SEMESTER – III

Course Code	PIT21C301J	Course Name	PYTHON PROGRAMMING	Course Category	C	Professional Core	L	T	P	C
							4	0	2	5

Pre-requisiteCourses	Nil	Co-requisiteCourses	Nil	ProgressiveCourses	Nil
Course OfferingDepartment	Computer Science	Data Book / Codes/Standards	Nil		

Course Learning Rationale (CLR):	The purpose of learning this course is to:
CLR-1 :	Describe the core syntax and semantics of Python programming language.
CLR-2 :	Discover the need for working with the strings and functions.
CLR-3 :	Illustrate the process of structuring the data using lists, dictionaries, tuples and sets.
CLR-4 :	Indicate the use of regular expressions and built-in functions to navigate the file system.
CLR-5 :	Infer the Object-oriented Programming concepts in Python.
CLR-6 :	Understand Event Driven Programming

Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:	Learning			Program Learning Outcomes (PLO)														
		Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Fundamental Knowledge	Application of Concepts	Link with Related	Procedural Knowledge	Skills in Specialization	Ability to Utilize Knowledge	Skills in Modeling	Analyze, Interpret Data	Investigative Skills	Problem Solving Skills	Communication Skills	Analytical Skills	ICT Skills	Professional Behavior	Life Long Learning
CLO-1 :	Develop, document, and debug modular python programs to solve computational problems	3	80	70	L	H	-	H	L	-	-	-	L	L	-	H	-	-	-
CLO-2 :	Select a suitable programming construct and data structure for a situation.	3	85	75	M	H	L	M	L	-	-	-	M	L	-	H	-	-	-
CLO-3 :	Use built-in strings, lists, sets, tuples and dictionary in applications.	3	75	70	M	H	M	H	L	-	-	-	M	L	-	H	-	-	-
CLO-4 :	Define classes and use them in applications	3	85	80	M	H	M	H	L	-	-	-	M	L	-	H	-	-	-
CLO-5 :	Use files for I/O operations.	3	85	75	H	H	M	H	L	-	-	-	M	L	-	H	-	-	-

Duration (Hour)		18	18	18	18	18
S-1	SLO-1	An introduction to python programming,	Arrays, Array methods	Equality: Object Identity, Structural Equivalence	Errors and exceptions, Exception handling in Python	Docstrings,
	SLO-2	Structure of a Python program	Strings ,	Advanced list processing, List comprehension	Exception handling methods, Illustrate exception handling in Python	Method Definitions
S-2	SLO-1	understanding Python interpreter and Python Shell	String methods	Conversion of list to array,tuple,string,	Introduction to modules,	The init Method,
	SLO-2	Datatypes,	mutable strings,	Conversion of array, string, tuple,dictionary to list	Important modules in Python	Instance Variables
S3	SLO-1	Example program using all data types	Immutable strings	Tuples	Creating modules,	The str Method,
	SLO-2	Example program using variables,	String module,	tuple operation	accessing modules,	Accessors
S4	SLO-1	String literals,	Sum array of numbers	Tuple methods	Namespaces and its methods	Mutators,
	SLO-2	Escape Sequences,	Funtions	Introduction to dictionary,	L*ocating modules,* dir(),	The Lifetime of Objects
S5-6	SLO-1	Laboratory 1: Write a Python code to display system information using pywhois	Laboratory 4:Make a simple calculator	Laboratory 7: Program to Transpose a Matrix Program for sorting using list Using a List to Find the Median of a Set of Numbers	Laboratory 10: Program using recursive function. Program to illustrate exception handling in Python	Laboratory 13: Program using classes and methods
	SLO-2					
S7	SLO-1	String Concatenation,	Function arguments	Operations	PYTHONPATH	Rules for Defining a Simple Class
	SLO-2	Variables	Anonymous functions,	Methods,	Packages,	Rational Number
S8	SLO-1	assignment statement,	Illustrate functions using python	Add, remove a key in dictionary	Creating packages	Arithmetic and Operator Overloading

	SLO-2	Program Comments	Set declaration	Accessing values	accessing packages	Comparison Methods,
S9	SLO-1	Doc Strings,	Set operation	Replacing Values,	Default (Keyword) Arguments,	Equality and the eq Method
	SLO-2	Numerical Datatypes,	Set methods	Traversing a dictionary	Functions as First-Class Data Objects	Input of Objects
S10	SLO-1	Character sets,	Introduction to Lists,	Introduction to file,	Mapping,	the try-except Statement
	SLO-2	Arithmetic expressions,	List literals	file creation	Filtering,	Inheritance
S11-12	SLO-1	Laboratory 2: The Magic 8 Ball is a toy used for fortune-telling or seeking advice.	Laboratory 5: Arrays and strings	Laboratory 8: Program on dictionary operations. Program on dictionary methods	Laboratory 11Writeapythonprogramtodefineamoduleandimportaspecificfunctioninthatmoduleto another program	Laboratory 14: Python Program for Operator overloading
	SLO-2					
S13	SLO-1	Understanding error messages	Basic list operations,	File operations,	Reducing	Hierarchies
	SLO-2	Logical operators	Replacing an Element in a List	Format operators	Using lambda to Create Anonymous Functions	Modeling
S14	SLO-1	Definite iteration : For loop,	List methods with illustration,	Directory functions,	Standard Libraries in Python	Polymorphic Methods
	SLO-2	Selection : if statement	Program to List Methods for Inserting Elements	File positions	Introduction to classes,	Abstract Classes
S15	SLO-1	if else statement,	Example program to Replace an Element in a List	Example program to access and manipulate files,	Design with Classes	The Costs of object oriented programming
	SLO-2	Example program using if and if else,	Sorting and searching a list,	Example program to read and write text and numbers	Objects	Benefits of Object-Oriented Programming
S16	SLO-1	Conditional iteration :while loop,	Aliasing,	Recursive functions,	Classes	Event-Driven Programming,
	SLO-2	Example program using while loop	mutator methods	Abstract functions	An example for class	Example for Event-Driven Programming
S17-18	SLO-1		Laboratory 6: Program to		Laboratory 12 : Programs to illustrate lambda functions with	Laboratory 15: Program using

	SLO-2	Laboratory 3: Check whether a number is prime or not, Python Program to Generate a Random Number	illustrate set operations and its methods. Program to illustrate list opertions and its methods Program for list comprehension	Laboratory 9:Program to create and modify text file in Python Program for word count in text file.	mapping, filtering ,reducing and substituting	polymorphism, abstract classes

Learning Resources	Kenneth A. Lambert, (2011), "The Fundamentals of Python: First Programs", Cengage Learning

Learning Assessment

Bloom's Level of Thinking		Continuous Learning Assessment (50% weightage)								Final Examination (50% weightage)	
		CLA – 1 (10%)		CLA – 2 (10%)		CLA – 3 (20%)		CLA – 4 (10%)#			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember / Understand	20%	20%	15%	15%	15%	15%	15%	15%	15%	15%
Level 2	Apply / Analyze	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Level 3	Evaluate / Create	10%	10%	15%	15%	15%	15%	15%	15%	15%	15%
	Total	100 %		100 %		100 %		100 %		100%	

CLA – 4 can be from any combination of these: Assignments, Seminars, Short Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, Conf. Paper etc.,

Course Designers		
Experts from Industry	**Experts from Higher Technical Institutions**	**Internal Experts**
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