



# Certificate in Python Programming

Course Curriculum

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**Course Overview:** *Python is a powerful general-purpose programming language. It is used in web development, data science, creating software prototypes, and so on. Fortunately for beginners, Python has simple easy-to-use syntax. This makes Python an excellent language to learn to program for beginners. In this course, we start by teaching students the basics of Python, then moves on to teach students how to develop Web applications using the Django framework. This course covers the basics of creating basic applications using the MVC (model-view-controller) design pattern, as well as more advanced topics such as administration, session management and authentication.*

MODULE	TOPIC	OBJECTIVES
1. Python Setup	<p>Command Line Basics Installing Python (Step-by-Step)</p> <p>Running Python Code</p>	<p>Understand Command Line Usages. Understand How to Setup Minimal Python Installations.</p>
2. Python Object and Data Structure Basics	<p>Introduction to Python Data Types Python Numbers Numbers: Simple Arithmetic Variable Assignments Introduction to Strings String Indexing String Slicing String Properties and Methods Indexing and Slicing with Strings Print Formatting with Strings</p> <p>Lists in Python Dictionaries in Python Dictionaries Tuples with Python</p>	<p>Get Familiar with Python Data Structures. Understand How to Uses and Interact with them</p>

	<p>Booleans in Python</p> <p>Sets in Python</p> <p>I/O with Basic Files in Python</p> <p>File I/O</p>	
MODULE	TOPIC	OBJECTIVES
3. Python Statements	<p>If Elif and Else Statements in Python</p> <p>For Loops in Python</p> <p>While Loops in Python</p> <p>Useful Operators in Python</p> <p>List Comprehensions in Python</p>	<p>Get familiar with Python Statements.</p> <p>Understand How to Use, When to Use and Proper Interactions with them.</p>
4. Methods and Functions	<p>Methods and the Python Documentation</p> <p>Functions in Python</p> <p>Functions #1: print Hello World.</p> <p>Functions #2: print Hello Name.</p> <p>Functions #5: simple math.</p> <p>*args and **kwargs in Python.</p> <p>Functions #10: skyline.</p>	<p>Get familiar with Python Functions.</p> <p>Understand How to Use, When to Use and Proper Interactions with them.</p>
5. Python Comparison Operators	<p>Comparison Operators in Python.</p> <p>Chaining Comparison Operators in Python with Logical Operators.</p>	<p>Understand How to Use Python Operators, When to Use and Proper Interactions with them.</p>
6. Milestone Project - 1	<p>Displaying Information</p> <p>Accepting User Input</p> <p>Validating User Input</p> <p>Simple User Interaction</p>	<p>Practice Project</p>
First Python Milestone Project Overview		
7. Object Oriented Programming (OOP)	<p>Introduction</p> <p>Attributes and Class Keyword</p> <ul style="list-style-type: none"> <li>- Class Object Attributes and Methods</li> <li>- Inheritance and Polymorphism</li> <li>- Special (Magic/Dunder) Methods</li> </ul>	<p>Have good Understanding of OOP, and be Comfortable Using them.</p>
	Pip Install and PyPi	

8. Modules and Packages	<code>__name__</code> and <code>__main__</code>	Understanding Modules and Python, How to Install & Manage them.
9. Errors and Exceptions Handling	<a href="#">Errors and Exception Handling</a> <a href="#">Running tests with the Unittest Library</a>	Errors and Exceptions Handling
CONCLUSION	<a href="#">Indexing and Slicing with Strings</a>	