

Programming Foundations

Session No#	Session mode	Session Details	Week-Day	Duration Hrs
1	EL-Async	IU 1: Programming Primer • Key programming terminologies and programming • Paradigms • Problem-solving skills, Computational Thinking • Software behavioural design IU 2: Programming Basics - Part 1 • Data types, Variables • Implement conditional statements (if, else) in programs. Use loops for repetitive tasks. Complete MCQ	Before Sync session	2
2	FC -Sync	IU 1: Programming Primer Familiarization with programming terms, techniques, and paradigms IU 2: Programming Basics - Part 1 Develop an algorithm and outline the solution Explain Assignment 1 & 2	1-1	3
3	AS -Sync	Complete the assignment and submit Assignment 1 - Algorithm Development to outline the solution	1-2	3
4	EL-Async	IU 3: Programming Basics - Part 2 • Understand the importance of modular programming. • Explore basic data structures like lists and dictionaries. IU 4: Object Oriented Programming • Principles of OOP - Encapsulation, Abstraction, Polymorphism, Inheritance, Interfaces Object oriented design and development Complete MCQ	Before Sync session	2
5	FC- Sync	IU 3: Programming Basics - Part 2 Manipulation of variables, data structures, and application of conditional statements and loops Modular programming IU 4: Object Oriented Programming	2-3	3

		Familiarization with Object Oriented Programming principles Explain assignment 2		
6	AS- Sync	Complete the assignment and submit Assignment 2 - Problem-solving using procedural programming paradigms	2-4	3
7	EL-Async	IU 5: Testing & Documentation Different types of testing (unit, integration, etc.) and its importance Complete MCQ	Before Sync session	2
8	FC-Sync	IU 5: Testing & Documentation Familiarization with Object Oriented Programming Unit testing Explain assignment 3	3-5	3
9	AS -Sync	Complete the assignment and submit Assignment 3 - Problem-solving using Object Oriented Programming Paradigms and Unit testing	3-6	3
10	PM-Sync	Project Mentoring: Explain the project tasks 1. Analyse a given business requirement, derive functional specifications, and implement software components using appropriate programming paradigms. 2. Design and develop a modular software system incorporating object-oriented principles, incorporating automated unit tests..	4-7	3
11	PI-Async	Complete project tasks 1	Before Sync session	4
12	PI-Async	Complete project task 2	Before Sync session	4
13	PM-Sync	3. Conduct performance profiling and optimization of existing software to enhance efficiency and maintainability, supported by code-level documentation.	4-8	3
14	PI-Async	Complete project task 3 Prepare Project Report and submit	Before Assessment	2
15	SA-Sync	Summative Assessment (Each learner)	5-9	30 min

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