MIT | Academy of Engineering (An autonomous Institute Affilated to SPPU)	COURSE SYLLABUS	
SCHOOL OF COMPUTER ENGINEERING AND TECHNOLOGY	**W.E.F**	2022 - 2023
FINAL YEAR BACHELOR OF TECHNOLOGY COMPUTER ENGINEERING	**COURSE NAME**	Cloud Native DevOps
	COURSE CODE	CC08
	COURSE CREDITS	1
RELEASED DATE : 01/07/2022	**REVISION NO**	0.0

TEACHING SCHEME (HOURS/WEEK)		EXAMINATION SCHEME AND MARKS					
		THEORY			TUTORIAL/	PRESENTATION/	TOTAL
LECTURE	PRACTICAL	MSE	ESE	IA	PRACTICAL	DEMONSTRATION	
NIL	2	NIL	NIL	NIL	NIL	50	50

PRE-REQUISITE :

Knowledge of Cloud Computing Foundations & Cloud Native Application Development

COURSE OBJECTIVES :

CS463.CEO.1: To study SDLC Automation Process

CS463.CEO.2: To learn advanced facilities available for launching infrastructure with CloudFormation

CS463.CEO.3: To understand the container services available in AWS

CS463.CEO.4: To learn the policies and standards used in service automation of OS.

CS463.CEO.5: To develop the plan for High Availabilitya and Disaster Recovery

COURSE OUTCOMES :

The students after completion of the course will be able to,

CS341.CO.1: To develop the automated the SDLC Process

CS341.CO.2: To summerize the various advanced facilities available to launch infrastructure using CloudFormation

CS341.CO.3: To differenciate between AWS Elastic Container Service, AWS Fargate and AWS Elastic Kubernetes Service

CS341.CO.4: To implement the various policies and standards required for automation

CS341.CO.5: To design the systems with detailed plan for High Availability and Disaster Recovery

CS341.CO.6: To develop a infrastructure using Jenkins

PRACTICAL: Perform following experiments using Open source tools		
PRACTICAL NO.01	**SDLC Automation**	**4 HOURS**
Create a sample application to demonstrate the use of CodeCommit, CodeBuild, CodeDeploy		
PRACTICAL NO.02	**Advanced Configuration Management**	**2 HOURS**
Launch the infrastructure using AWS CloudFormation advanced features like cfn-init, cfn-signal		
PRACTICAL NO.03	**Elastic Container and Kubernetes Service**	**2 HOURS**
Using AWS ECS service, create a sample docker image for running a web application		
PRACTICAL NO.04	**AWS Policies and Standards**	**4 HOURS**
Implement password saving application using AWS Parameter Store		
PRACTICAL NO.05	**High Availability and Disaster Recovery**	**4 HOURS**
Implement Life cycle hook for AWS Autoscaling Groups		
PRACTICAL NO.06	**Terraform**	**4 HOURS**
Launching AWS infrastructure using Terraform		
PRACTICAL NO.07	**Project**	**4 HOURS**
Implement a demo Web Application to demonstrate the use of AWS Devops related services		

TEXT BOOK

1. Wittig, Michael, Andreas Wittig, and Ben Whaley. Amazon web services in action. Manning,, 2018.
2. Raheja, Yogesh, Giuseppe Borgese, and Nathaniel Felsen. Effective DevOps with AWS: Implement continuous delivery and integration in the AWS environment. Packt Publishing Ltd, 2018.
3. Vehent, Julien. Securing DevOps: security in the cloud. Simon and Schuster, 2018.
4. Vehent, Julien. Securing DevOps: security in the cloud. Simon and Schuster, 2018.
5. Sarkar, Aurobindo, and Amit Shah. Learning AWS: Design, build, and deploy responsive applications using AWS Cloud components. Packt Publishing Ltd, 2018.

REFERENCE BOOK

1. Kavis, Michael J. Architecting the cloud: design decisions for cloud computing service models (SaaS, PaaS, and IaaS). John Wiley Sons, 2014.
2. Vacca, John R., ed. Cloud computing security: foundations and challenges. CRC Press, 2016.
3. Furht, Borivoje, and Armando Escalante. Handbook of cloud computing. Vol. 3. New York: springer, 2010.