Certificate Program In Software Design

Duration – 80 Hours

Program Description

This program equips learners with the foundational and advanced principles of software design, independent of any specific domain. Participants will learn how to design scalable, maintainable, and efficient software systems using established design principles, patterns, and methodologies. The program emphasizes real-world applicability through hands-on exercises and case studies.

Learning Goals

- Understand core concepts of software design and architecture fundamentals
- Apply design principles (SOLID, DRY, KISS, etc.) in real projects
- Gain expertise in software design patterns and their practical applications
- Learn object-oriented, functional, and modular design approaches
- Explore modern design considerations for cloud, microservices, and APIs
- Apply UML, ERD, and modeling techniques for clear communication
- Design software that balances scalability, performance, and maintainability
- Demonstrate learning through a capstone project

Course Topics

- Introduction to Software Design Principles
- Object-Oriented & Functional Design Fundamentals
- UML Diagrams & Modeling Techniques
- Design Patterns (Creational, Structural, Behavioral)
- Modular Design & Reusability
- API Design & Best Practices
- Designing for Cloud & Microservices
- Performance, Scalability, and Maintainability in Design
- Capstone Project: End-to-End Software Design for a Case Study