PART 1: Architecting and Designing Integration Solutions

Module 1: Introducing Integration Solution Architectures

- Describe the objectives of enterprise integration solution
- Summarize how to architect for success with Anypoint Platform
- Describe how integration solutions using Anypoint Platform are documented
- Start using an architecture template for the course case study

Module 2: Identifying Anypoint Platform Components and Capabilities

- Identify and document the overall design intentions of Anypoint Platform
- Summarize Anypoint Platform capabilities and high-level components
- Identify and distinguish between Anypoint Platform infrastructure and deployment options
- Choose Anypoint Platform components to be used to meet the functional and non-functional requirements of an integration use case

Module 3: Designing Integration Solutions using Mule Applications

- Explain the typical uses of Mule components (including connectors, transformers, routers, and error handlers) in Mule applications
- Describe the differences between Mule 4 and Mule 3 applications
- Choose appropriate Mule application components to design an integration use case
- Summarize how class loading isolation is implemented in Mule runtimes

Module 4: Choosing Appropriate Mule 4 Event Processing Models

- Distinguish between Mule 4 blocking, non-blocking, parallel, and reactive event processing options
- Identify the event processing models used in various Mule 4 scopes and components
- Describe Mule 4 streaming options and behaviors
- Describe the event processing options for JMS and VM connectors
- Select appropriate event processing for an integration use case
- Design batch, near real-time, and real-time data synchronization integration use cases

Module 5: Choosing Appropriate Message Transformation and Routing Patterns

- Describe reusable ways to transform and process events
- Explain how to simplify and decouple complex data mappings using common data models
- Design transformations between data models
- Choose the best event transformation, data validation, and event routing patterns to an integration use case

Module 6: Designing Mule Application Testing Strategies

- Describe possible testing strategies for Mule applications
- Document a testing strategy for an integration use case
- Define the types of MUnit tests required for an integration use case and document the code coverage
- Design integration and performance tests for Mule applications

PART 2: Operationalizing Integration Solutions

Module 7: Choosing and Developing a Deployment Strategy

- Distinguish between various Anypoint Platform runtime service models
- Distinguish between various Anypoint Platform deployment models
- Select the best deployment and runtime service options for an integration use case

Module 8: Designing with Appropriate State Preservation and Management Options

- Decide the best way to store Mule application state in persistent or non-persistent storage
- Explain how to store Mule application state using Object Store v2
- Decide when to manage storage of Mule application state using persistent VM queues
- Decide when to use Mule application provided caches to store Mule application state
- Design an integration solution to avoid duplicate processing of previous records using Mule connector watermarks
- Design the best storage and state management options for an integration use case

Module 9: Designing Effective Logging and Monitoring

- Describe auditing and logging options for Mule applications
- Design logging strategies for Mule applications
- Choose logging policies for Mule application log files
- Describe integration options with third-party log management systems
- Specify Anypoint Platform monitoring, alerting, notification, visualization, and reporting options for APIs and integration solutions
- Choose the best monitoring, alerting, and notification options for an integration use case

Module 10: Designing an Efficient and Automated Software Development Lifecycle

- Design to manage property files for Mule applications across different environments
- Design to manage Anypoint Platform environments for Mule application deployments
- Describe how to implement continuous integration and continuous delivery (CI/CD) for an organization
- Describe how to automate deployment and management with Anypoint Platform

PART 3: Designing Strategies to Meet Non-Functional Requirements

Module 11: Designing Transaction Management in Mule Applications

- Identify why and when transactions are supported in Mule applications
- Identify resources that participate in transactions in Mule applications
- Describe how to manage a transaction using a transaction manager or the Saga pattern
- Describe how to demarcate transaction boundaries in Mule applications
- Choose the correct transaction type based on the participating resources

Module 12: Designing for Reliability Goals

- Identify and distinguish between reliability patterns for Mule application and their deployments
- Design to effectively balance competing non-functional requirements

- Clarify and validate reliability goals for an integration use case
- Design Mule applications and their deployments to meet reliability goals
- Design to effectively balance reliability goals with other project goals and requirements

Module 13: Designing for High Availability Goals

- Identify various types of high availability (HA) goals for Mule applications
- Identify ways to achieve HA in CloudHub and on-premises deployments
- Identify HA aware connectors and their design tradeoffs
- Describe how clustering and load balancing work in CloudHub and on-premises deployments
- Design to effectively balance HA goals with other project goals and requirements

Module 14: Optimizing the Performance of Deployed Mule Applications

- Clarify performance goals for Mule applications
- Identify the need for performance optimization and associated tradeoffs
- Describe ways to search for and locate performance bottlenecks
- Describe how to design, architect, design, and implement for performance
- Describe ways to measure performance
- Describe methods and best practices to performance tune Mule applications and Mule runtimes
- Design to effectively balance performance goals with reliability and HA goals

Module 15: Designing Secure Mule Applications and Deployments

- Describe Anypoint Platform security concepts and options
- Explain how to secure APIs on Anypoint Platform
- Differentiate between MuleSoft and customer responsibilities related to Anypoint Platform security
- Evaluate security risks for Mule applications
- Describe how to secure Mule application properties and data in transit

Module 16: Designing Secure Network Communications between Mule Applications

- Describe Anypoint Platform network security options and architectures
- Identify MuleSoft-owned and customer-owned roles and responsibilities related to Anypoint Platform network security
- Describe how to secure Mule applications using Java key stores
- Design TLS communication and other network security options for an integration use case
- Properly size an Anypoint VPC to support deployment of all expected Mule applications

Module 17: Putting It All Together

- Review the essential steps for designing an integration solution using Anypoint Platform and Mule applications
- Carry out all the steps to design an integration solution for an integration use case