

	<b>COURSE FILE (COURSE PLAN)</b>	Year : 2023-24
		Sem: V

#### **Faculty Details**

**Name of the Faculty : Dr. S. Prabakeran**

**Designation : Assistant Professor**

**Department : Networking and Communications**

#### ***Course Details***

Name of the Program : B.Tech – CSE

Batch : 2021-2025

Branch : CSE

Semester : V

Title of the Course : AWS Solution Architect

Course Code : 18CSE308T

Core / Elective Course : Elective

No. of Students : 62

	<b>COURSE FILE (COURSE PLAN)</b>	Year : 2023-24
		Sem: V

Course designed by													
Program outcomes	1	2	3	4	5	6	7	8	9	10	11	12	
	√	√		√	√								
Category	GENERAL  (G)			BASIC SCIEN CES  (B)	ENGINEERING SCIENCES AND TECHNICAL ART  (E)								
BROAD AREA (for P only)	Programming		Web System		Data base		Networking		Human Computer Interaction				

	<b>COURSE FILE (COURSE PLAN)</b>	Year : 2023-24
		Sem: V

## References

1. <https://docs.aws.amazon.com/>

### A. Course Description

This course elaborates on the concepts of Amazon web services at the architectural level. This course bridges the gap between the industry and academics. This course is designed based on the industry need and students will get in line with that.

### B. Prerequisites

Nil

**Nature of the Course :** Required Course

### Goals of the Course

#### A. Course outcome of the course

After Successful completion of the course the students able to

CO1: Demonstrate on Computing instances and database service in AWS

CO2: Interpret Management and Governance services

CO3: Implement Networking and Cloud front Content Delivery in AWS

CO4: Compare different Storage systems and Analytics services in AWS

CO5: Examine Security measures and compliance in AWS

### Outcomes provided by the course in relation to generic program learning outcomes:

This course supports the following four students outcomes

**Outcome 1:** Engineering knowledge

**Outcome 2:** Problem Analysis

**Outcome 4:** Analysis, design, research

**Outcome 5:** Modern Tool Usage

	<b>COURSE FILE (COURSE PLAN)</b>	Year : 2023-24
		Sem: V

## List of Topics to be covered

### Unit 1:

Compute: Amazon EC2, AWS Elastic Beanstalk, Amazon Elastic Container Service (Amazon ECS), Amazon Elastic Kubernetes Service (Amazon EKS), Elastic Load Balancing , AWS Fargate, AWS Lambda, AWS Billing and Cost Management: AWS Budgets, Cost Explorer, Database: Amazon Aurora , Amazon DynamoDB, Amazon ElastiCache, Amazon RDS , Amazon Redshift

### Unit 2:

Management and Governance: AWS Auto Scaling , AWS Backup, AWS CloudFormation, AWS CloudTrail, Amazon CloudWatch, AWS Config, Amazon EventBridge (Amazon CloudWatch Events), AWS Organizations, AWS Resource Access Manager, AWS Systems Manager, AWS Trusted Advisor, Application Integration: Amazon Simple Notification Service (Amazon SNS), Amazon Simple Queue Service (Amazon SQS)

### Unit 3:

Migration and Transfer: AWS Database Migration Service (AWS DMS), AWS DataSync, AWS Migration Hub, AWS Server Migration Service (AWS SMS), AWS Snowball, AWS Transfer Family, Networking and Content Delivery: Amazon API Gateway, Amazon CloudFront, AWS Direct Connect, AWS Global Accelerator, Amazon Route 53, AWS Transit Gateway, Amazon VPC (and associated features)

### Unit 4:

Analytics: Amazon Athena, Amazon Elasticsearch Service (Amazon ES), Amazon EMR, AWS Glue, Amazon Kinesis, Amazon QuickSight, Storage: Amazon Elastic Block Store (Amazon EBS), Amazon Elastic File System (Amazon EFS), Amazon FSx, Amazon S3, Amazon S3 Glacier, AWS Storage Gateway

### Unit 5:

Security, Identity, and Compliance: AWS Certificate Manager (ACM), AWS Directory Service, Amazon GuardDuty, AWS Identity and Access Management (IAM) , Amazon Inspector, AWS Key Management Service (AWS KMS), Amazon Macie, AWS Secrets Manager, AWS Shield, AWS Single Sign-On, AWS WAF

## Brief Course Plan

The course is planned to cover the contents through coverage of Units by lectures, solving exercises and numerical problems.

	<b>COURSE FILE (COURSE PLAN)</b>	Year : 2023-24
		Sem: V

### 3. METHOD OF EVALUATION

CLA1, CLA2, CLA3

CLA4- AWS Academy Certificate & Badge, Mini Project

University Examination

### 4. List out any new topic(s) or any innovation you would like to introduce in teaching the Course in this Semester.

NIL

**Mapping of Course outcome with outcomes provided by the course in relation to generic program learning outcomes**

Course outcome \ Outcomes	PL O1	PL O2	PL O3	PL O4	PL O5	PL O6	PL O7	PL O8	PL O9	PL O10	PLO 11	PLO12
1	2				3							
2	3											
3	2			3								
4		3										
5				3								

**The Schedule for the whole Course / Subject is:**

S. No.	Description	Total No. of Periods
1.	Amazon EC2 Instances and Elastic Services	9

	<b>COURSE FILE (COURSE PLAN)</b>	Year : 2023-24
		Sem: V

2.	AWS Cloud and Backup Services	9
3.	AWS Migration Services	9
4.	AWS Elasticsearch Services	9
5.	AWS Security	9

Total No. of Instructional periods available for the course: 45 Periods

SI. No.	No. of Periods	Topics / Sub – Topics	Objectives	References (Text Book, Journal...)
1	1	Compute:Amazon EC2, AWS Elastic Beanstalk	CO1	REF 1
2	1	Amazon Elastic Container Service (Amazon ECS), Amazon Elastic Kubernetes Service (Amazon EKS)	CO1	REF 1
3	1	Elastic Load Balancing	CO1	REF 1
4	1	AWS Fargate, AWS Lambda	CO1	REF 1
5	1	AWS Billing and Cost Management: AWS Budgets	CO1	REF 1
6	1	Cost Explorer	CO1	REF 1

	<b>COURSE FILE (COURSE PLAN)</b>	Year : 2023-24
		Sem: V

7	1	Database: Amazon Aurora	CO1	REF 1
8	1	Amazon DynamoDB, Amazon ElastiCache	CO1	REF 1
9	1	Amazon RDS, Amazon Redshift	CO1	REF 1
10	1	Management and Governance: AWS Auto Scaling, AWS Backup	CO2	REF 1
11	1	AWS CloudFormation, AWS CloudTrail	CO2	REF 1
12	1	Amazon CloudWatch, AWS Config	CO2	REF 1
13	1	Amazon EventBridge (Amazon CloudWatch Events), AWS Organizations	CO2	REF 1
14	1	AWS Resource Access Manager	CO2	REF 1
15	1	AWS Systems Manager	CO2	REF 1
16	1	AWS Trusted Advisor	CO2	REF 1
17	1	Application Integration: Amazon Simple Notification Service (Amazon SNS)	CO2	REF 1
18	1	Amazon Simple Queue Service (Amazon SQS)	CO2	REF 1
19	1	Migration and Transfer: AWS Database Migration Service (AWS DMS), AWS DataSync	CO3	REF 1
20	1	AWS Migration Hub, AWS Server Migration Service (AWS SMS)	CO3	REF 1
21	1	AWS Snowball	CO3	REF 1

	<b>COURSE FILE (COURSE PLAN)</b>	Year : 2023-24
		Sem: V

22	1	AWS Transfer Family, Networking and Content Delivery: Amazon API Gateway	CO3	REF 1
23	1	Amazon CloudFront	CO3	REF 1
24	1	AWS Direct Connect	CO3	REF 1
25	1	AWS Global Accelerator	CO3	REF 1
26	1	Amazon Route 53	CO3	REF 1
27	1	AWS Transit Gateway, Amazon VPC (and associated features)	CO3	REF 1
28	1	Analytics: Amazon Athena, Amazon Elasticsearch Service (Amazon ES)	CO4	REF 1
29	1	Amazon EMR, AWS Glue	CO4	REF 1
30	1	Amazon Kinesis	CO4	REF 1
31	1	Amazon QuickSight, Storage: Amazon Elastic Block Store (Amazon EBS)	CO4	REF 1
32	1	Amazon Elastic File System (Amazon EFS)	CO4	REF 1
33	1	Amazon FSx	CO4	REF 1
34	1	Amazon S3	CO4	REF 1
35	1	Amazon S3 Glacier	CO4	REF 1
36	1	AWS Storage Gateway	CO4	REF 1



	<b>COURSE FILE (COURSE PLAN)</b>	Year : 2023-24
		Sem: V

37	1	Security, Identity, and Compliance: AWS Certificate Manager (ACM), AWS Directory Service	CO5	REF 1
38	1	Amazon GuardDuty, AWS Identity and Access Management (IAM)	CO5	REF 1
39	1	Amazon Inspector	CO5	REF 1
40	1	AWS Key Management Service (AWS KMS)	CO5	REF 1
41	1	Amazon Macie	CO5	REF 1
42	1	AWS Secrets Manager	CO5	REF 1
43	1	AWS Shield	CO5	REF 1
44	1	AWS Single Sign-On	CO5	REF 1
45	1	AWS WAF	CO5	REF 1

#### COURSE OUTCOME:

On completion of unit 1 the student shall be able to

- Understand the objectives, functions and roles of Amazon Web Services
- Understand the needs of AWS Budgets and Cost explorer
- Understand the objectives of AWS RDS and Redshift

On completion of unit II the student shall be able to

- Understand the importance of AWS Cloud and Backup
- Explore various amazon web services for resource management
- Understand the importance of simple queue and notification services

On completion of unit III the student shall be able to

	<b>COURSE FILE (COURSE PLAN)</b>	Year : 2023-24
		Sem: V

- Understand the various AWS Migration Services
- Understand the importance of Amazon API gateway
- Explore various Amazon web services for data processing

On completion of unit IV the student shall be able to

- Understand the importance of Elastic search and elastic file system
- Explore various services like Fsx, S3, Glacier, Storage gateway

On completion of unit V the student shall be able to

- Understand the logic behind AWS Security
- Understand the importance of AWS Certificate Manager and IAM
- Explore various services like WAF, Single sign-on, Shield, Secret manager, Macie

	<b>COURSE FILE (COURSE PLAN)</b>	Year : 2023-24
		Sem: V

**SRM UNIVERSITY**

**DEPARTMENT OF NETWORKING AND COMMUNICATIONS**

**18CSE308T:AWS Solution Architect**

<b>Course outcome</b>	<b>Program Learning Outcome</b>	<b>Evidence</b>
CO1: Demonstrate on Computing instances and database service in AWS	1. Engineering knowledge 2. Modern Tool Usage	Cycle test 1, Project, Certification
CO2: Interpret Management and Governance services	1. Engineering knowledge	Cycle test 2, Project , Certification
CO3: Implement Networking and Cloud front Content Delivery in AWS	1. Engineering knowledge 2. Analysis, Design and Research	Cycle test 2, Project , Certification
CO4: Compare different Storage systems and Analytics services in AWS	1. Problem Analysis	Cycle test 3, Project, Certification
CO5: Examine Security measures and compliance in AWS	1. Analysis, Design and Research	Cycle test 3, Project, Certification