

The Maharaja Sayajirao University of Baroda Polytechnic Higher Payment Program Diploma in Computer Engineering			ACADEMIC YEAR 2021-2022		
Year	III	PYTHON PROGRAMMING (CSE3519)	Lecture Hrs per week	4	
Semester	I		Max marks	100	
Pre-Requisite: A course on "Programming for Problem Solving using IDLE editor".					
CO1	Describe the fundamental concepts of Python including its features, installation, syntax, variables, data types, and memory management.				
CO2	Illustrate Python objects, numbers, standard types, operators, and built-in functions to develop basic Python programs.				
CO3	Apply conditional statements, loops, and command-line arguments to implement logical control flow in Python applications.				
CO4	Illustrate Python programs using functions, recursion, modules, files, packages, and regular expressions for solving computational problems.				
CO5	Identify object-oriented programming concepts such as classes, inheritance, encapsulation, and exception handling using Python.				
BT	1. Remember 2. Understand 3. Application 4. Analysis 5. Evaluation 6. Creation				
COURSE CONTENT/SYLLABUS					
Unit	Unit Name		Hrs	Weightage	CO
1	PYTHON BASICS: Python- a tool not a reptile, origins, features of python, downloading and installing, running python, comparing python, program output and print statement, program input and raw_input() built-in function, comments , variables and assignment, numbers, strings, lists and tuples, dictionaries, statements and syntax, variable assignment, identifiers, basic style guidelines, memory management, garbage collection		6	14	CO1
2	PYTHON OBJECTS AND NUMBERS:Python objects and its characteristics, object attributes, standard types, other built-in types, internal types, standard type operators, standard type built-in functions, type factory functions, unsupported types, introduction to numbers, integers, double precision floating point numbers, complex numbers, operators		12	18	CO1, CO2
3	CONDITIONAL STATEMENTS AND LOOPS:If, else, elif, conditional expressions, while, for, break , continue, pass, command line arguments		8	16	CO1, CO3
4	FUNCTIONS, SCOPING AND REGULAR EXPRESSIONS: What are functions, calling functions, creating functions, passing functions, variable scope, recursion, modules, files, packages, regular expressions, special symbols and characters, search function, regular expression modifiers, patterns		12	18	CO1, CO2, CO4
5	STRUCTURED TYPES, MUTABILITY AND HIGHER-ORDER FUNCTIONS:tuples, lists and mutability, functions as objects, strings, dictionaries		8	16	CO1, CO2, CO4
6	CLASSES AND OBJECT ORIENTED PROGRAMMING: Abstract data types and classes, inheritance, encapsulation and information hiding, handling exceptions		12	18	CO1, CO2, CO5
			58	100	
REFERENCE BOOKS:					
1.	Wesley J. Chun. “Core Python Programming - Second Edition”, Prentice Hall				
2.	John V Guttag. “Introduction to Computation and Programming Using Python”, Prentice Hall of India				
3.	Kenneth A. Lambert, “Fundamentals of Python – First Programs”, CENGAGE Publication				