Python from scratch

# [Instructor](https://lms.ecademy.pk/instructors/2)

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# Category

Computer Science

# What You Will Learn in This Course

This course introduces core programming basics—including data types, control structures, algorithm development, and program design with functions—via the Python programming language. The course discusses the fundamental principles of Object-Oriented Programming, as well as in-depth data and information processing techniques. Students will solve problems, explore real-world software development challenges, and create practical and contemporary applications.

**Specific topic coverage includes:**

* Algorithms and Information Processing
* Control Structures
* Boolean logic and Numeric Data Types
* Strings, Text Files, Lists, and Dictionaries
* Procedural Abstraction in Function Definitions
* Objects and Classes
* Graphic User Interfaces (GUI)
* Events and Event-driven Programming

**After completing this Course, you will be able to:**

* Understand the basics of Python
* Have the skills and understanding of Python to confidently apply for Python programming jobs.
* Add the Python Object-Oriented Programming (OOP) skills to your résumé.
* Apply the knowledge of python to solve their daily life programming problems
* Acquire the pre-requisite Python skills to move into specific branches - Machine Learning, Data Science, etc.
* Create practical and contemporary applications.

# Course Content

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| **Module** | **Topic** |
| Module 1 | Conceptual Introduction to Python |
| Install Python |
| Basic syntax, interactive shell, editing, saving, and running a script. |
| Introduction to Jupyter Notebooks |
| Brief overview on Git and GitHub |
| Module 2 | The concept of data types |
| Variables, assignments |
| Immutable variables |
| Numerical types |
| Arithmetic operators and expressions |
| Comments in the program |
| Understanding error messages |
| Module 3 | Python statements |
| If-else, loops (for, while) |
| Conditions, Boolean logic, logical operators, range function, and list comprehensions |
| Module 4 | Methods and Functions |
| How to create Methods and Functions |
| Python Arrays, Lambda expressions, nested statements in Python and scope in Python |
| Module 5 | Objected Oriented Programming |
| Objects, Classes, Methods, Inheritance, special methods |
| Polymorphism, operator overloading, abstract classes |
| Module 6 | Exception handling in Python |
| What exceptions are? and how to use try, accept |
| Handle errors and exceptions |
| Module 7 | Modules and Packages in Python |
| How to create Modules |
| How to install Modules and packages |
| Module 8 | Built-in functions in Python |
| Map, Reduce, Filter, Zip, Enumerate |
| Module 9 | Decorators in Python |
| Module 10 | Python Generators |
| Iteration versus generation |
| How to create generators |
| Module 11 | File Handling |
| Read, Write and create and Remove file |
| Module 12 | Python MySQL |
| Install MySQL Driver, Connect python to My SQL |
| Module 13 | Graphical user interface |
| Event-driven programming paradigm, tkinter module, creating simple GUI, buttons, labels, entry fields, dialogs, widget attributes - sizes, fonts, colors layouts, nested frames |

# Requirements for This Course

* A computer (Windows/Mac/Linux) with Internet. That's it!
* Basic understanding of English and Urdu.
* No prior knowledge of Python is required.
* No previous programming experience is needed.
* Prepare to fall in love with Python and programming!

# What Makes This Course Special?

This course is designed to take you from scratch to star in Python in an easy and fun fashion. Python is one of the most useful programming languages to know, and in recent years, skill demand for Python has exploded in the job market. With this course, it's easy to learn and it's a very powerful tool for implementing your own ideas with Python. We'll start off by getting Python up and running on your computer, regardless of your operating system. Whether you're using Windows, Mac or Linux. Then you'll get everything from basic Python syntax, to the advanced topics and modules in Python. This course is also project-based with milestone projects where you will create games with Python, including a final capstone project. You'll also learn how to avoid commoner mistakes in Python, and learn best programming practices, such as code formatting and object-oriented programming. Once you complete this course, you'll feel extremely confident putting Python programming on your resume. More importantly, you'll learn to have a lifelong love of programming.

# Who Is This Course For?

* Beginners who have never programmed before.
* Programmers switching language to Python.
* Intermediate Python programmers who want to level up their skills!