

# Python (Beginner, Middle, Advance) - Syllabus

Sl. no	Topic	Hrs
1	<b>Module 1: Introduction</b>	
	Introduction to Python	
	Python Environment Setup	
	Python Features	
	Basic Python Syntax	
	<ul style="list-style-type: none"><li>Statements, Indentation and Comments</li></ul>	
	Reasons to Learn Python	
	Benefits and Limitations of Python	
	A Career in Python	
	Python vs Java	
	Python vs Scala	
	Python vs R Programming	
	Applications of Python	
	Compilers and Interpreters of Python	
	Getting to know Python Interpreter	
2	<b>Module 2: Basics</b>	
	Python Variables	
	Data-Types in Python	
	<ul style="list-style-type: none"><li>Number Data Type</li></ul>	
	<ul style="list-style-type: none"><li>String Data Type</li></ul>	
	<ul style="list-style-type: none"><li>Boolean Data Type</li></ul>	
	<ul style="list-style-type: none"><li>List Data Type</li></ul>	
	<ul style="list-style-type: none"><li>Tuple Data Type</li></ul>	

	<ul style="list-style-type: none"> <li>Dictionary Data Type</li> </ul>	
	<ul style="list-style-type: none"> <li>Set Data Type</li> </ul>	
	Python Operators	
	<ul style="list-style-type: none"> <li>Arithmetic Operators</li> </ul>	
	<ul style="list-style-type: none"> <li>Assignment Operators</li> </ul>	
	<ul style="list-style-type: none"> <li>Comparison Operators</li> </ul>	
	<ul style="list-style-type: none"> <li>Logical Operators</li> </ul>	
	<ul style="list-style-type: none"> <li>Membership Operators</li> </ul>	
	Decision Making Statements	
	<ul style="list-style-type: none"> <li>If, If.. else, If.. elif.. else, Switch.. case</li> </ul>	
	Loop Statements	
	<ul style="list-style-type: none"> <li>While, For</li> </ul>	
	Numbers in Python	
	Strings in Python	
	String Formatters and Escape Sequences	
	String Functions and Operators	
<b>3</b>	<b>Module 3: Data Structures</b>	
	Python Lists	
	<ul style="list-style-type: none"> <li>List Comprehension</li> </ul>	
	<ul style="list-style-type: none"> <li>Array Module</li> </ul>	
	Python Tuples	
	<ul style="list-style-type: none"> <li>BuiltIn Functions</li> </ul>	
	Lists vs Tuples	
	Slicing in Python	
	Binary Sequence – Types	
	<ul style="list-style-type: none"> <li>Bytes, ByteArray, MemoryView</li> </ul>	

	Dictionaries in Python	
	Sets in Python	
	Booleans in Python	
<b>4</b>	<b>Module 4: Functional Programming</b>	
	Functions in Python	
	Functions with Parameters	
	Functions with Return Statements	
	Different Types of Arguments	
	<ul style="list-style-type: none"> <li>• Required Arguments</li> </ul>	
	<ul style="list-style-type: none"> <li>• Keyword Arguments</li> </ul>	
	<ul style="list-style-type: none"> <li>• Default Arguments</li> </ul>	
	<ul style="list-style-type: none"> <li>• Variable Length Arguments</li> </ul>	
	Functions Recursion	
	Built-In Functions	
	<ul style="list-style-type: none"> <li>• Range(), Eval(), Exec() etc.,</li> </ul>	
	Advanced Level Concepts with Functions	
	<ul style="list-style-type: none"> <li>• Decorators</li> </ul>	
	<ul style="list-style-type: none"> <li>• Iterators</li> </ul>	
	<ul style="list-style-type: none"> <li>• Generators</li> </ul>	
<b>5</b>	<b>Module 5: Modules and Packages in Python</b>	
	Modules:	
	<ul style="list-style-type: none"> <li>• Counter</li> </ul>	
	<ul style="list-style-type: none"> <li>• DefaultDict</li> </ul>	
	<ul style="list-style-type: none"> <li>• OrderedDict</li> </ul>	
	<ul style="list-style-type: none"> <li>• NamedTuple</li> </ul>	

	<ul style="list-style-type: none"> <li>Numeric Modules: Math, Decimal, Random</li> </ul>	
	<ul style="list-style-type: none"> <li>Sys</li> </ul>	
	<ul style="list-style-type: none"> <li>Generating Random Numbers</li> </ul>	
	Packages:	
	<ul style="list-style-type: none"> <li>Pip</li> </ul>	
	<ul style="list-style-type: none"> <li>PyPI</li> </ul>	
	<ul style="list-style-type: none"> <li>And few more.,</li> </ul>	
	Modules vs Packages	
<b>6</b>	<b>Module 6: Additional Functionalists (or) Concepts</b>	
	Regular Expressions in Python	
	MultiThreading in Python	
	Working with Date and Time	
	<ul style="list-style-type: none"> <li>Date and Time Module</li> </ul>	
	<ul style="list-style-type: none"> <li>Calender Module</li> </ul>	
	Namespace and Scope	
	Virtual Env., and Packages	
	Python Debugger	
	CGI Programming with Python	
	Understanding about Urllib	
	Deep Copy and Shallow Copy in Python	
	Assert Statements in Python	
	Pretty – Printing with PPrint	
<b>7</b>	<b>Module 7: Object Oriented Programming in Python</b>	
	Methods in Python	
	<ul style="list-style-type: none"> <li>Methods vs Functions</li> </ul>	

	<ul style="list-style-type: none"> <li>• Magic (Dunder) Methods in Python</li> </ul>	
	Classes in Python	
	Python Objects	
	Inheritance in Python	
	Multiple Inheritance in Python	
	Python Operator Overloading	
	Serializing with Pickle	
	The Property Decorator	
<b>8</b>	<b>Module 8: File Handling</b>	
	Reading and Writing Files with Python	
	Managing Directories and Files	
	The OS Module	
	The Shutil Module	
	Copying, Renaming, Moving Files in Python	
	Zippping and Unzipping Files in Python	
<b>9</b>	<b>Module 9: Exception Handling</b>	
	Errors and Exceptions	
	Exception Handling	
	Testing and UnitTest	
<b>10</b>	<b>Module 10: Other Functionalists</b>	
	XML Processing	
	Sending Mails with Python	
	Networking	
	Processing Images	

	GUI Programming	
	Multi-Processing	
<b>11</b>	<b>Module 11: Databases with Python</b>	
	Sqlite3	
	MySql	
<b>12</b>	<b>Projects with Python</b>	
	Create CRUD Operations with Python and MySql	
	Create REST API with Python and MySql	