

Branch Name:	MCA
Program Code:	CS201
Course Name:	Python Programming Practical
Course Code:	4CS2010101P
Pre-requisite Course:	Knowledge of some programming languages like C, Java

Course Objective:

1. To develop proficiency in creating based applications using Python Programming Language.
2. To be able to understand the various data structures available in Python programming language and apply them in solving computational problems.
3. To be able to do testing and debugging of code written in Python.
4. To be able to draw various kinds of plots using PyLab.
5. To be able to use generators for generating series like Fibonacci.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture	Tutorial	Practical	Credit	Theory		Practical		Total
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
-	-	4	2	-	-	25	25	50

Practical List:

1	Write a Python Program to Convert Celsius to Fahrenheit and vice –a-versa.
2	Write a program in python to swap two variables without using temporary variable.
3	Write a Python Program to Convert Decimal to Binary, Octal and Hexadecimal
4	Write a program to make a simple calculator (using functions).
5	Write a program in python to find out maximum and minimum number out of three user entered number.
6	Write a program which will allow user to enter 10 numbers and display largest odd number from them. It will display appropriate message in case if no odd number is found. Write a Python program to check if the number provided by the user is an Armstrong number.
7	Write a Python Program to Convert Celsius to Fahrenheit and vice –a-versa.
8	Write a Python program to display all the prime numbers in user entered range.
9	Write a Python program to check if the number provided by the user is a palindrome or not.
10	Write a Python program to perform following operation on given string input: a) Count Number of Vowel in given string b) Count Length of string (do not use len ()) c) Reverse string d) Find and replace operation e) check whether string entered is a palindrome or not
11	Define a procedure histogram () that takes a list of integers and prints a histogram to the screen. For example, histogram ([4, 9, 7]) should print the following: **** ***** *****

12	Write a program in python to implement Fibonacci series up to user entered number. (Use recursive Function)
13	Write a program in python to implement Factorial series up to user entered number. (Use recursive Function)
14	Write program in python to implement simple interest and compound interest values on chart using PyLab. Show the difference between both.
15	A line chart in Matplotlib displays data as a series of points connected by straight lines. It is used to show trends over time or continuous data. Use Case: Plotting stock prices over several days.
16	A bar chart uses rectangular bars to compare discrete categories or groups. Use Case: Comparing sales of different products.
17	A histogram groups numerical data into ranges (bins) and plots the frequency of data points in each range. Use Case: Showing the distribution of student marks.
18	A pie chart shows percentages of a whole, with slices representing different categories. Use Case: Displaying percentage share of market by companies.
19	A scatter plot shows the relationship between two continuous variables using dots. Use Case: Comparing height and weight of people.
20	Write a program in Python to implement read lines, write line using file handling mechanisms.
21	Write a program in python to implement Salary printing file read operation. (File format: Employee No, name, deptno, basic, DA, HRA, Conveyance) should perform below operations. a) Print Salary Slip for given Employee Number b) Print Employee List for Given Department Number
22	Write a program in python to implement Railway Reservation System using file handling technique. System should perform below operations. a. Reserve a ticket for a passenger. b. List information all reservations done for today's trains.
23	Write a program in python to implement Library Management System using file handling technique. System should perform below operations. a. Issue a book for student. b. List information today's issued books.
24	Create Regular Expressions that a. Recognize following strings bit, but, bat, hit, hat or hut b. Match any pair of words separated by a single space, that is, first and last names. c. Match any word and single letter separated by a comma and single space, as in last name, first initial. d. Match simple Web domain names that begin with www . and end with a ".com" suffix; for example, www.yahoo.com . Extra Credit: If your regex also supports other high-level domain names, such as
25	Create Regular Expressions That: a. Extract the complete timestamps from each line. b. Extract the complete e-mail address from each line. c. Extract only the months from the timestamps. d. Extract only the years from the timestamps. e. Extract only the time (HH:MM:SS) from the timestamps.

26	Create utility script to process telephone numbers such that - Area codes (the first set of three-digits and the accompanying hyphen) are optional, that is, your regex should match both 800-555-1212 as well as just 555-1212. - Either parenthesized or hyphenated area codes are supported, not to mention optional; make your regex match 800-555-1212, 555-1212, and also (800) 555-1212.
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Text Books:

- Allen B. Downey, "Think Python: How to Think Like a Computer Scientist", 2nd edition, updated for Python 3, Shroff/O'Reilly Publishers, 2016.
- R. Nageswara Rao, "Core Python Programming", dream tech
- Python Programming: A Modern Approach, Vamsi Kurama, Pearson

References Books:

- Core Python Programming, W.Chun, Pearson.
- Introduction to Python, Kenneth A. Lambert, Cengage
- Learning Python, Mark Lutz, Orielly

Web Resources

- <http://docs.python.org/library/csv>
- <http://docs.python.org/library/json>
- <http://docs.python.org/library/ext>
- http://en.wikibooks.org/wiki/Python_Programming
- <http://learnpythonthehardway.org/>
- <http://jason.org>
- [Nosql-database.org](http://nosql-database.org)
- www.mongodb.org/
- W3schools.com

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	To read, write, execute by hand simple Python programs for solving problems.	1 Remembering 2 Understanding 3 Applying
CLO2	To decompose a Python program into functions, string, array.	1 Remembering 3 Applying
CLO3	To represent compound data using Python lists, tuples, and dictionaries.	3 Applying 2 Understanding,
CLO4	To read and write data from Data Science and Data Visualization	1 Remembering 2 Understanding 3 Applying
CLO5	To Formulating data from Regular Expressions using Python.	3 Applying
CLO6	To read and write data from files in Python Programs & understand Exception handling and create a program using it.	3 Applying

Mapping of CLOs with Pos & PSOs

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CLO1		M	L	M		M	H	L	M		M		H	M
CLO2	M	L			H	L		L		M	L	L	M	M
CLO3		L	M		M	M		L	M	M		L	M	L
CLO4	L		M	L	M		M		L		L		M	M
CLO5	M	L		M	L			M		L		L	M	L
CLO6	M		M		L	M			M	M		L	L	M

H: High, M: Medium, L: Low