Course Code		Course Title		L	T	P	C
BCSE355L		**AWS Solutions Architect**		3	0	0	3
Pre-requisite			Syllabus version				
			1.0				

Course Objectives

1. Understand advanced AWS Cloud concepts, services, and architectural principles.
2. Gain expertise in designing and implementing highly available, scalable, and fault-tolerant AWS solutions.
3. Learn best practices for security, compliance, and cost optimization in AWS architecture.
4. Develop proficiency in selecting appropriate AWS services and resources to meet specific business requirements.
5. Acquire skills in designing and deploying multi-tier applications on AWS infrastructure.

Course Outcomes

1. Demonstrate an in-depth understanding of AWS Cloud architecture, services, and design patterns.
2. Apply security and compliance measures effectively in AWS architectures using encryption, access controls, and monitoring.
3. Optimize cost and performance by selecting appropriate AWS services and utilizing cost-effective resource management strategies.
4. Configure and manage advanced AWS networking features, storage solutions, database technologies, and compute resources.

Module:1	AWS Cloud Foundations & IAM	3 hours
	Introduction to Cloud Computing, Overview of AWS Global Infrastructure, AWS Shared Responsibility Model, AWS Identity and Access Management (IAM), IAM Users, Groups, and Policies, IAM Roles, IAM Best Practices	
Module:2	AWS Compute & Storage Services	6 hours
	AWS Compute Services, Amazon EC2 (Elastic Compute Cloud), EC2 Instance Types, EC2 Pricing Models, EC2 Instance Lifecycle, Auto Scaling, Elastic Load Balancing, AWS Storage Services, Amazon S3 (Simple Storage Service), S3 Storage Classes, S3 Lifecycle Policies, Amazon EBS (Elastic Block Store), Amazon Glacier, Amazon EFS (Elastic File System)	
Module:3	AWS Networking and Content Delivery	6 hours
	AWS Networking and Content Delivery, Amazon VPC (Virtual Private Cloud), VPC Subnets, Route Tables, Security Groups, VPC Peering, AWS Direct Connect, Amazon CloudFront	
Module:4	AWS Database Services	6 hours

AWS Database ServiceS, Amazon RDS (Relational Database Service), RDS Multi-AZ Deployments, RDS Read Replicas, Amazon Aurora, Amazon DynamoDB, DynamoDB Streams		
Module:5	**AWS Management Tools & Cost Management**	**4 hours**
AWS Management Tools, AWS CloudWatch, AWS CloudTrail, AWS Config, AWS Systems Manager, AWS Cost Management, AWS Free Tier, AWS Billing and Account Management, AWS Budgets, AWS Trusted Advisor		
Module:6	**AWS Security and Compliance**	**4 hours**
AWS Security and Compliance, AWS Shared Responsibility Model, AWS Key Management Service (KMS), AWS WAF (Web Application Firewall), AWS Shield, AWS Security Best Practices		
Module:7	**AWS Application Integration & Architectural Best Practices**	**8 hours**
AWS Application Integration, Amazon SQS (Simple Queue Service), Amazon SNS (Simple Notification Service), Amazon SWF (Simple Workflow Service), AWS Step Functions, AWS Well-Architected Framework, Design Principles for AWS Cloud Architectures, Scalability and Elasticity, High Availability and Fault Tolerance, Security, Cost Optimization.		
Module:8	**AWS Migration and Hybrid Architecture**	**8 hours**
AWS Migration and Hybrid Architecture, AWS Database Migration Service (DMS), AWS Server Migration Service (SMS), AWS Snowball, AWS Snowball Edge, AWS Snowmobile		
	Total Lecture hours:	**45 hours**

Text Book(s)	
1.	Saurabh Shrivastava, Neelanjali Srivastav, Alberto Artasanchez, "AWS for Solutions Architects - Second Edition: The definitive guide to AWS Solutions Architecture for migrating to, building, scaling, and succeeding in the cloud", 28 April 2023, Packt Publishing
2.	Alberto Artasanchez, "AWS for Solutions Architects: Design your cloud infrastructure by implementing DevOps, containers, and Amazon Web Services", 19 February 2021, Packt Publishing
Reference	
1.	https://github.com/srijithsrk/AWS/blob/master/AWS-Certified-Solutions-Architect-Official-Study-Guide.pdf.pdf
2.	https://docs.aws.amazon.com/whitepapers/latest/aws-overview/introduction.html?did=wp_card&trk=wp_card
3.	https://docs.aws.amazon.com/whitepapers/latest/security-design-of-aws-nitro-system/security-design-of-aws-nitro-system.html?did=wp_card&trk=wp_card
4.	https://docs.aws.amazon.com/whitepapers/latest/aws-overview/database.html

5.	https://docs.aws.amazon.com/whitepapers/latest/aws-overview/networking-services.html
6.	https://docs.aws.amazon.com/cost-management/latest/userguide/what-is-costmanagement.html
7.	https://docs.aws.amazon.com/IAM/latest/UserGuide/introduction.html
8.	https://docs.aws.amazon.com/whitepapers/latest/hybrid-cloud-with-aws/hybrid-cloud-use-cases.html
9.	https://docs.aws.amazon.com/whitepapers/latest/aws-overview/compute-services.html
10.	https://docs.aws.amazon.com/whitepapers/latest/aws-overview/storage-services.html

Mode of Evaluation: CAT, Quiz and FAT			
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