



**GOVERNMENT OF TAMILNADU**  
**DIRECTORATE OF TECHNICAL EDUCATION, CHENNAI**  
**STATE PROJECT COORDINATION UNIT**  
**(Established under Canada India Institutional Cooperation Project )**

**CURRICULUM**

|   |   |
|---|---|
| Course Name   | Python Programming  |
| Course Code   | CSE/2020/022  |
| Course Duration   | 60 Hours  |
| Minimum Eligibility Criteria and Pre-requisites(if any) | ITI/10 <sup>th</sup> /+2/Diploma/Graduates<br>Basics knowledge of C programming   |
| Course Objectives                                       | The main objective of the course is to acquire programming and object oriented skills in core Python.   |
| Course Outcomes   | At the end of training, the participants will be able to <ul style="list-style-type: none"> <li>Understand basic principles of Python programming language and do program in Python.</li> </ul> |
| Expected Job Roles                                      | Python programmer, Software developer   |

**TEACHING AND SCHEME OF EXAMINATION**

| Course Code  | Course Name        | Hours     |    | Assessment Marks |     | Duration of Examination |
|--------------|--------------------|-----------|----|------------------|-----|-------------------------|
|              |                    |           |    | Min              | Max |                         |
| CSE/2020/022 | Python Programming | Theory    | 20 | 10               | 20  | 3 Hours                 |
|              |                    | Practical | 40 | 40               | 80  |                         |
|              |                    | Total     | 60 | 50               | 100 |                         |

**CSE/2020/022 - PYTHON PROGRAMMING  
DETAILED SYLLABUS**

| <b>UNIT NO</b>               | <b>MODULES</b>   | <b>NO.OF.HOURS THEORY</b> |
|------------------------------|--|---------------------------|
| <b>I</b>                     | <b>FUNDAMENTALS OF PYTHON</b>  |                           |
| 1.1                          | Running python Program<br>Data types and variables<br>Printing with parameters<br>String formatting<br>Logical expressions<br>Logical operations<br>More complex expressions | 4                         |
| <b>II</b>                    | <b>LOOPS , LIST AND TUPLE</b>  |                           |
| 2.1                          | For loops , While loops, List operations , List slices<br>List methods, Mutability, Cloning lists , List parameters,<br>Tuple as return value                                | 4                         |
| <b>III</b>                   | <b>OBJECT AND CLASSES</b>  |                           |
| 3.1                          | Classes in python<br>Principles of Object Orientation<br>Creating classes<br>Instant methods<br>File organisation<br>Inheritance<br>Polymorphism<br>Type identification      | 4                         |
| <b>IV</b>                    | <b>FUNCTIONS</b>   |                           |
| 4.1                          | String functions , Numeric and date functions<br>Writing and calling functions , Function Inputs and Outputs<br>Local and global scope , Mapping functions in a dictionary   | 4                         |
| <b>V</b>                     | <b>FILES AND EXCEPTIONS</b>  |                           |
| 5.1                          | Text files<br>Reading and writing files<br>Command line arguments<br>Types of errors<br>Troubleshooting tools<br>Handling exceptions<br>Modules<br>Packages                  | 4                         |
| <b>Total Theory Hours</b>    |  | <b>20</b>                 |
| <b>Total Practical Hours</b> |  | <b>40</b>                 |
| <b>Total Hours</b>           |  | <b>60</b>                 |

## **PRACTICAL ( 40 HOURS )**

1. Write a Program for checking whether the given number is a even number or not.
2. Using a for loop , write a program that prints out the decimal equivalents of  $1/2$  ,  $1/3$ ,  $1/4$ ,...  $1/10$
3. (a)Write a python program to store data in list and then try to print them  
(b)Write a python program to convert time from 12 hour to 24 hour
4. Write python program to do basic trim and slice on string
5. Write a python program to execute a string of code
6. Write a program to print each line of a file in reverse order.
7. Write a python program to demonstrate constructors.
8. Write a python program to Brake a list into chunks of size N
9. (a)Write a function unique to find all the unique elements of the list  
(b)Write a function duos to find all duplicates in the list
10. Write a python program to print double sided star-case pattern
11. Write a python program to perform Linear search
12. Write a python program to perform Selection sort
13. Write a python program to count the number of characters in the string and store them in a dictionary data structure
14. Write a python program to multiply matrices
15. Write a python program in which an class is define , then create object of that class and call Simple print function define in class
16. (a)Write a python program to find the most frequent words in text read from the file  
(b)Write a python program to copy odd lines of one file to other
18. Write a python program to make a simple calculator
19. Write a python program to implements stack using one queue
20. Write a python program to find the size of a image
21. Write a program to simulate elliptical orbits in pygame

### **HARDWARE REQUIREMENT**

| S.NO | LIST OF TOOLS /EQUIPMENTS |
|------|---------------------------|
| 1    | COMPUTER                  |
| 2    | PRINTER                   |

### **SOFTWARE REQUIREMENT**

| S.NO | LIST OF SOFTWARE    |
|------|---------------------|
| 1    | Python IDE / Latest |

### **REFERENCE BOOKS**

| S.NO | NAME OF THE BOOK                                     | AUTHOR                        | PUBLISHER                   |
|------|--|-------------------------------|-----------------------------|
| 1    | Think Python: How to Think Like a Computer Scientist | Downey, Allen B               | O'Reilly, 2012              |
| 2    | Python Programming                                   | Michael Urban and Joel Murach | O'Reilly 2016               |
| 3    | Programming Python                                   | Mark Lutz                     | O'Reilly, 4th Edition, 2010 |

## ASSESSMENT AND CERTIFICATION

| S.No | Criteria for assessment  |
|------|--|
| 1.   | A trainee will be assessed based on the performance in End Examination for Theory and Practical conducted internally in the Project Polytechnic College for a duration of 3 hours  |
| 2.   | A trainee must have 75% of attendance to appear for End examination in Theory and Practical.   |
| 3.   | The assessment for theory part will be based on the marks scored in the end examination on the knowledge bank of questions (1 word/objective type questions)   |
| 4.   | The assessment for practical part will be based on the marks scored in the end examination conducted by the Project Polytechnic and assessed by the Examiners approved by Strategic Plan Implementation Committee (SPIC) of the project polytechnic. |
| 5.   | The criteria for successful completion of training is every trainee should score 50% of marks in theory and practical examination.   |
| 6.   | On successful completion of training , Certificate will be issued to the participants by the Directorate of Technical Education through the Project Polytechnic.   |

## END EXAMINATION

### ALLOCATION OF MARKS

| S.No               | Description           | Max.Marks  |
|--------------------|-----------------------|------------|
| 1.                 | Theory Examination    | 20         |
| 2.                 | Practical Examination |            |
|                    | a)Procedure           | 10         |
|                    | b)Execution           | 30         |
|                    | c)Output              | 20         |
|                    | d)Record              | 20         |
| <b>Total Marks</b> |                       | <b>100</b> |

## THEORY MODEL QUESTION PAPER

### CSE/2020/022 - PYTHON PROGRAMMING

(Maximum Marks : 20 )

(N.B: Answer any **twenty** questions)

**20 x 1 = 20 Marks**

1. What is the maximum possible length of an identifier?
2. Which operator is used for floor division?
3. What is the order of precedence in python?
4. Whether Mathematical operations can be performed on a string in python?
5. Operators with the same precedence are evaluated in which manner?
6. Given a function that does not return any value, What value is thrown by default when executed in shell.
7. What core data type is used in order to store values in terms of key and value?
8. What do you mean by slice in python?
9. What is mutability?
10. What does tuple mean in python?
11. Which keyword is used for function?
12. How the function pow(x,y,z) is evaluated?
13. What for the round function is used?
14. What is setattr() used for?
15. What is Instantiation in terms of OOP terminology?
16. What arithmetic operators cannot be used with strings?
17. Given a string example="hello" what is the output of example.count('l')?
18. To concatenate two strings to a third what statements are applicable?
19. How functions can be invoked?
20. Suppose d = {"john":40, "peter":45}, to delete the entry for "john" what command do we use?
21. What command is used to open a file c:\scores.txt for reading?
22. What command is used to read two characters from a file object infile?
23. The readlines() method returns what?
24. How many except statements can a try-except block have?
25. When will the else part of try-except-else be executed?