Python Programming

UNITS	COURSE CONTENT	CONTACT HOURS
1	**Introduction, Expressions, Statements:** History, features, and installation of Python, variables, data types (int, float, bool, str, list), expressions, statements, operator precedence, type conversion, comments, basic input/output	4L
2	**Control Flow and Loops:** Conditional statements (if, if-else, elif), Boolean operators, nested conditions, loops (for, while), control statements (break, continue, pass, range), practical real-world problems	6L
3	**Functions and Modular Programming:** Function definition/call, parameters and arguments, scope (local/global), recursion, lambda functions; built-in/library functions; modularization using modules and packages	6L
4	**Strings and Collections:** Strings (slicing/methods), lists (creation, slicing, methods, comprehensions), tuples (definition, operations), dictionaries (creation, methods), sets, iteration over collections	6L
5	**Files and Exception Handling:** File I/O (reading/writing text and binary files), command-line arguments, error handling (try, except, finally), built-in exceptions, custom exceptions, date/time operations, working with external modules	5L
6	**Object-Oriented Programming:** Classes and objects, self and **init**, attributes and methods, inheritance, polymorphism, encapsulation, operator overloading, introduction to exception classes	6L
7	**Advanced and Real-world Applications:** Introduction to regular expressions, simple GUI (Tkinter/other), working with APIs, introduction to popular libraries (NumPy, pandas, matplotlib), mini-project/case study	7L