

DIGICOM COMPUTER APPLICATION

Module 1: Introduction to Python

- Introduction to Programming
- History and Features of Python
- Applications of Python
- Installing Python
- Python IDEs (IDLE, VS Code, PyCharm)
- Running Python Programs
- Writing the First Program
- Python Syntax and Indentation
- Comments and Documentation
- Input and Output Functions

Module 2: Variables and Data Types

- Variables
- Identifiers and Naming Rules
- Keywords
- Numeric Data Types
- Strings
- Boolean Data Type
- Type Conversion
- User Input
- Operators
 - a. Arithmetic
 - b. Assignment
 - c. Comparison
 - d. Logical
 - e. Bitwise
 - f. Membership
 - g. Identity

2.

Module 3: Decision Making and Loops

- if Statement
- if-else Statement
- Nested if
- elif Ladder
- Match-Case Statement
- while Loop
- for Loop
 - Range Function
 - Nested Loops
 - break, continue and pass

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Module 4: Strings

- String Creation
- String Indexing
- String Slicing
- String Functions
- String Formatting
- Escape Characters
- String Methods
- String Manipulation

Module 5: Collections

Lists

- Creating Lists
- Indexing and Slicing
- List Methods
- List Operations
- Nested Lists

Tuples

- Creating Tuples
- Tuple Operations

Sets

- Creating Sets
- Set Operations
- Set Methods

Dictionaries

- Creating Dictionaries
- Accessing Values
- Dictionary Methods
- Nested Dictionaries

Module 6: Functions

- Introduction to Functions
- Defining Functions

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Calling Functions
Parameters and Arguments
Return Statement
Default Arguments
Keyword Arguments
Variable-Length Arguments
Recursive Functions
Lambda Functions
Scope of Variables

Module 7: Modules and Packages

Import Statement
Standard Modules
Creating User-defined Modules
Packages
math Module
random Module
datetime Module

Module 8: File Handling

Opening Files
Reading Files
Writing Files
Appending Data
File Modes
Working with Text Files
CSV Files
Exception-safe File Handling

Module 9: Exception Handling

Types of Errors
try
except
else
finally

- Raising Exceptions
- User-defined Exceptions

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Module 10: Object-Oriented Programming (OOP)

- Classes and Objects
- Constructors
- Instance Variables
- Methods
- Encapsulation
- Inheritance
- Polymorphism
- Method Overriding
- Abstraction

Module 11: Advanced Python Concepts

- List Comprehensions
- Dictionary Comprehensions
- Generators
- Iterators
- Decorators (Introduction)
- Regular Expressions
- Working with Dates and Time

Module 12: Working with Libraries

- NumPy (Basics)
- Pandas (Introduction)
- Matplotlib (Introduction)
- Installing Packages using pip

Module 13: Database Connectivity

- Introduction to SQLite
- Creating Database
- Creating Tables
- Insert, Update, Delete Records
- Select Queries
- Python with SQLite

Module 14: GUI Programming

- Introduction to Tkinter
- Labels
- Buttons
- Entry Widgets

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Message Boxes

Simple GUI Applications

Module 15: Mini Projects

Student Management System

Library Management System

Inventory Management System

Employee Payroll System

Banking Application

Quiz Application

Contact Book

Expense Tracker