

AWS Certified Data Engineer – Associate

Course Outline

Day 1

- **Module 1: Introduction to Data Engineering on AWS**
 - Overview of AWS Data Services
 - Key Concepts in Data Engineering
 - AWS Well-Architected Framework for Data
- **Module 2: Data Ingestion**
 - AWS Data Ingestion Services (e.g., Kinesis, S3)
 - Real-time Data Streaming with Amazon Kinesis
 - Batch Data Ingestion with AWS Glue
 - **Hands-on Lab:** Implementing Data Ingestion Pipelines
- **Module 3: Data Storage**
 - Storage Options on AWS (S3, Redshift, RDS, DynamoDB)
 - Data Lake Architecture with Amazon S3
 - Best Practices for Data Storage and Security
 - **Hands-on Lab:** Setting Up a Data Lake on AWS

Day 2

- **Module 4: Data Processing**
 - ETL and ELT Processes
 - Using AWS Glue for ETL
 - Real-time Processing with AWS Lambda and Kinesis
 - **Hands-on Lab:** Building a Data Processing Pipeline
- **Module 5: Data Analysis and Visualization**
 - Data Warehousing with Amazon Redshift
 - Analyzing Data with Amazon Athena
 - Visualization with Amazon QuickSight
 - **Hands-on Lab:** Data Analysis and Visualization with AWS Tools
- **Module 6: Machine Learning Integration**
 - Introduction to Machine Learning on AWS
 - Integrating Amazon SageMaker with Data Pipelines
 - **Hands-on Lab:** Building a Simple ML Model with Amazon SageMaker

Day 3

- **Module 7: Data Security and Governance**
 - Data Encryption and Key Management
 - Access Control with IAM and Lake Formation

- Data Governance Best Practices
- **Hands-on Lab:** Implementing Data Security and Governance
- **Module 8: Monitoring and Optimization**
 - Monitoring Data Workloads with CloudWatch and AWS X-Ray
 - Performance Optimization Techniques
 - Cost Management and Optimization
 - **Hands-on Lab:** Monitoring and Optimizing a Data Pipeline
- **Module 9: Capstone Project**
 - End-to-End Data Engineering Project
 - Building a Complete Data Pipeline from Ingestion to Visualization
 - Applying Best Practices and Optimization Techniques
 - Presentation and Review of the Capstone Project