Teaching Scheme					Programming Lab (22PCM207P)					
					Examination Scheme					
L	T	P	C	Hours/Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
0	0	2	1	2	--	--	--	50	50	100

COURSE OBJECTIVES

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

UNIT I: **7 Hr.**

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 II: **7 Hr.**

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 III: **7 Hr.**

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 IV: **7 Hr.**

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

Max. 28 Hr.

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.
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 **Exam Duration: 3 Hr.**

Part A: <Question: <Short Notes, Problems, Numerical>	20 Marks
Part B: 5 <Justification, Criticism, Long answers, Interpretation >	80 Marks