Semester Program

Academic Discipline

AWS Cloud Foundations

GENERAL OBJECTIVE:
Understand and apply the concepts of cloud computing and its infrastructure, main services and usage

SPECIFIC OBJECTIVES:
a) Define and apply cloud computing principles.
b) Identify and create a cloud computing environment, using scalability and high availability principles.
c) Understand and identify reliable, secure, efficient and cost-effective cloud system architectures.

PROGRAM:
1. Welcome Class
Professor and student introductions

2. Cloud concepts overview
Cloud computing systems: IaaS, PaaS, SaaS
Cloud types: private, public and hybrid clouds
Cloud computing advantages
AWS Cloud Adoption Framework
Knowledge Check 1

3. Cloud economics and billing
AWS pricing fundamentals
Total Cost of Ownership
AWS Pricing Calculator
Knowledge Check 2

4. AWS global infrastructure overview
AWS service categories
AWS Cloud console
Knowledge Check 3

5. Cloud security
AWS shared responsibility model
Identity and Access Management

Securing an account
Securing data
AWS compliance programs

6. Security demonstration
Security Lab
Knowledge check 4

7. Cloud networking
Basics of cloud networking
Virtual Private Cloud (VPC)
Design a basic VPC architecture
Cloud routing and DNS service.
Routing types.
Content Delivery Network (CDN)

8. Networking demonstration
Networking Lab
Knowledge check 5

9. Cloud compute services overview
Container compute services
Serverless compute services

10. Compute demonstration
Compute Lab
Serverless Lab

11. Infrastructure provisioning and configuration
Application deployment demonstration
Application deployment Lab
Knowledge check 6

12. Cloud storage
Types of cloud storage
Amazon S2, EBS, EFS and Glacier

13. Storage demonstration
Storage Lab
Knowledge check 7

14. Cloud databases
Amazon Relational Database Service
Non-relational databases

15. Database demonstration
Database Lab
Knowledge check 8

16. Cloud architecture
AWS Well-architected Framework
Pillars and design principles
Operational excellence pillar
Security pillar
Case study

17. Reliability pillar
Performance efficiency pillar
Cost optimization pillar
Case study
Knowledge check 9

18. Elastic Load Balancing
Cloud Autoscaling
Cloud Monitoring

19. Load balancing and autoscaling demonstration
Autoscaling Lab
Knowledge check 10

20. Final assessment
Course closure and feedback