Karunya INSTITUTE OF TECHNOLOGY AND SCIENCES

(Declared as Deemed to be University under Sec 3 of the UGC Act, 1956)

A CHRISTIAN MINORITY RESIDENTIAL INSTITUTION

AICTE Approved & NAAC Accredited

Karunya nagar, Coimbatore-641114

Course Plan

Name of the School:	**Engineering and Technology**
Name of the Department:	**Computer Science and Engineering**

Details of the Faculty Members:

Details	Course Instructor	Course Instructor	Course Instructor
Name of the Faculty Member	Dr R Venkatesan	Dr Priyadharshini	Ms. Sophia
Designation	Associate Professor	Asst.Professor	Assistant Professor
Contact Details	9894880563	7708015965	8807806935
Email ID	rlvenkei_2000@karunya.edu	priyadharsini@karunya.edu	sophia@karunya.edu
Office Location	CSE Dept (Main Block)	CSE (Block 1)-Ground Floor	CSE -Second Floor CS019
Classroom for Teaching	CS203	CS205	CS206
Lecture Hours / Time	Mon 2, Wed 3, Thurs 2,7	Mon 2, Tue 7, Wed 4, Fri 4	Mon 8, Tue 7, Thur 7, Fri 2
Batch allotted	Batch 1	Batch 2	Batch 3
Consultation Timings	Wed 4 to 4.40pm	Wed 4 to 4.40pm	Wed 3 to 4pm
Intercom number	4028	4023	4025

Details	Course Instructor	Course Instructor	Course Instructor
Name of the Faculty Member	Dr. Jenefa	Dr.S. Stewart Kirubakaran	Dr. Roshni Thanka
Designation	Assistant Professor	Assistant Professor	Assistant Professor
Contact Details	9994189181	9952556668	9442456655
Email ID	jenefad@karunya.edu.in	stewart@karunya.edu	roshni@karunya.edu
Office Location	CS019	Microsoft Lab	CS018
Classroom for Teaching	CS301	CS302	CS604
Lecture Hours / Time	Tue 4, 9, Thur 4, Fri 2	Mon 7, Tue 3, Wed 7, Fri 2	Mon 2, Wed 4, Thur 3, 9
Batch allotted	Batch 4	Batch 5	Batch 6
Consultation Timings	Wed 4 to 4.40pm	Wed 4 to 4.40pm	Fri 3:00 to 4:00pm
Intercom number	4018	4057	4021

Details	Course Instructor	Course Instructor	Course Instructor
Name of the Faculty Member	Mr. Saimon Hemram	Dr. V. Ebenezer	Dr. M. Sam Navin
Designation	Assistant Professor	Assistant Professor	Assistant Professor
Contact Details	9635015381	9750662191	7639077696
Email ID	saimonhemram@karunya.edu	ebenezerv@karunya.edu	samnavin@karunya.edu
Office Location	CS028	Microsoft Lab	AIS-11
Classroom for Teaching	CS605	CS601	CS602
Lecture Hours / Time	Mon 2, Tue 9, Wed 2, Fri 9	Mon 7, Tue 4, Thur 4, Fri 5	Mon 2,7, Wed 4, Tues 2
Batch allotted	Batch 7	Batch 8	Batch 9
Consultation Timings	Wed 4 to 4.40pm	Wed 4 to 4.40pm	Thursday 9th Hour

Details	Course Instructor	Course Instructor	Course Instructor
Name of the Faculty Member	Dr. Eben Sophia	Mrs. Sneha George	Mr. Alan Shine Manuel
Designation	Assistant Professor	Assistant Professor	Assistant Professor
Contact Details	9789814239	9633596394	6282648359
Email ID	ebensophia@karunya.edu	snehageorge@karunya.edu	alenshine@karunya.edy
Office Location	CS 019	Cs 007	AIS05
Classroom for Teaching	CS 603	AI001	AI101
Lecture Hours / Time	Mon 7, Wed 3, Thur 4, Fri 2	Mon 9, Wed 2, Thur 3, Fri 4	Mon 9, Tue 3, Wed 3, Fri 4
Batch allotted	Batch 10	Batch 11	Batch 12
Consultation Timings	Mon-Wed 3.50 to 4.40PM	Wed 4 to 4.40pm	Wed 4 to 4.40pm
Intercom number	4018	4025	4127

Details	Course Instructor	Course Instructor
Name of the Faculty Member	Dr. Brindha	Dr. Vidhya
Designation	Assistant Professor	Assistant Professor
Contact Details	9566330510	9865511224
Email ID	brindha@karunya.edu	vidhyak@karunya.edu
Office Location	CS009	SUSE Lab
Classroom for Teaching	AI102	AI103
Lecture Hours / Time	Tues 2, Mon 2, Wed 5,, Fri 4	Mon 9, Wed 2, Thur 3, Fri 4
Batch allotted	Batch 13	Batch 14
Consultation Timings	Wed 4 to 4.40pm	4.00 PM-4.30 PM
Intercom number	4017	-

Course Details:

Course Code	23CS1007	**Credit:** 3:0:0
Course Title	**Python Programming**	
Semester	2nd	
Year	I st Year	**Branch:** CSE

Course Outcomes:

CO1	select the basic programming constructs of Python suitably.
CO2	infer the concepts of string processing, Encryption, file I/O, lists and dictionary.
CO3	apply modules for reusability and the object-oriented principles for modeling and developing software system.
CO4	experiment the power of graphics for processing images.
CO5	construct applications with graphical user interface.
CO6	develop software solutions using multi-threading, networking and client-server concepts.

Syllabus:

Module 1: Variables, Expressions and Conditional Statements

Introduction to Python, Variables, and Comments - Numeric Data Types and Character Sets – Operators – Type Conversion - Expressions - Functions and Modules - Formatting text for output – Loop and Selection Statements - if and if-else statements, while loop, for loop, control statements- break, continue, pass- Simulate a guessing the number game.

Module 2: Strings, Text Files, Lists and Dictionaries

Strings - Accessing characters and substrings in strings, String Methods, Basic string operations, String slicing, Searching, comparing, and manipulating Strings - Data Encryption- - Text Files - Lists – List operations, searching and sorting a list, Tuple -Sets – Dictionaries- Simulate a password generator.

Module 3: Functions and Classes

Defining simple function – Design with Recursive functions - Higher order functions - Arithmetic and operator overloading - comparison methods - Using pickle for permanent storage of objects - Objects and classes - Structuring classes with Inheritance and Polymorphism- Exception handling - Simulate a personal expenditure tracker, Simulate a currency calculator.

Module 4: Simple Graphics and Image Processing

Simple Graphics - Overview of Turtle Graphics, Turtle Operations, Object Instantiation, and the turtle graphics Module, Drawing Two-Dimensional Shapes, Colors and the RGB System - Simulate an application to draw appealing modern art - Image Processing - Image File Formats, Image- Manipulation Operations, The Properties of Images, Python Image Library(PIL)- Converting an Image to Black and White/Grayscale, Blurring an Image, Edge Detection and Reducing the Image Size.

Module 5: Graphical User Interfaces

GUI-Based Programs - Terminal-Based Version, GUI-Based Version and Event-Driven Programming, Windows and Window Components, Displaying Images, Command Buttons and Responding to Events and Viewing the Images, Label, and Entry Fields for the Input and Output of Text, Pop-up Dialog Boxes and Other Useful GUI Resources - Accessing Database – Storing and Retrieving data – updation - Simulate a calculator, simulate a Course credits management system.

Module 6: Multithreading, Networks, And Client/Server Programming

Threads and Processes - Threads, Sleeping Threads, Producer, Consumer, and Synchronization – The Readers and Writers Problem. Networks, Clients, and Servers - IP Addresses, Ports, Servers, and Clients, Sockets and a Day/Time Client Script, A Day/Time Server Script- Simulate a two- way chat application.

Text Books:

1. Kenneth A. Lambert, Martin Osborne, "Fundamentals of Python: First Programs, Cengage Learning",CENGAGE Learning, Second edition, 2019, ISBN 13:978- 1337560092.
2. Michal Jaworski, TarekZiade, "Expert Python Programming", Packt Publishing, Second Revised edition, 2016, ISBN-13: 978-1785886850.
3. Sam Washington, Dr. M. O. FaruqueSarker, "Learning Python Network Programming", Packt Publishing Limited, 2015, ISBN-13: 978-1784396008.
4. Rydhm Beri, "Python Made Simple: Learn Python programming in easy steps with examples", BPB Publications, 2019, ISBN: 9388511026, 9789388511025.

Reference Books:

1. Rick van Hattem, "Mastering Python", Packt Publishing, Second Edition, 2016, ISBN 139781786463746.
2. Zed A. Shaw, "Learn Python the Hard Way", Addison-Wesley, Third Edition, 2014, ISBN-13: 978-0-321-88491-6.
3. Dave Kuhlman, "A Python Book: Beginning Python, Advanced Python, and Python Exercises", Platypus Global Media, 2013, ISBN: 9780984221233.
4. Paul Barry, "Head First Python 2e", O'Reilly, 2nd Revised edition, 2016, ISBN-13: 978-1491919538.
5. Kent D Lee, "Python Programming Fundamentals", Springer-Verlag London Limited, 2011, ISBN 978-1-84996-536-1

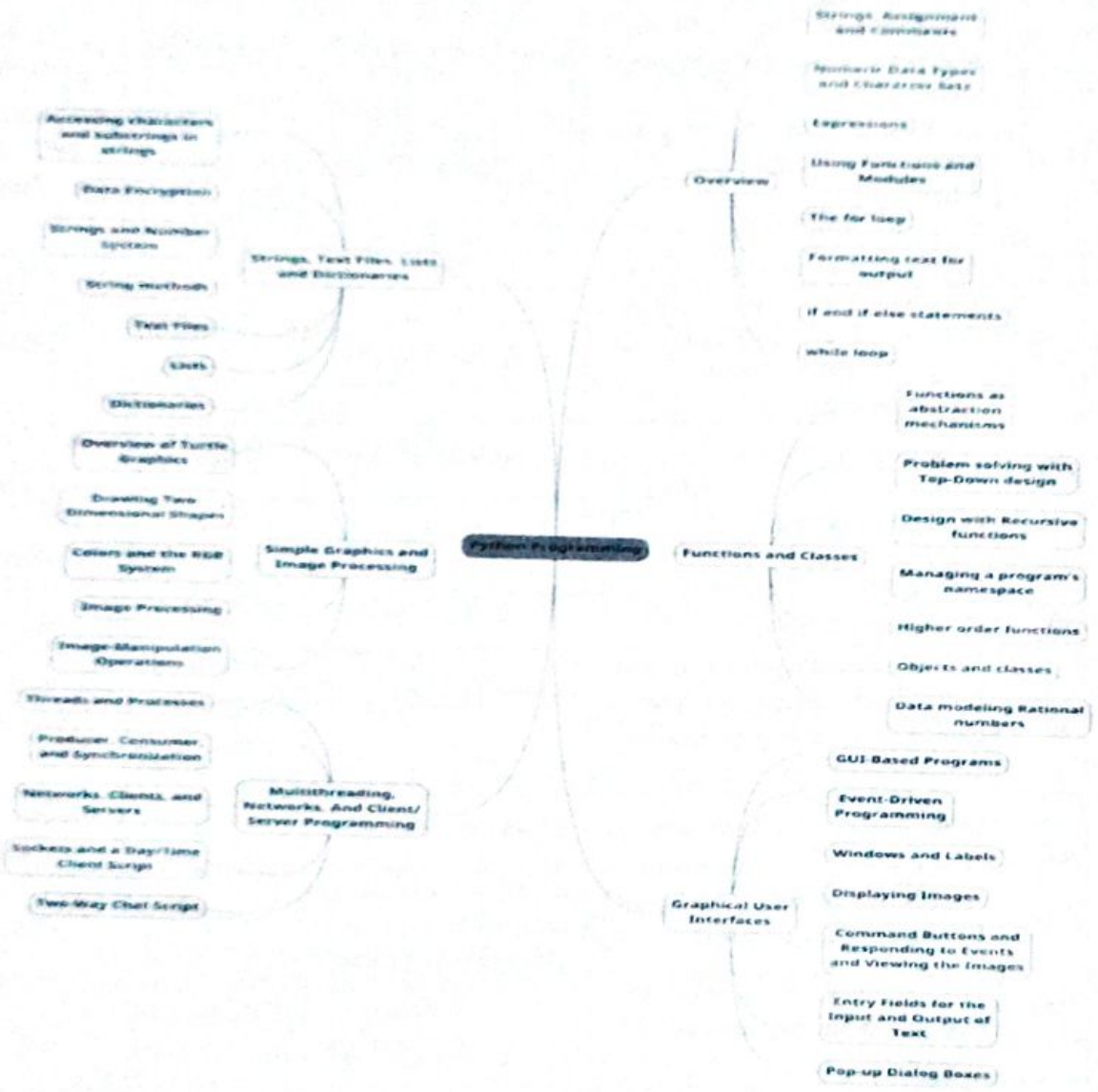
TEACHING PLAN

Module No.	Lect No.	Topics to be covered	Book & Page Nos. used for teaching	Topic No	Teaching Method
1	1	Introduction	https://www.w3schools.com/python/python_intro.asp	-	-
	2	Variables, Assignment, and Comments	T1, Pg.No. 51-53	2.3.5	PPT
	3	Numeric Data Types and Character Sets, Expressions	T1, Pg.No. 54-62	2.4, 2.5	PPT/ Discussion
	4	Using Functions and Modules	T1, Pg.No. 63-69	2.6	PPT / Live Demo
	5	Definite Iteration: The for Loop, Formatting Text for Output	T1, Pg.No. 76 -86	3.1,3.2	PPT / Live Demo
	6	Selection: if and if-else Statements	T1, Pg.No. 91-96	3.4	PPT / Live Demo
	7	control statements- break, continue, pass	T1, Pg.No. 105-107	3.5.3	PPT / Live Demo
	8	Simulate a guessing the number game	Simulate applications		Demo
2	9	Accessing Characters and Substrings in Strings	T1, Pg.No. 121-123	4.1	PPT / Live Demo
	10	Basic string operations, String slicing, Searching, comparing, and manipulating Strings	T1, Pg.No. 124-126	4.2	PPT / Live Demo
	11	Strings and Number Systems, String Methods	T1, Pg.No. 129-146	4.3,4.4	PPT / Live Demo
	12	Data Encryption	T1, Pg.No. 129-130	4.2	PPT / Live Demo
	13	Text Files - Lists	T1, Pg.No. 141-168	4.5,5.1	PPT / Live Demo
	14	Tuple, Sets	T1, Pg.No. 173–174 https://www.geeksforgeeks.org/sets-in-python/	5.1.10	PPT / Live Demo
	15	Dictionaries	T1, Pg.No. 183-189	5.4	PPT / Live Demo
	16	Simulate a password generator	Simulate applications		Demo
3	17	Defining Simple Functions	T1, Pg.No. 175-178	5.2	PPT / Live Demo
	18	Design with Recursive Functions	T1, Pg.No. 211-216	6.3	PPT / Live Demo
	19	Higher-Order Functions	T1, Pg.No. 233-237	6.6	PPT / Live Demo
	20	Arithmetic and Operator Overloading, Comparison methods	T1, Pg.No. 311- 314	8.3.2	PPT / Live Demo
	21	Using pickle for Permanent Storage of Objects, Input of Objects and the try-except Statement	T1, Pg.No. 319- 324	8.3.7,8.3.8	PPT / Live Demo

	22	Objects and Classes	T1, Pg.No. 294- 300	8.1	PPT / Live Demo
	23	Structuring Classes with Inheritance and Polymorphism	T1, Pg.No. 331- 340	8.5	PPT / Live Demo
	24	Simulate a personal expenditure tracker	Simulate applications		Demo
4	25	Simple Graphics, Overview of Turtle Graphics, Turtle Operations, Object Instantiation and the turtle graphics Module	T1, Pg.No. 247 – 253	7.1.1 – 7.1.3	PPT / Live Demo
	26	Drawing Two-Dimensional Shapes, Colors and the RGB System.	T1, Pg.No. 254- 256	7.1.4- 7.1.6	PPT / Live Demo
	27	Image Processing, Image File Formats	T1, Pg.No. 267 - 268	7.3.1 - 7.3.3	PPT / Live Demo
	28	Image-Manipulation Operations, The Properties of Images	T1, Pg.No. 269- 273	7.3.4 -7.3.5	PPT / Live Demo
	29	Python Image Library (PIL), Converting an Image to Black and White, Converting an Image to Grayscale	T1, Pg.No. 276-278	7.3.9 - 7.3.10	Video presentation
	30	Copying an Image, Blurring an Image, Edge Detection, Reducing the Image Size	T1, Pg.No. 279 -282	7.3.11-7.3.14	PPT / Live Demo
	31	Application to simulate paint art	Simulate applications		Demo
5	32	The Behavior of Terminal-Based Programs and GUI-Based Programs, Event-Driven Programming	T1, Pg.No. 350-353	9.1	PPT / Live Demo
	33	Windows and Labels	T1, Pg.No. 355-356	9.2.1	PPT / Live Demo
	34	Displaying Images	T1, Pg.No. 357	9.2.2	PPT / Live Demo
	35	Command Buttons and Responding to Events	T1, Pg.No. 358-359	9.2.3	PPT / Live Demo
	36	Viewing the Images, Label, and Entry Fields for the Input and Output of Text, Pop-up Dialog Boxes	T1, Pg.No. 360-363	9.2.4-9.2.5	PPT / Discussion
	37	Other Useful GUI Resources	T1, Pg.No. 372-387	9.4	PPT / Live Demo
	38	Accessing Database, Storing and Retrieving data, updation	https://www.javatpoint.com/python-mysql-database-connection	-	PPT / Live Demo
	39	Simulate a calculator, simulate a Course credits management system	Simulate applications	Demo	

6	40	Threads and Processes, Threads, Sleeping Threads	T1, Pg.No. 396– 400	10.1.1,10.1.2	PPT / Live Demo
	41	Producer, Consumer, and Synchronization	T1, Pg.No. 402– 408	10.1.3	PPT / Live Demo
	42	Networks, Clients, and Servers – IP Address, Ports, Servers, and Clients	T1, Pg.No. 409-411	10.2.1,10.2.2	PPT / Live Demo
	43	Sockets and a Day/Time Client Script	T1, Pg.No. 412-413	10.2.3	PPT / Live Demo
	44	A Day/Time Server Script	T1, Pg.No. 414-415	10.2.4	PPT / Live Demo
	45	Simulate a two-way chat application	Simulate Applications		Demo

Concept map of the entire subject:



Course Articulation Matrix

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	-	2	-	-	-	-	-	-	2	3	1
CO2	3	3	2	2	2	-	-	-	-	-	-	2	3	1
CO3	3	3	2	3	3	-	-	-	-	-	-	2	3	1
CO4	2	2	3	2	3	-	-	-	-	-	-	2	3	1
CO5	1	1	3	3	3	-	-	-	-	-	-	2	3	1
CO6	3	3	3	2	3	-	-	-	-	-	-	2	3	1

Note: 3 – High correlation; 2 – Medium correlation; 1 – Low correlation;

Assessment Pattern:

Bloom's Category	Continuous Assessment Tests			Qualitative Assessment (QA)			End Semester Examination
	1	2	3	1	2	3	
Remember	20	20	20	-	-	-	20
Understand	50	30	30	-	-	-	30
Apply	30	50	50	10	10	-	50
Analyze	-	-	-	-	-	-	-
Evaluate	-	-	-	-	-	-	-
Create	-	-	-	-	-	-	-
QA 1: Multiple Choice Questions QA 2: Problem Solving in HackerRank(30 days code)							

Faculty	Signature	Faculty	Signature
Dr R Venkatesan		Dr. V. Ebenezer	
Dr Priyadharshini		Dr. M. Sam Navin	
Ms. Sophia		Dr. Eben Sophia	
Dr. Jenefa		Mrs. Sneha George	
Dr.S. Stewart Kirubakaran		Mr. Alan Shine Manuel	
Dr. Roshni Thanka		Dr.Vidhya	
Mr. Saimon Hemram		Dr. Brindha	

Signatures of Subject Teacher(s)

HOD/CSE