

MAR AUGUSTHINOSE COLLEGE RAMAPURAM



DEPARTMENT OF COMPUTER SCIENCE

Scheme and Syllabus of
ADD ON Course

Python

(Course Code: MACAOC03)

BoS

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INTRODUCTION

The Department of Computer Science offers the Add-on course in Python for the final year BCA, in addition to the curriculum offered by the University.

AIM OF THE PROGRAMME

The Add-on course aims at imparting crucial job skills to the students, thus enabling them to acquire an additional certificate along with their degree certificate. Thus, improving the employability skills of students.

MEDIUM OF INSTRUCTION: English.

DURATION OF THE COURSE

The duration of Add-on course is 100 hours (including the hours of final examination) of which 40 hrs theory and 60 hrs for laboratory/demonstration/experimental activities including project based on Python.

The Add-on course will be a blend of theory classes / experimental learning / project-based learning / assignments / activity-based learning.

COURSE OBJECTIVES

- To learn and understand Python programming basics and paradigm.
- To learn and understand python looping, control statements and string manipulations.
- Students should be made familiar with the concepts of GUI controls and designing GUI applications.
- To learn and know the concepts of file handling, exception handling and database connectivity

COURSE OUTCOMES (Cos)

- Define and demonstrate the use of built-in data structures “lists” and “dictionary”.
- Design and implement a program to solve a real world problem.
- Design and implement GUI application and how to handle exceptions and files.
- Make database connectivity in python programming language.

EVALUATION

1. The add-on course shall be evaluated through an examination at the end of the course.
2. The duration of examination is one hour.
3. The total marks of the examination shall be 100

Components of Evaluation	Marks
Attendance	10
Project	50

Viva	20
External Examination	20
Total	100

4. A committee consisting of the Head of the Department, the course coordinator and a senior faculty member nominated by the Head of the department shall monitor the evaluation process.
5. Certificates will be issued to those students with 75% attendance, timely submission of assignment and project and a minimum of 40% marks in the qualifying examination.

Grading Pattern

Grades are given **on a 7-point scale** based on the total percentage of marks, **(ISA+ESA)** as given below: -

Percentage of Marks	Grade
95 and above	S Outstanding
85 to below 95	A⁺ Excellent
75 to below 85	A Very Good
65 to below 75	B⁺ Good
55 to below 65	B Above Average
45 to below 55	C Satisfactory
35 to below 45	D Pass
below 35	F Failure
Absent	Ab

SYLLABUS

Python

Chapter 1: Introduction to Python What is Python and history of Python? Unique features of Python, Python-2 and Python-3 differences, Install Python and Environment Setup, First Python Program, Python Identifiers, Keywords and Indentation, Comments and document interlude in Python, Command line arguments, Getting User Input, Python Data Types, What are variables? Python Core objects and Functions, Number and Maths.

Chapter 2: List, Ranges & Tuples in Python Introduction, Lists in Python, More About Lists, Understanding Iterators, Generators, Comprehensions and Lambda Expressions, Introduction, Generators and Yield, Next and Ranges, Understanding and using Ranges, More About Ranges, Ordered Sets with tuples.

Chapter 3: Python Dictionaries and Sets Introduction to the section, Python Dictionaries, More on Dictionaries, Sets, Python Sets Examples.

Chapter 4: Input and Output in Python Reading and writing text files, writing Text Files, Appending to Files and Challenge, Writing Binary Files Manually, Using Pickle to Write Binary Files.

Chapter 5: Python built in function Python user defined functions, Python packages functions, Defining and calling Function, The anonymous Functions, Loops and statement in Python, Python Modules & Packages.

Chapter 6: Python Object Oriented Overview of OOP, Creating Classes and Objects, Accessing attributes, Built-In Class Attributes, Destroying Objects.

Chapter 7: Python Exceptions Handling What is Exception? Handling an exception, try...except...else, try-finally clause, Argument of an Exception, Python Standard Exceptions, Raising an exceptions, User-Defined Exceptions.

Chapter 8: Python Regular Expressions What are regular expressions? The match Function, The search Function, Matching vs searching, Search and Replace, Extended Regular Expressions, Wildcard.

Chapter 9: Python Multithreaded Programming What is multithreading? Starting a New Thread, The Threading Module, Synchronizing Threads, Multithreaded Priority Queue, Python Spreadsheet Interfaces, Python XML interfaces.

Chapter 10: Using Databases in Python Python MySQL Database Access, Install the MySQLdb and other Packages, Create Database Connection, CREATE, INSERT, READ, UPDATE and DELETE Operation, DML and DDL Operation with Databases, Performing Transactions, Handling Database Errors, Web Scraping in Python.

Chapter 11: Python For Data Analysis Numpy: Introduction to numpy, Creating arrays, Using arrays and Scalars, Indexing Arrays, Array Transposition, Universal Array Function, Array Processing, Array Input and Output, Pandas: What is pandas? Where it is used? Series in pandas, Index objects, Reindex, Drop Entry, Selecting Entries, Data Alignment, Rank and Sort, Summary Statics, Missing Data, Index Heirarchy, Matplotlib: Python For Data Visualization, Welcome to the Data Visualization Section, Introduction to Matplotlib.

Chapter 12: Django Web Framework in Python Introduction to Django and Full Stack Web Development.