Course Code: 22UPCSC1E31 / 22UPCSC2E31   **Credits: 4**

Solution Architecture

Course Objectives:

- To get familiar with the evolution of solution architecture
- To outline the functionalities of Solution Architecture Design
- To assess the Performance Considerations of Solution Architecture
- To analyze the Architectural Reliability Considerations
- To identify the design principles for cost optimization

UNIT I
Evolution of solution architecture - The benefits of solution architecture - Solution architecture in the public cloud - Solution Architects in an Organization - Types of solution architect role - Understanding a solution architect's responsibilities - Attributes of the Solution Architecture - Scalability and elasticity - Security and compliance - Cost optimization and budget

UNIT II
Principles of Solution Architecture Design - Scaling workload - Building resilient architecture - Design for performance - Using replaceable resources - Cloud Migration and Hybrid Cloud Architecture Design - Benefits of cloud-native architecture - Creating a cloud migration strategy - Steps for cloud migration - Creating a hybrid cloud architecture - Designing a cloud-native architecture

UNIT III
Solution Architecture Design Patterns - Building an n-tier layered architecture - Creating multi-tenant SaaS-based architecture - Building stateless and stateful architecture designs - Understanding SOA - Performance Considerations - Design principles for architecture performance - Technology selection for performance optimization - Managing performance monitoring

UNIT IV
Architectural Reliability Considerations - Design principles for architectural reliability - Technology selection for architecture reliability - Improving

reliability with the cloud - Operational Excellence Considerations - Designing principles for operational excellence - Selecting technologies for operational excellence - Achieving operational excellence in the public cloud

UNIT V

Cost Considerations - Design principles for cost optimization - Techniques for cost optimization - Cost optimization in the public cloud - Architecting Legacy Systems - Learning the challenges of legacy systems - Defining a strategy for system modernization - Looking at legacy system modernization techniques - Defining a cloud migration strategy for legacy systems

Text Books:

1. Saurabh Shrivastava and Neelanjali Srivastav, " Solutions Architect's Handbook", Packt Publishing, 2020

Reference Books:

1. Alan McSweeney , "Introduction to Solution Architecture", Kindle Edition, 2019
2. Bernard, Scott A. An introduction to holistic enterprise architecture. Author House, 2020.

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Comprehend the types, benefits and attributes of solution architecture	
CO2	Assess the cloud architecture and create hybrid cloud architecture	K1-K6
CO3	Analyze the design patterns for solution architecture	
CO4	Understand Architecture Reliability and Operational Excellence	
CO5	Optimize the cost in cloud and assess the legacy system	

K1- Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	S	S	S	S	S	S	S	S	S	M	S	S
CO2	S	S	S	S	S	S	S	S	S	S	M	S
CO3	S	M	S	S	S	S	M	S	S	S	S	S
CO4	S	S	S	M	S	S	S	S	S	S	M	S
CO5	S	S	S	S	M	S	S	S	S	M	M	S

S- Strong; M-Medium; L-Low