

20PEB226P					Programming Languages (Python)					
Teaching Scheme					Examination Scheme					
L	T	P	C	Hrs/Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
0	0	2	1	2	--	--	--	50	50	100

COURSE OBJECTIVES

- 1. To acquire programming skills in core Python.
- 2. To acquire Object Oriented Skills in Python
- 3. To develop the skill of designing Graphical user Interfaces in Python
- 4. To develop the ability to write database applications in Python

UNIT 1**7 Hrs.**

Introduction to Python: The basic elements of Python, Branching programs, Strings and Input, Iteration Functions, Scoping and Abstraction: Functions and Scoping, Specifications, Recursion, Global variables, Modules, Files Testing and Debugging: Testing, Debugging

UNIT 2**8 Hrs.**

Structured Types, Mutability and Higher-order Functions: Tuples, Lists and Mutability, Functions as Objects, Strings, Tuples and Lists, Dictionaries Exceptions and assertions: Handling exceptions, Exceptions as a control flow mechanism, Assertions

UNIT 3**7 Hrs.**

Classes and Object-oriented Programming: Abstract Data Types and Classes, Inheritance, Encapsulation and information hiding, Some Simple Algorithms and Data Structures: Search Algorithms, Sorting Algorithms, Hashtables

UNIT 4**8 Hrs.**

Plotting and more about Classes: Plotting using PyLab, Plotting mortgages and extended examples. Dynamic Programming: Fibonacci sequence revisited, Dynamic programming and the 0/1 Knapsack algorithm, Dynamic programming and divide and conquer

Total 30 Hrs.**COURSE OUTCOMES**

On completion of the course, student will be able to

CO1 - Identify situations where computational methods and computers would be useful

CO2 - Given a computational problem, identify and abstract the programming task involved.

CO3 – Choose the right data representation formats based on the requirements of the problem.

CO4 - Use the comparisons and limitations of the various programming constructs and choose the right one for the task in hand.

CO5 - Write the program on a computer, edit, compile, debug, correct, recompile and run it.

CO6 - Identify tasks in which the numerical techniques learned are applicable and apply them to write programs, and hence use computers effectively to solve the task.

TEXT/REFERENCE BOOKS

1. David Beazley and Brian K. Jones (2013) Python Cookbook, Third edition by
2. Eric Matthes (2013) Python Crash Course, 2nd Edition: A Hands-On, Project-Based Introduction to Programming

END SEMESTER EXAMINATION QUESTION PAPER PATTERN**Max. Marks: 100****PART A:** <Question: <Short Notes, Problems, Numerical>**PART B:** <Justification, Criticism, Long answers, Interpretation >**Exam Duration: 3 Hrs****20 Marks****80 Marks**