

Python Programming Foundations for College Students

Learn Python programming, OOP, MySQL databases, NumPy & Pandas and desktop GUI apps with Tkinter through hands-on projects designed for college students.

DURATION About 6 weeks	SESSIONS 25 one-hour sessions	TRAINING HOURS 25 hours
MODE Live online, instructor-led	LEVEL Beginner	INCLUDES Assignments, 2 projects

What you will learn

- Python programming fundamentals
- Variables, data types, operators, and control flow
- Functions and reusable code
- Lists, tuples, sets, and dictionaries
- File handling and exception handling
- Object-Oriented Programming in Python
- SQL and MySQL databases: queries, joins and using MySQL from Python
- NumPy for numerical computing
- Pandas for data analysis
- GUI programming with Tkinter: widgets, layouts, events, menus and dialogs
- Connecting a Tkinter desktop app to MySQL

Curriculum

Seven modules and 25 one-hour live sessions that take you from your first Python program, through OOP, MySQL databases and Pandas, to a working desktop application with Tkinter. Weekly assignments and two projects you can show on GitHub.

Module 1 Python Foundations	
1	Course orientation, Python setup, IDE and first program
2	Variables, data types and operators
3	Input, output and working with strings
Module 2 Control Flow & Collections	
4	Conditions and decision making
5	Loops and problem solving
6	Lists and tuples
7	Sets and dictionaries

Module 3 Functions & Practical Python

- 8 Functions, parameters and return values
- 9 Scope, lambda functions and modules
- 10 Exceptions and error handling
- 11 Files, CSV and JSON

Module 4 Object-Oriented Python

- 12 Classes, objects and constructors
- 13 Encapsulation and inheritance
- 14 Polymorphism, packages, pip and virtual environments

Module 5 Databases with MySQL

- 15 Relational databases, MySQL setup, SELECT and WHERE
- 16 INSERT, UPDATE, DELETE, keys and constraints
- 17 JOINS, GROUP BY and aggregate functions
- 18 Using MySQL from Python

Module 6 NumPy & Pandas

- 19 NumPy arrays and numerical computing
- 20 Pandas Series and DataFrames
- 21 Loading data from CSV and MySQL into Pandas

Module 7 GUI Programming with Tkinter

- 22 Tkinter basics: windows, labels, buttons and entry widgets
- 23 Layouts with pack, grid and place; frames
- 24 Events, forms and input validation; menus and dialogs
- 25 Project: student records desktop app with Tkinter and MySQL, course review

How you learn

- Python coding exercises
- Weekly assignments
- Mini projects
- GitHub-based project submissions

Projects

- **Data Analysis Project:** Analyze a real-world dataset using Python and Pandas.
- **Desktop Application Project:** Build a student records desktop app with Tkinter and MySQL.

Who should enrol

- Engineering students
- BCA students
- BSc Computer Science / IT students
- MCA students
- Beginners who want to start programming with Python

Prerequisites

- Basic computer knowledge
- Logical thinking and willingness to practice
- No previous Python experience required

Course completion

Students who complete the training, assignments and projects receive a course completion certificate through GeeksArray, and finish with projects they can showcase on GitHub.

Questions about batch dates, timings, fees or anything else?

Contact the course coordinator, **Kaumodini Kedar** · WhatsApp **+91 91726 23305**

Or see the course page on geeksarray.com.