Computer Programming: Python

Premanand S

Assistant Professor,
School of Electronics Engineering,
Vellore Institute of Technology, Chennai

premanand.s@vit.ac.in

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- No Phone
- Notebook
- Attendance mandatory 75%

Course

- Subject name: Computer Programming: Python
- Subject code: BCSE101E
- Class ID: CH2024250103324 / CH2024250103323
- Slot: L11+L12+L29+L30 TD1
- Credit: 2 + 1

Module 1: Introduction to Problem Solving

- Problem Solving: Definition and Steps
- Problem Analysis Chart (PAC), Interactivity Chart (IC), Input Process Output (IPO) chart, Coupling Diagram, and Data Dictionary
- Developing an Algorithm
- Flowchart
- Pseudocode

Module 2: Python Programming Fundamentals

- Introduction to Python
- Interactive and Script mode
- Indentation
- Comments
- Variables
- Reserved words
- Data Types
- Operators and Precedence
- Expressions Built-in functions Importing from Packages

Module 3: Control Structures

- Decision making and Branching
- If, if – else, nested if, multi-way if-elif statements
- Looping - While loop, For loop, else clauses in the loop, Nested loop
- Break, Continue, and Pass Statements

Module 4: Collections

- Lists: Create, Access, Slicing, Negative indices
- List methods
- List comprehensions
- Tuples: Create, Indexing, Slicing, Operation on tuples
- Dictionary: Create, add, and replace values, operations on dictionary
- Sets: Creation and operations

Module 5: Strings and Regular Expressions

- Strings: Comparison, Formatting, Slicing, Splitting, Stripping
- Regular Expressions: Matching, Search and Replace
- Patterns

Module 6: Function and Files

- Functions – Parameters and Arguments: Positional arguments, Keyword arguments, Parameters with default values
- Local and Global scope of variables
- Functions with Arbitrary arguments
- Recursive Functions
- Lambda function
- Files: Create, Open, Read, Write, Append and Close – tell and seek methods

Module 7: Modules and Packages

- Built-in modules
- User-defined modules
- Overview of Numpy libraries
- Overview of Pandas libraries

Some basic questions, before getting our hands dirty

- What is Python?
- What are the key features of Python that make it a popular programming language?
- What are some popular applications or platforms built using Python?
- In what fields or industries is Python commonly used, and what are some specific applications?
- What are the benefits of learning Python for your future career?
- Why do many data scientists and AI developers prefer Python?
- Where can you get help if you are stuck with a Python problem?
- What are the companies that use Python?

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Platform to work

Google Collaboratory

Anaconda Navigator - Jupyter Notebook

Thonny IDE

Pydroid3, Coding Python - Android Apps

VPropel

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How to install different platforms?

Python IDLE, Anaconda Navigator, Google Colab, Thonny IDE

Learn about VPropel by clicking!

How to engage with Python?

- Many competitions, hackathon – Globally
- Learn and Earn (Out of University)
    - Writing – Blogathon – Analytics Vidya
    - Teach – YouTube
    - Professionalism – Udemy, freecodecamp
    - Networking – LinkedIn, Twitter
    - Participate & Practice - Kaggle
    - Freelancing
    - Website & GitHub repositories

Some reasons to study Python,

- Ample of Opportunities in Python
- Good Remuneration
- Popular Among Start-ups
- Quick to Learn
- Learn for Free
- High Demand
- It is Highly Adaptable
- Python Makes "OUT OF THE BOX" Possible

Checkpoints to evaluate,

- In-lab Practice Session (IPS) - 10
- Periodic Assessment Test (PAT) - 4 - 10marks
- Continuous Assessment Test (CAT) -2 - 50marks
- Final Assessment Test (FAT) - 2 - 50marks

Some BEST source,

- Python for Everybody
- Python for Beginners - Code with Harry

To upskill in Python,

- HackerRank
- LeetCode
- Codingame
- Sololearn
- Codewars

mail me: er.anandprem@gmail.com / premanand.s@vit.ac.in
ring me: +91 73586 79961
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Learning gives Creativity,
Creativity leads to Thinking,
Thinking provides Knowledge,
and
Knowledge makes you Great
- Dr APJ Abdul Kalam