[22MEPS14]   Coding For Innovators

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Objectives:
- To learn and express creativity using coding skills.
- To gain knowledge of Python programming with hands-on experience.
- To demonstrate a problem solving using OOPs concepts.
- To practise full stack development using cloud platform.
- To learn basics of Linux by familiarizing the concepts of management and file structure.

UNIT I   Programming Paradigms   10

Need for programming - Outside box thinking to solve problems - Need for algorithms and data structures - Flowcharts & Algorithms - Memory Allocation - Conditions and loops - Creating effective functions - Case studies - Visual Programming - Types of programming languages & paradigms - Getting started with development - Build & test an algorithm - best practices

UNIT II   Basic of Programing   10

Introduction to Python: statements, variables, functions, operators, modules, conditional statements, loop statements, Lists: list operations, traversing a list, slicing a list - Text Handling: Strings, string functions, conversion functions, Dictionaries - File Operations: File open, close, read, copy, word frequency, creating word histograms from text file.

UNIT III   OOPS   5

OOPS- Why OOPS- verticals- implementation in python - Classes and Objects, Methods, Constructors and Destructors, Inheritance, Polymorphism, Abstraction, Encapsulation.

UNIT IV   Software Development to Delivery   10

Software Engineering - Life Cycle (Tools), Agile Methodologies - Framework - Why Frameworks - Software Testing(Tool Based) - Data Structures - Database Management System - A case study to experiment from Development to Deployment(D2D) - Source code management and version control - GitHub - GitHub Actions - GitBash - Continuous Integration - Platform as service - Heroku - Build Packs- AWS- Anaconda

UNIT V   Operating Systems   10

Introduction to Linux - Process Management - Process Scheduling - Memory Management - Storage Management - System calls - File System Structure - Multithreading - Multicore Programming - Deadlock Handling - Disk Structure - Disk Management - Dockers - Kubernetes

TOTAL: 45 PERIODS

Course Outcomes
At the end of the course, learners will be able to:

- Understand the aspects of programming protocols
- Develop optimized code for real-world problems
- Build full-stack development to deployment

- Demonstrate problem solving and continuous development

Text Books

1. Zed A. Shaw, "Learn Python 3 the Hard Way", 3rd edition, Addison-Wesley Professional, 2013.
2. Silberschatz Abraham, "Operating System Concepts", 9th edition, John Wiley & Sons Inc (Sea) Pte Ltd, 2016.
3. Paul Barry, "Head-First Python", 2nd edition, O'Reilly Media, Inc, 2016.
4. Anton Spraul, "Think Like a Programmer", 1st edition, No Starch Press, 2012.

References

1. https://www.geeksforgeeks.org/python-programming-language/
2. https://www.guru99.com/python-tutorials.html
3. https://www.tutorialspoint.com/python/python_tutorial.pdf