GANPAT UNIVERSITY									
FACULTY OF ENGINEERING & TECHNOLOGY									
Programme	Bachelor of Technology					Branch/Spec.	Computer Science & Engineering (CSE/BDA/CS/AI&ML)		
Semester	IV					Version	1.0.0.2		
Effective from Academic Year			2026-27			Effective for the batch Admitted in			June 2025
Subject code	2CSE403		Subject Name			Functional Programming			
Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	0	1	0	4	Theory	40	60	100
Hours	3	0	2	0	5	Practical	30	20	50

Pre-requisites:

Shell Scripting, Data structure , Database knowledge,C/C++ Programming

Learning Outcome:

After completion of the course, student will be able to,

- Understand functional programming
- Learn the concept of Data structures, python libraries, Exception handling, Database Connectivity in Python
- Apply the advanced concept of I-python and Web API's
- Develop applications using Anaconda/Pycharm etc.

Theory syllabus

Unit	Content	Hrs
1	**Programming with Python** Types and Operators, Indentation, Multiple Line Spanning, Python Object Types, Python Numbers, Strings and string operations, Conditional statements, Loops, pass statements, break-continue, try-catch- finally-raise statements, Functions, Scope basic, Lambda Functions	8
2	**Data Structures in Python** List and List Operations, Concept of dictionary and basic operations, Use of Tuples, Sequence unpacking, Sets in python.	6
3	**Object oriented programming with python** Learning Python Classes, Inheritance, Polymorphism, Abstraction	6
4	**File handling** Files, File Operations, Files and Streams, Creating a File ,Reading From a File, Iterating Through Files, Writing file	8
5	**Working with Databases** Working With a Databases, Using SQL to Query a Database, Python and SQLite, Creating an SQLite Database, Pulling Data from a DB	6
6	**I-Python and Regular Expressions** Introduction to I-python,numpy and plotting, Plotting lists and Regular Expressions	5
7	**Working with APIs** RESTful architecture, Working with APIs, Request library	6

Self-Study Topics
1) Python Generators and closure 2) Students can opt for any certifications w.r.t Python subject
Practical content
Practicals are based on topics like Data Types, Operators, Strings, Lists and sets, File Handling using python,basics of OOP ,Ipython and RegEx,API
Spoken tutorial Course
Course Name: Python 3.4.3 https://spoken-tutorial.org/tutorial-search/?search_foss=Python+3.4.3&search_language=English Programming, Data Structures And Algorithms Using Python https://onlinecourses.nptel.ac.in/noc22_cs26/announcements?force=true#registration_confirmation

Text Books	
1	Learning Python , O'Reilly Publication

Reference Books	
1	Learning program to Python by Cody Jackson
2	Introduction to programming using python by Y.Daniel Liang

Course Outcomes:

COs	Description
CO1	Understand functional programming.
CO2	Learn the concept of Data structures, python libraries, Exception handling, Database Connectivity in Python.
CO3	Apply the advanced concept of I-python and Web API's
CO4	Develop applications using Anaconda/Pycharm etc.

Mapping of CO and PO:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	0	0	3	0	0	0	2	0	0	2
CO2	3	2	2	0	3	0	0	0	0	0	0	1
CO3	2	2	0	0	2	0	0	0	0	0	2	0
CO4	2	1	1	0	2	0	0	0	0	0	2	0