wes Mckinney | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | |
| **5** | | | "Learning Python" by Mark Lutz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | |