



Python Programming

A dive into high-end programming (+13)

1 Python Programming

Rookie



Description

This course introduces students to the exciting world of computer science and programming. From understanding algorithms to creating efficient code, this course covers essential concepts such as Algorithms, sequence, selection and iteration.

Outcome

1. Understand and create successful algorithms.
2. Create programs to solve problems and test their solutions.
3. Develop clear and functional Python code.
4. Skillfully manage user input and output.
5. Implement thorough testing and error evaluation.
6. Apply problem-solving, critical thinking, and creativity skills.

2 Python Programming

Boss



Description

This course enforces students' understanding of loops in Python, including for and while loops, nested loops. Students will learn how to iterate over strings, and lists, manipulate data efficiently, and use functions with loops for better code organization.

Outcome

1. Understand and Implement Loops in Python.
2. Work with Nested Loops.
3. Animate Shapes and Patterns Using Loops.
4. Manipulate Strings Using Loops.
5. Work with Lists and Iterate Over Data.
6. Understand and Use Functions.
7. Apply Knowledge Through Hands-on Projects

3 GUI Applications Development

Boss



Description

This course introduces students to graphical user interface (GUI) development in Python using Tkinter. Building on concepts from previous courses, students will apply their knowledge of functions, loops, and data structures to create interactive and user-friendly applications.

Outcome

1. Understand the fundamentals of GUI programming.
2. Use geometry managers to control layout and positioning.
3. Implement basic event-driven programming.
4. Integrate prior knowledge of loops, functions.
5. Build simple interactive applications using Tkinter.
6. Debug and test GUI applications for functionality and usability.

4 Game Development with Python

Boss



Description

This course introduces students to Python Turtle as a way to build animations and games. They will apply the programming concepts they've already learned, such as loops and functions in an engaging, interactive environment.

Outcome

1. Understand the core principles of game programming.
2. Use the Turtle module.
3. Implement event-driven programming.
4. Apply and extend prior knowledge of programming concepts to build dynamic and responsive game behavior.
5. Debug, and test their games to ensure smooth performance, and an enjoyable player experience.

5 Python Programming

Pro

Description

This course introduces students to essential Python tools for building real-world applications, focusing on file handling, dictionaries, and the datetime module. Students will learn how to store, retrieve, and organize data effectively, and work with dates and times.

Students will design complete applications using Tkinter to create user-friendly interfaces, combining data management, time-based logic, and GUI development to build polished, functional apps that bring together everything learned throughout the track.

Outcome

1. Understand and apply file handling techniques to store, retrieve, and manage application data.
2. Use dictionaries to organize and manipulate structured data efficiently.
3. Work with the datetime module to implement time-based features.
4. Integrate multiple Python concepts to create functional, real-world programs.
5. Design and develop user-friendly graphical interfaces using Tkinter.
6. Build complete applications that combine data management, time-based logic, and GUI development.



Requirements

A computer with good internet access and a working webcam

Each course has 12 sessions (1 hour per session), and prior course completion is required.